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## A Guide to the International Mine Action Standards 2010

GICHD

*Geneva International Centre for Humanitarian Demining (GICHD)*

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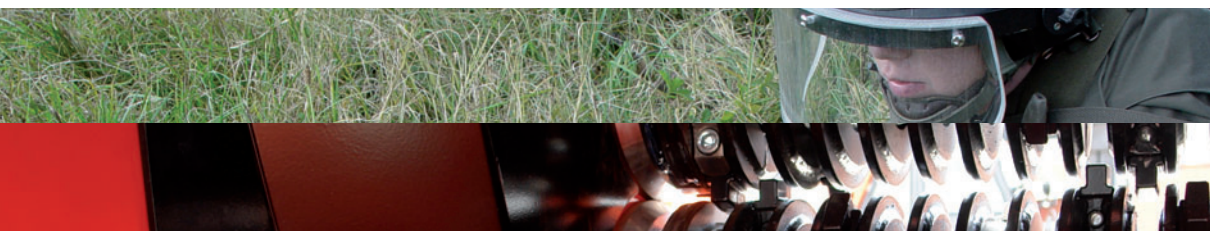
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# A Guide to International

# Mine Action Standards



## Edition 2010



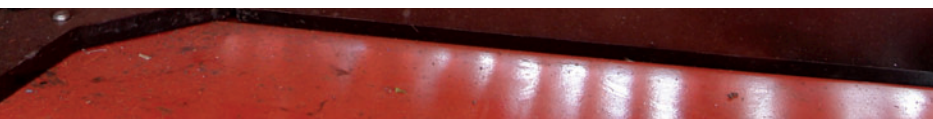
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The Geneva International Centre for Humanitarian Demining (GICHD) works for the elimination of anti-personnel mines and for the reduction of the humanitarian impact of other landmines and explosive remnants of war. To this end, the GICHD will, in partnership with others, provide operational assistance, create and disseminate knowledge, improve quality management and standards, and support instruments of international law, all aimed at increasing the performance and professionalism of mine action.

A Guide to International Mine Action Standards, GICHD, Geneva, October 2009.  
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**A GUIDE TO INTERNATIONAL MINE ACTION STANDARDS**

**NOVEMBER 2009**



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### WHAT IS NEW IN THIS GUIDE?

Developing International Mine Action Standards (IMAS) and supporting the mine action community by dissemination of knowledge and best practices are core mandates of the Geneva International Centre for Humanitarian Demining (GICHD). IMAS have been developed in coordination with the United Nations Mine Action Service (UNMAS) and the IMAS Review Board representing the Mine Action Community to improve safety, efficiency, quality and confidence in mine action.

This book is a revised and updated version of A Guide to the IMAS published by the GICHD in April 2006. Since then a number of new IMAS have been developed and many existing IMAS have been amended. The new IMAS are:

- > **IMAS 02.10** Guide for the establishment of a mine action programme
- > **IMAS 06.10** Management of training
- > **IMAS 08.20** Land release
- > **IMAS 08.21** Non-technical survey
- > **IMAS 08.22** Technical survey
- > **IMAS 09.11** Battle Area Clearance (BAC)
- > **IMAS 09.50** Mechanical demining
- > **IMAS 10.70** Protection of the environment
- > **IMAS 14.10** Guide for the evaluation of mine action interventions

## INTRODUCTION

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Among the existing IMAS, the following IMAS have been amended to various degrees:

- > **IMAS 01.10** Guide for the application of IMAS
- > **IMAS 04.10** Glossary of terms, definitions and abbreviations
- > **IMAS 07.30** Accreditation of demining organisations
- > **IMAS 07.40** Monitoring of demining organisations
- > **IMAS 09.10** Clearance requirements
- > **IMAS 09.20** Inspection of cleared land
- > **IMAS 09.30** Explosive Ordnance Disposals (EOD)
- > The whole series of 09.4 from 09.40 to 09.44 on mine detection dogs
- > **IMAS 10.20** Demining worksite safety
- > **IMAS 10.30** Personal Protective Equipment (PPE)

In addition, in 2007, a review of all standards was conducted to ensure they comply with Protocol V of the Convention on Certain Conventional Weapons (CCW). All IMAS have been amended accordingly and these changes have been reflected in this book.

In addition, a number of appendixes have been added to this book; they are:

- > **Appendix 3** About CEN Workshop Agreements
- > **Appendix 4** About National Mine Action Standards
- > **Appendix 5** IMAS training services

### THE IMAS AND THE AIM OF THE GUIDE

The IMAS — the International Mine Action Standards — are standards issued by the United Nations to guide the planning, implementation and management of mine action programmes. They have been developed to improve safety, quality and efficiency in mine action. Compliance with the IMAS ensures confidence among mine action stakeholders, in particular the end users of the released land, the affected community and the national mine action authority (NMAA). This is because IMAS incorporate concerns of all stakeholders, especially those of affected communities, and put a strong emphasis on the affected community's involvement in the mine action response.

The IMAS cover a wide range of issues from the operational testing of mine detection dogs to medical support for demining teams, from non-technical survey to the clearance requirement and from sampling of cleared land to the storage and transport of explosives. The IMAS also provide general information to the mine action community on existing regulations and treaties which affect mine action, particularly those referring to international humanitarian law, clearance requirements, hazard marking and general safety issues.

As the IMAS can sometimes appear complex, this handbook is intended to explain the purpose of the IMAS and the requirements of the different standards in a brief manner. It serves as a quick reference for mine action practitioners in the field or at management level to understand the core issues of IMAS. This guide presents the overall picture and intents; however, for the full detail about a specific IMAS, readers must consult a complete and up-to-date version of the relevant IMAS. This is available on the IMAS website [www.mineactionstandards.org](http://www.mineactionstandards.org), or the up-to-date IMAS CD ROM.

The GICHD and UNMAS also provide an online support to the mine action community. If you have a question or require clarification about an IMAS or part of it, please email your questions or suggestion by clicking on the “Suggestions & Questions” link on the homepage of the website, [www.mineactionstandards.org](http://www.mineactionstandards.org).

### WHAT IS MINE ACTION?

According to the IMAS, the term “mine action” refers to activities which, together, aim to reduce the social, economic and environmental impact of landmines and explosive remnants of war (ERW), including cluster munitions.

Mine action is made up of five pillars or main activities:

- > mine risk education
- > humanitarian demining (including survey, marking and clearance of mines and ERW)
- > victim assistance
- > advocacy to stigmatise the use of landmines and support a total ban on anti-personnel landmines
- > stockpile destruction

### WHAT ARE THE IMAS USED FOR?

The IMAS are a framework for the development of national mine action standards, which can more accurately reflect specific local realities and circumstances in a given country. National mine action standards should take account of the IMAS, but will not necessarily follow the IMAS in every respect. They will differ from country to country depending on the local situation. More information is available on developing national standards in Appendix 4.

However, where the United Nations (UN), or some other recognised international body, assumes the responsibilities and functions of a national mine action authority, the IMAS may be applied directly as the mine action standards.

IMAS are also the basis for developing legal contracts between donors and implementing organisations.

Each mine action organisation should produce and maintain what are called Standing Operating Procedures (SOPs). These are more detailed instructions for organisations and mine action centres on how to carry out specific operational tasks or activities safely and effectively.

SOPs should ensure that mine action standards are respected. They will differ from country to country.

### THE IMAS SERIES

To make it easier to find the standard you are looking for, the IMAS are broken down into a number of “series”, each of which deals with a different aspect of mine action. For example, Series 9 deals with mine and ERW clearance and Series 11 deals with stockpile destruction.

The different series are set out below.

- 01 | Guide for application of the IMAS
- 02 | Establishment of mine action programmes
- 03 | The procurement of mine action equipment
- 04 | Glossary of terms and definitions
- 05 | Management of information
- 06 | Mine action training
- 07 | Management, accreditation and monitoring
- 08 | Land release and survey
- 09 | Mine and ERW clearance
- 10 | Mine action safety and occupational health
- 11 | Mine stockpile destruction
- 12 | Mine risk education
- 13 | Support to victims
- 14 | Evaluation of mine action programmes

### THE STANDARDS

Within each series, there is usually more than one standard. For example, Series 9 on mine and ERW clearance contains 10 different standards. These deal with, respectively:

- > clearance requirements (Standard 09.10)
- > battle area clearance (Standard 09.11)
- > inspections of cleared land and sampling procedures (Standard 09.20)
- > explosive ordnance disposal (Standard 09.30)
- > the use of mine detection dogs (of which there are five different standards: 09.40 to 09.44)
- > mechanical demining

## INTRODUCTION

In addition, new standards, 09.51 - 09.52, related to mechanical demining are currently under development.

A full listing of the standards is set out in the diagram on page 15. The ones marked in grey have already been completed; those marked in red are either planned or still being drafted.

Each standard is explained in a separate section according to the series number. Each new section starts with a brief overview of the content of the series.

This guide covers the standards in Series 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12 and 14. The other series are still under development.

### HOW ARE THE IMAS DEVELOPED?

The United Nations first issued a set of international standards for humanitarian mine clearance in March 1997. In 2000, these standards were updated to incorporate changes in the way clearance operations were being undertaken. They were also broadened beyond clearance operations to include other components of mine action, including mine risk education, survey and training and stockpile destruction. To reflect this broader approach, the standards were renamed the International Mine Action Standards, or IMAS for short.

New IMAS are produced periodically and existing IMAS can be amended or replaced with a new edition as a result of the review process. The latest version of each standard can be found on the internet at [www.mineactionstandards.org](http://www.mineactionstandards.org). A CD-ROM of the Standards is also produced periodically.

The work of preparing, reviewing and revising the IMAS is conducted by technical committees with the support of international, governmental and non-governmental organisations (NGOs). This process is coordinated by the GICHD. The United Nations Mine Action Service (UNMAS) is the office within the UN Secretariat responsible for the development and maintenance of the IMAS.

The IMAS Review Board, representing the mine action community, is composed of representatives of concerned UN agencies, donors, commercial demining companies, research and development institutions, demining NGOs, national mine action authorities and/or mine action centres and, as required, subject specialists. It is responsible for overseeing the review and revision of the IMAS. The Review Board is chaired by UNMAS and the GICHD serves

as Secretary to the Board as well as being a member. A higher level IMAS Steering Group, chaired by the Director of UNMAS with UN Agency representation from UNICEF, the United Nations Development Programme (UNDP), the United Nations Office for Project Services (UNOPS) and the GICHD, oversees the work of the Review Board. When the Review Board reviews and approves an IMAS, the IMAS is published as a “draft first edition....” on the IMAS website. The IMAS are formally endorsed at Principal’s Level (Under-Secretary General and Directors) by the Inter-Agency Coordination Group for Mine Action (IACG – MA). When the IACG-MA endorses an IMAS, the IMAS is annotated “first edition...”. The amendments record on the last page of each of the IMAS indicates the amendments that have been made to the particular IMAS since its first or second edition. A second edition of an IMAS is issued when there have been substantial amendments to the first edition.

### TECHNICAL LANGUAGE IN THE IMAS

Mine action — and therefore the IMAS — uses a wide range of technical vocabulary. For this reason, the IMAS contain a detailed glossary in Series 4, Standard 04.10.

These terms and their explanations are included in Appendix 2 to this guide.

In the IMAS, the words “shall”, “should” and “may” are used to indicate specific levels of obligation.

- > “shall” is used to indicate a requirement or obligation and is not used very often
- > “should” is used to indicate a preferred or suggested course of action
- > “may” indicates a possible way to do things

### General mine action standards and guidelines

- 01.10 Guide for the application of the IMAS
- 02.10 Establishment of mine action programmes
- 03.10 Guide to procurement of mine action equipment
- 03.20 The procurement process
- 03.30 Guide to the research of mine action technology
- 03.40 Test and evaluation of mine action equipment
- 04.10 Glossary of terms and definitions
- 05.10 Information systems
- 06.10 Management of training

### Management, accreditation and monitoring

- 07.10 Guide for the management of demining operations
- 07.11 Guide for the management of mine risk education
- 07.20 Guide for the development and management of mine action contracts
- 07.30 Accreditation of demining organisations and operations
- 07.31 Accreditation of mine risk education organisations and operations
- 07.40 Monitoring of demining organisations

### Land release and survey

- 08.10 General mine action assessment
- 08.20 Land release
- 08.21 Non-technical survey
- 08.22 Technical survey
- 08.30 Post-clearance documentation
- 08.40 Marking mine and ERW hazards
- 08.50 Data collection and needs assessment of mine risk education
- 08.60 Setting priority in mine action
- 08.70 Post-clearance assessment

### Mine and ERW clearance

- 09.10 Clearance requirements
- 09.11 Battle Area Clearance (BAC)
- 09.20 Inspection of cleared land | guidelines for the use of sampling procedures
- 09.30 Explosive ordnance disposal
- 09.40 Guide for the use of mine detection dogs
- 09.41 Operational procedures for mine detection dogs
- 09.42 Operational testing of mine detection dogs and handlers
- 09.43 Remote Explosive Scent Tracing (REST)
- 09.44 Guide on medical and general health care of dogs



### The Framework of the IMAS | June 2009

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GREY: an extant Standard | RED: a standard in progress / planned

#### Mine and ERW clearance (contd)

- 09.50 Mechanical demining
- 09.51 Mechanical application
- 09.52 Demining machine operator's safety
- 09.53 Quality management after mechanical clearance

#### Mine action safety and occupational health

- 10.10 General requirements
- 10.20 Demining worksite safety
- 10.30 Personal protective equipment
- 10.40 Medical support to demining operations
- 10.50 Storage, transportation and handling of explosives
- 10.51 Ammunition safety
- 10.60 Reporting and investigation of demining incidents
- 10.70 Protection of the environment

#### Anti-personnel mine stockpile destruction

- 11.10 Guide for the destruction of stockpiled anti-personnel mines
- 11.20 Principles and procedures for open burning and open detonation (OBOD) operations
- 11.30 National planning guidelines for stockpile destruction

#### Mine risk education

- 12.10 Planning for mine risk education programmes and projects
- 12.20 Implementation of mine risk education programmes and projects

#### Victim assistance

- 13.10 Guidelines for support to victims

#### Evaluation of mine action programmes

- 14.10 Evaluation of mine action programmes
  - 14.20 Evaluation of mine risk education programmes
-

# INTRODUCTION

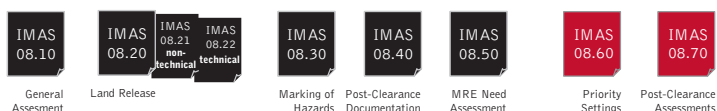
## Series 01 - 06 | General mine action standards and guidelines



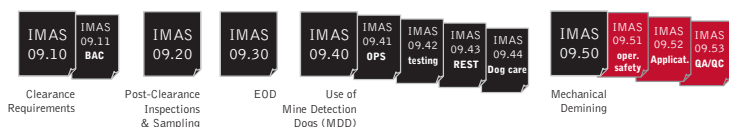
## Series 07 | Management, accreditations and monitoring



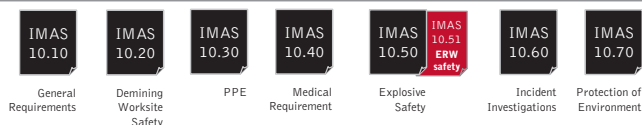
## Series 08 | Land release and survey



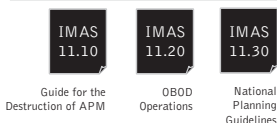
## Series 09 | Mine and ERW clearance



## Series 10 | Mine action safety and occupational health



## Series 11 | Anti-personnel mine stockpile destruction



## Series 12 | Mine Risk Education



## Series 13 | Support to Victims



## Series 14 | Evaluation of mine action programmes



Endorsed Edition IMAS



Working Draft

There is currently only one standard in the IMAS Series 1:

> **01.10** | Guide for the application of IMAS

This standard defines what constitutes a “standard” in the IMAS, explains the role of the IMAS in mine action and the role of IMAS Review Board and IMAS Steering Group, and sets out five guiding principles for the use of IMAS. This IMAS also guides the development of national standards and outlines principles and responsibility of mine action actors in a given country.

### **STANDARD 01.10 GUIDE FOR THE APPLICATION OF INTERNATIONAL MINE ACTION STANDARDS (IMAS)**

The IMAS follow the International Organisation for Standardisation (ISO) definition of a standard. This defines a standard as an agreement containing technical and other information to ensure that processes and services are fit for their purpose. Mine action standards aim to improve safety and efficiency in mine action by promoting preferred procedures and practices at both headquarters and field level.

This guide defines the role of IMAS, and establishes the guiding principles for their proper and appropriate use by national authorities, international organisations, donors and organisations involved with the planning and implementation of mine action activities at headquarters and field level.

#### **THE GUIDING PRINCIPLES OF THE IMAS**

Standard 01.10 sets out the five guiding principles of the IMAS, namely that:

- > national governments have the right to apply national standards to national programmes (“national responsibilities and obligations”)
- > standards should protect those most at risk (“humanitarian imperative”)
- > there should be an emphasis on building a national capacity to develop, maintain and apply appropriate standards for mine action (“capacity building”)
- > consistency should be maintained with other international norms and standards
- > international conventions should be complied with

#### **NATIONAL RESPONSIBILITIES AND OBLIGATIONS**

The primary responsibility for mine action lies with the government of the mine-affected state. This responsibility is normally given to a NMAA, which has to regulate, manage and coordinate a national mine action programme. Sometimes, the UN or another recognised international body may have to assume some or all of the responsibilities and fulfil some or all of the functions of a NMAA.

#### **HUMANITARIAN IMPERATIVE**

Landmines are a humanitarian concern and should be addressed from the humanitarian perspective. The framing of standards and their application to national mine action programmes and local projects should reflect the fundamental humanitarian principles of neutrality, impartiality and humanity, so that mine action is focused on giving support to those who are most vulnerable.

### **STANDARD 01.10 GUIDE FOR THE APPLICATION OF INTERNATIONAL MINE ACTION STANDARDS (IMAS)**

#### **CAPACITY-BUILDING**

In countries with long-term mine action needs, an indigenous capacity should be developed from the outset of a mine action programme. This means that at the national level a state should eventually be able and willing to plan, coordinate, manage and sustain an effective and efficient mine action programme.

An indigenous capacity includes the formation of a NMAA and other operational organisations, and the ability to develop, maintain and apply appropriate national standards for mine action.

#### **OTHER INTERNATIONAL STANDARDS**

The IMAS are written to be consistent with other international standards and to comply with international regulations, conventions and treaties. Relevant standards include those adopted by the International Labour Organisation (ILO) for safety in the workplace and ISO standards on risk management and the application of quality systems.

Other standards dealing with electronic data are relevant to the management of mine action information.

#### **INTERNATIONAL TREATIES**

IMAS draw on the three main conventions in international law which deal with landmines, ERW and cluster munitions:

- > the Anti-Personnel Mine Ban Convention (APMBC) on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction (often referred to as the Ottawa Convention or Mine Ban Treaty)
- > the Convention on Certain Conventional Weapons (CCW) Amended Protocol II on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices, and Protocol V on Explosive Remnants of War
- > the Convention on Cluster Munitions – the 2008 convention that prohibits all use, stockpiling, production and transfer of certain Cluster Munitions; separate articles in the Convention concern assistance to victims, clearance of contaminated areas and destruction of stockpiles

Countries which are States Party to the Anti-Personnel Mine Ban Convention (APMBC) and/or Amended Protocol II have, for instance, certain specific obligations regarding the marking of mine hazards. The provisions of IMAS do not replace these and other relevant obligations.

### **STANDARD 01.10 GUIDE FOR THE APPLICATION OF INTERNATIONAL MINE ACTION STANDARDS (IMAS)**

#### **CONTINUAL REVIEW OF IMAS**

ISO undertakes a formal review of all of its standards on a three to five year basis. This is to ensure that the standards are still relevant, accurate, achievable and appropriate. IMAS will be subject to a similar formal review process; due to the dynamic development and hazardous nature of mine action IMAS will be formally reviewed on a three year basis. This does not preclude essential amendments being made within that period for reasons of operational safety or efficiency. The revision of the IMAS will be approved by the IMAS Review Board representing the broader mine action community. The endorsement of the IMAS is made by the Inter-Agency Coordination Group for mine action at the Principal's Level.

#### **THE APPLICATION OF MINE ACTION STANDARDS**

IMAS have no legal standing except where they have been adopted by a national authority as national standards, or where one or more of the specific IMAS is specified in a contract or some other legal instrument.

#### **RESPONSIBILITIES**

The United Nations has a general responsibility for enabling and encouraging the effective management of mine action programmes by continuously refining IMAS to reflect developing mine action norms and practices, and to incorporate changes to international regulations and requirements. The NMAA is responsible for establishing and maintaining national standards, regulations and procedures for the management of mine action operations. The mine action centre (MAC) will be responsible for the co-ordination and planning of all mine action activities in a given country. Mine action organisations, commercial companies and other organisations involved in mine action shall establish SOPs, instructions and drills which enable mine action projects to be conducted effectively, efficiently and safely. Donor agencies have a responsibility for ensuring that the projects they are funding are managed effectively and in accordance with national and/or international standards.

#### **RELEVANT IMAS ANNEXES**

**Annex C** | Guide to risk management

There is currently only one standard in the IMAS Series 2:

- > **02.10** | Guide for the establishment of a mine action programme

The mine problem in any country is the responsibility of the national government (where a functional government is in place). The government, or an agency it nominates, must be involved in the planning of a national mine action programme. In the case of a humanitarian emergency or peace keeping operations, a mine action programme may be established as part of a UN mandate without the consent of a government, although where a legitimate government exists, attempts to get consent should be made. Once a functioning government is in place, the UN should obtain a formal mandate from the government to continue with the management of the mine action programme and ensure that the responsibility for the mine action programme is transferred to the government as quickly as possible. However, individual mine action projects may still be established and functioning without a national mine action programme.

Standard 02.10 provides guidance and factors for consideration in the establishment of a mine action programme.

### STANDARD 02.10 ESTABLISHMENT OF MINE ACTION PROGRAMMES

There are certain key considerations that are common to the establishment of all mine action programmes. This standard aims to promote an understanding of these key considerations in order to assist governments and other organisations involved in programme establishment.

#### ESTABLISHMENT CONSIDERATION

- > **General mine action assessment** - the decision to establish a mine action programme will be based on identified mine action needs, as determined from available information by a national government or the UN. See IMAS 08.10 on general mine action assessment and IMAS 08.50 on Mine Risk Education (MRE) needs assessment. The true extent of the mine problem may be difficult to assess; information gathering, processing, analysis, storage and application is required throughout the life of a programme.
- > **National conditions** - certain national conditions affect the ability to carry out humanitarian, development and mine action activities. These include the infrastructure and provision of essential services or commodities; the security situation; the number of displaced persons; the existence of other humanitarian and development organisations; the functioning of central government; and the functioning of a national authority. Where these conditions affect the establishment of a mine action programme, priorities should focus on assistance to mine victims and MRE, and some limited mine clearance in support of aid agencies and humanitarian relief work.
- > **Implementation agencies** - mine action may be carried out by: commercial organisations; national or international NGOs; government organisations such as the military; UN agencies; or direct employees of a national authority be it the UN, a NMAA, or a national MAC. It is likely that there will be a combination of implementing agencies.
- > **Funding** - no mine action can take place without the necessary financial support, which must cover the costs of the implementing agencies and the management and coordination agencies. For a nationally established programme, the national government needs to provide the necessary funds from either national sources or from external donors or loans. For UN-supported programmes, the UNDP is often able to provide initial funding for its own costs and certain limited funding for mine action. For UN-led programmes, the UNMAS as the controller of the Voluntary Trust Fund (VTF) is responsible for arranging its own funding and the funding of its UN-led programmes. Many implementing agencies arrange their own funding although some rely on national or UN funding. In some cases, in-kind support may be provided by donors instead of direct funding.



**STANDARD 02.10  
ESTABLISHMENT OF MINE ACTION PROGRAMMES**

- > **Personnel requirements** – it is essential to have available qualified personnel both at the operational level to carry out mine action activities and at the NMAA/MAC level to manage and support mine action. The training needs of the organisation and mine action personnel and specialist teams, such as mine detection dogs (MDD), should be considered as part of programme planning.

**REGULATION, MANAGEMENT AND COORDINATION OF MINE ACTION**

Generally, the regulation, management and coordination of a mine action programme are carried out at two levels: the NMAA and the MAC. The NMAA is responsible for the broad strategic and policy decisions related to mine action; the MAC is responsible for the day to day management and, in some cases, for the implementation of mine action projects. Ideally, the NMAA and MAC should be established by a national legislation which also regulates mine action activities.

- > **Organisation of a MAC** - mine action involves specific activities: MRE, victim assistance, demining, stockpile destruction and advocacy against the use of anti-personnel mines. The functional components needed in a MAC to manage these activities are relatively standard; a general organisation of a MAC can be determined to suit all situations. An example of such a general organisation is included at Annex C and D. The functional components are discussed in more detail in Annex E.
- > **Facility requirements** - consideration must be given to facility requirements during the planning for the establishment of a mine action programme. Office facilities will be required for a NMAA, the MAC and any regional offices. Facility selection should take into account any likely future expansion. Consideration should also be given to facility requirements for testing MDD and training, including specialist training for MDD and mechanical operations. The requirements for explosive storage at national and regional level must also be considered.
- > **Supporting bodies** - there are a number of international agencies that have extensive experience in the provision of humanitarian and development support (including mine action) to mine affected countries. Agencies such as the UNMAS, UNDP, UNICEF, International Committee of the Red Cross (ICRC), the European Commission

### STANDARD 02.10 ESTABLISHMENT OF MINE ACTION PROGRAMMES

(EC) and the Organisation of American States (OAS) have all made contributions to a number of national mine action programmes, and can often provide help or advice. Other civilian groups such as the GICHD or mine action NGOs also have the necessary experience to give guidance.

- > **Use of IMAS** - IMAS help to implement mine action projects and programmes safely and efficiently. IMAS are the framework of the establishment of national standards and SOPs.

### RESPONSIBILITIES

In addition to the responsibilities of the NMAA and MAC discussed above, the UN is to promote national ownership, institution-building and capacity development to ensure the most effective and appropriate response to the landmine/ERW hazard.

### RELEVANT IMAS ANNEXES

**Annex C** | discusses general organisation of a typical MAC.

**Annex D** | discusses indicative personnel requirements for the establishment of a MAC.

**Annex E** | discusses functional components of a MAC.

## **SERIES 3**

### **THE PROCUREMENT OF MINE ACTION EQUIPMENT**

There are currently four standards in Series 3 on the procurement of mine action equipment:

- > **03.10** | Guide to the procurement of mine action equipment
- > **03.20** | The procurement process
- > **03.30** | Guide to the research of mine action technology
- > **03.40** | Test and evaluation of mine action equipment

“Procurement” refers to the process of research, development, production and purchase which leads to an item of equipment being accepted as suitable for use in mine action programmes. It continues with the provision of spares and post-design services throughout the life of the equipment.

Mine action programmes have traditionally relied on manual practices, procedures and drills, which are slow, deliberate and labour intensive. In many situations, a manual approach may be the most appropriate and effective means of detecting and clearing landmines. However, other technologies may enable ground preparation and mine clearance to be conducted more effectively, cheaply and quickly, and with less risk.

The Series 3 standards provide guidelines for, and promote a common approach to, the procurement of mine action equipment. They recommend a decentralised approach to procurement.

### STANDARD 03.10

#### GUIDE TO THE PROCUREMENT OF MINE ACTION EQUIPMENT

Standard 03.10 provides guidance on the basic requirements of the application of technology and the procurement of equipment for mine clearance.

The aim of the procurement process is to deliver effective, appropriate and cost-effective equipment to the user.

A common approach to procurement within the mine action community could lead to significant benefits. There are, however, a number of obstacles to the universal acceptance of technology standards. These include:

- > a real, or perceived, difference in national and local needs and priorities
- > an inability to meet new standards
- > a reluctance to change procedures to conform to externally imposed standards
- > the transfer of information that has military or commercial sensitivity
- > for collaborative projects, the allocation of work share, potential profits and exposure to risk between partners

The outcome of the process will depend on three key factors: user needs, the availability of technology and the availability of funding. These factors should be assessed by conducting a “formal investment appraisal”.

According to the UN, the appraisal should take account of a number of principles and priorities, including:

- > **functionality:** potential technologies shall meet the “essential” equipment requirements as defined in the Statement of Requirement
- > **cost-effectiveness:** the cost-effectiveness of different technologies shall be fully assessed and compared against existing equipment and methods
- > **reliability:** the reliability of technologies shall be determined; ruggedness and reparability are essential criteria for most mine action technologies
- > **utility:** equipment should have a broad utility; equipment which is of use in a large number of mine action programmes will benefit from “economies of scale”: lower unit costs, availability, familiarity, ease of training and user confidence
- > **ease of use:** complex technologies will impose a significant training burden unless they are to be operated by specialists, such as military peacekeeping forces; ergonomics and the man machine interface are to be given high priority
- > **technology maturity:** use should be made of systems based on fully developed technologies

### RELEVANT IMAS ANNEXES

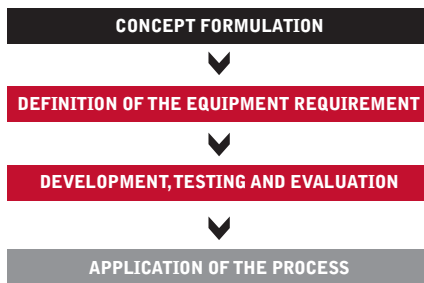
Annex C | Technology for mine action

**STANDARD 03.20 THE PROCUREMENT PROCESS**

Standard 03.20 provides an overview of the procurement process for mine action equipment. Detailed guidance is also given on the preparation of documentation to support the process.

As a principle, the procurement of mine action equipment should be decentralised. There should also be as much participation as possible from the user, industry and the donor community.

The procurement process should ideally follow a certain number of steps in a particular order, although in practice this is not always possible. The ideal process has four steps:

**CONCEPT FORMULATION**

Concept formulation is the first stage of the procurement process, and covers the period from the idea for a project through to the initial statement of operational need. It should end with a preliminary statement of operational need, prepared by the originator of the idea or by a sponsor acting on his or her behalf. This should be a broad statement based on an assessment of current capabilities and predicted future requirements.

**DEFINITION OF THE EQUIPMENT REQUIREMENT**

Definition of the equipment requirement usually requires four steps:

- > a Preliminary Study
- > a Statement of Tasks and Output
- > Feasibility Studies
- > a Statement of Requirement

A Preliminary Study should be carried out by the project sponsor once a need has been identified. Its purpose is to give an indication of the practicability of the idea in terms of technological possibilities and cost. The sponsor of an equipment trial is the authority requiring the trial to be carried out. This is most likely to be an international organisation, national mine action centre, donor or demining organisation.

**STANDARD 03.20 THE PROCUREMENT PROCESS**

A Statement of Tasks and Output should be prepared by the sponsor based on the findings of the Preliminary Study. It should set out the user's needs in broad terms, explaining more what the equipment should be able to do than how it should do it, so as to enable a wide range of solutions to be considered.

A Feasibility Study should be carried out to establish the feasibility of the Statement of Tasks and Output in terms of technology, cost and time, assuming the sponsor has agreed to proceed. For small equipment projects involving minimal costs and engineering risk, it may be possible to move straight to development or even to an evaluation of commercial off-the-shelf equipment.

A Statement of Requirement should be developed from the Statement of Tasks and Output by the sponsor, based on the findings of the Feasibility Study. This Statement provides a detailed justification for the required solution, details what is expected of the equipment, and estimates costs, technical factors and timings. It provides the necessary information for final project approval and should also provide suppliers/contractors with sufficient detail for design work to be undertaken.

The sponsor of an equipment trial shall make a clear distinction between essential and desirable requirements. A clear distinction should also be made between generic requirements and local needs. The aim should be to maximise generic requirements. Wherever possible, local needs should be met by adjustments or modifications to major components or by software changes.

**DEVELOPMENT, TESTING AND EVALUATION**

The development stage is normally divided into a number of sequential activities and decisions which together provide effective management control of the project, particularly over costs and engineering risk. For most mine action equipment projects, two principal groups of activities can be identified: preliminary development and full development.

Preliminary development involves initial planning, design and engineering work. This identifies technical obstacles and provides detailed estimates of duration and cost before a decision to proceed to full development is made.

Preliminary development is normally undertaken by industrial suppliers. The output of preliminary development should be a comprehensive report prepared by the contractor.

**STANDARD 03.20 THE PROCUREMENT PROCESS**

Full development involves all the engineering processes, trials and tests necessary to draw up the final production design. This should include the manufacture of models and prototypes for user field trials. It should include the preparation of all necessary information, drawings, full logistic support in the form of handbooks, documentation, spares, test equipment, tools and a full user training package. It should also involve the necessary tests, trials and evaluation leading to acceptance by the sponsor and/or certification of the equipment.

Test and evaluation of equipment should be conducted to prove system performance before incorporation into new or modified equipment.

- > **Acceptance** - the sponsor is responsible for “accepting” the equipment as suitable for use in mine action. Provisional acceptance may be given by the sponsor so that minor problems can be corrected.
- > **Certification** - a particular form of acceptance normally initiated by an equipment manufacturer. It should normally be conducted at an approved test and evaluation establishment.
- > **Production** - planning for production is a key part of full development. Before starting full production, there should be sufficient confidence that a standard acceptable to the user can be achieved.
- > **Management of risk** - the effective management of risk by the sponsor throughout the procurement process improves the likelihood that the equipment will be delivered on time and to cost and will meet its performance objectives.

**APPLICATION OF THE PROCESS**

This standard has described the “ideal” procurement process for mine action equipment. In theory, every equipment project should pass through each stage of the process in sequence. In practice, the process is flexible and some stages will overlap or may even be omitted, particularly in the case of small projects with limited engineering risk, ie those involving the procurement of commercially available equipment already in production. Each project may be different and shall be treated on its relative merits.

**RELEVANT IMAS ANNEXES**

**Annex C** | Ideal procurement process for mine action technology

**Annex D** | Statement of operational need

**Annex E** | Statement of task and output

**Annex F** | Statement of operational requirement

### STANDARD 03.30

#### GUIDE TO THE RESEARCH OF MINE ACTION TECHNOLOGY

Standard 03.30 explains the principles and processes of research in mine action. Research is an integral part of the procurement process. Without ongoing research it will not be possible to improve existing mine action equipment.

Indeed, it is difficult to imagine any equipment in use in mine action programmes today — from mine detectors and Global Positioning Systems (GPS), to protective visors and prodders — which have not been the result of research activities.

### RESEARCH CATEGORIES AND GROUPS

There are two main categories of research: “pure research” and “applied research”. Pure research normally refers to research activities that are not linked to any specific application. Pure research aims to establish generic principles. Applied research addresses clearly defined problems and market opportunities, within defined parameters such as cost, time and risk.

Research involves four distinct groups of activities:

- > analysis of the problem
- > analysis of constraining factors
- > analysis of potential technologies
- > communication of research results

**Analysis of the problem:** for mine action technology, analysis of the problem basically involves an analysis of the Statement of Operational Need (SON). This important activity is often overlooked or conducted with insufficient effort.

**Analysis of constraining factors:** factors which constrain the technological solution should then be analysed. Such limiting factors should include the operational imperative, the environmental conditions, the mine hazards, manufacturing constraints and in-country support (including maintenance and repair, operator skills and the availability of funding).

**Analysis of potential technologies:** potential technologies should be analysed to determine their suitability, availability and affordability. This should include an assessment of the risk of using new components, materials, manufacturing processes and unproven software.



**STANDARD 03.30****GUIDE TO THE RESEARCH OF MINE ACTION TECHNOLOGY**

Communication of research results: the results of research should be sent to those who need to make decisions. Pure research may involve peer review to establish the necessary validity and authority. Peer review is normally exercised via academic and/or professional journals and conferences. Applied research is normally presented to the project sponsor in a formal report, reinforced where necessary with technology demonstrations.

**RESEARCH FACILITIES**

Traditionally, most research has been conducted in universities and technical institutes of higher learning.

In recent years, applied research has increasingly moved from academia to industry. It may involve substantial investment, and is unlikely to be made readily available to potential competitors, even for humanitarian causes such as mine action.

Governments have developed national research facilities for strategic capabilities such as defence, nuclear power and public health. There is growing pressure to transfer more information into the public domain. This includes the results of government-sponsored research into mine action technologies, although the procedures for such sharing have yet to be fully developed.

International research facilities are normally the result of two or more countries sharing facilities for mutual benefit. Such benefit may reduce the overall costs, or the objectives may have a political imperative.

**DIRECTION AND CONTROL**

At national level, decisions on the use of national resources and research facilities for the benefit of mine action are driven by government policy and perceived national interests.

Although many governments have committed themselves to assisting affected States by providing the information and facilities needed to improve technology, they have yet to develop the national procedures for making the information and facilities readily available. National security, intellectual property rights and funding all limit the quantity and quality of information that can be made available.

At international level, a number of forums develop international policies which provide direction and cooperation on research. These mainly exist within existing regional, defence or trade groupings such as the European Union, the Organisation of American States, the North Atlantic Treaty Organisation (NATO) and the NATO Partnership for Peace programme.

The UN has an obligation and the mandate to provide direction and guidance. For details, see E-MINE ([www.mineaction.org](http://www.mineaction.org)).

**RELEVANT IMAS ANNEXES**

There is no important annex relevant to this IMAS.

### **STANDARD 03.40**

#### **TEST AND EVALUATION OF MINE ACTION EQUIPMENT**

Standard 03.40 is aimed at test and evaluation “stakeholders” at the international level (the International Test and Evaluation Programme for Humanitarian Demining) and the national level (manufacturers).

The purpose of test and evaluation is to provide an independent assessment of the suitability and effectiveness of mine action equipment. Test and evaluation can assess the potential of new technologies or confirm the performance and characteristics of commercial off-the-shelf equipment.

#### **KEY DEFINITIONS**

A test is a method of examining software or a material, component or equipment against a set of criteria designed to achieve a positive result.

A trial is a series of systematic tests, the individual results of which lead to an overall evaluation of a component, equipment or system.

An evaluation is the analysis of results to establish the effectiveness of software, a component, equipment or system, within the environment in which it will operate.

#### **THE PURPOSE OF TRIALS**

The principal purpose of a trial is to provide quantitative data that can be used with statistical confidence to support valid conclusions and recommendations. Since trials are costly in time, resources and manpower, very careful thought and planning are required in their design.

Trials are a way of finding out early enough what may be wrong, not merely to confirm that everything is right. The failure of components and sub-assemblies can be addressed as part of the development process, without jeopardising the findings of the trial.

#### **CONTROL OF TEST AND EVALUATION**

Trials, and the subsequent evaluation of trial data, require an effective control organisation. The form and scope of this organisation may vary.

The full cost of resources, including the use of test facilities, consumable stores, instrumentation, maintenance, salaries and travel shall be assessed as soon as possible.

### **STANDARD 03.40**

#### **TEST AND EVALUATION OF MINE ACTION EQUIPMENT**

Trials should be conducted at test and evaluation facilities that are accredited to the appropriate national standards institutes for the maintenance of technical standards in laboratories, test and evaluation establishments.

#### **CATEGORIES OF TRIALS AND EVALUATION**

Concept and technology demonstrator trials are designed to gather data on the potential use of equipment in the field; for example, to assess the most effective and efficient mix of equipment and procedures for conducting a technical survey. They take the form of carefully controlled “scenarios”, often using pre-production equipment. Such trials may also involve existing equipment and procedures to provide a benchmark against which the research equipment and new procedures can be measured.

Development trials should normally be conducted by the contractor who is developing the equipment. The aim is to establish that the design is technically satisfactory and meets the parameters of the agreed Statement of Requirement. Trials of components and sub-systems to be incorporated in a complete piece of equipment are included in this category. For example, a new type of engine or flail unit could be fitted to a proven vehicle so that the engine or flail is on trial, not the whole new vehicle.

Acceptance trials are undertaken to provide the sponsor with sufficient information for decisions on the acceptability of a piece of equipment for its intended use. Acceptance trials shall be conducted on equipment which is representative of the production equipment. Consumer reports are prepared from trials of a range of commercial “off-the-shelf” mine action equipment.

These trials may involve a review of previous trials, tests in laboratory conditions and new field trials. The format of the results shall be based on a rigorous evaluation methodology as the conclusions may be subject to considerable commercial interest.

**STANDARD 03.40**  
**TEST AND EVALUATION OF MINE ACTION EQUIPMENT**

**CONDUCT OF TRIALS**

Trials may vary widely in their aim and scope. However, there are four common stages of managing a trial: planning, preparation, execution and reporting.

Planning includes a clarification of the type of measurements to be made, data to be collected and proposed methods of analysis, procedures for dealing with proprietary information and the requirements for public release of the test results.

Preparation involves all the activities that develop the capacity to carry out a trial. This should include setting up the trial's organisation, acquiring specialist equipment and stores, carrying out necessary training and deploying to the test site. For trials that will be conducted in, or close to, mined areas it shall always be a pre-condition that full medical arrangements are established before the main trial is allowed to start.

Execution of the trial should present no problem if the planning and preparation stages are conducted thoroughly. The main concern is to ensure that the momentum of the trial is not lost due to equipment failures or bad weather. If practicable and affordable the trial should continue so long as useful data can be obtained. Generally, the trial should be conducted in a series of distinct tests each covering a main objective. At the end of each test a report shall be required as a record of progress and as a guide to any alterations which may be needed in a later phase.

Reporting is the end product, the final trial report. This shall contain the information that the trial is intended to determine and shall reach the sponsor promptly.

#### **INTERNATIONAL TEST AND EVALUATION PROGRAMME**

The International Test and Evaluation Programme for Humanitarian Demining (ITEP) is a global network of test and evaluation capabilities for scientifically measuring performance, and evaluating effectiveness and suitability, of all forms of humanitarian demining equipment, systems and methods. See: [www.itep.ws](http://www.itep.ws).

#### **CEN WORKSHOP AGREEMENTS (CWA)**

The European Committee for Standardisation (CEN) works in collaboration with the UN and GICHD to research and produce CEN Workshop Agreements which are voluntary standards of best practice as agreed by the specific workshop members. The resulting CWA can be used as references within IMAS. For a complete list of the CWA, please refer to Appendix 4 of this guide.

**Note:** CEN will cease to manage CWA; by the end of 2009, the exploitation right for these CWA will be handed over to the UNMAS/GICHD on behalf of the mine action community. They will then be reviewed and updated as part of the IMAS review process.

#### **RELEVANT IMAS ANNEXES**

**Annex C** | Layout and format of trial instruction

**Annex D** | Layout and format of trial report

## **SERIES 4**

### **GLOSSARY OF TERMS AND DEFINITIONS**

Standard 04.10 provides a summary of the terms, definitions and abbreviations used in mine action. If two or more alternative definitions are in common use, then both are given in this glossary.

Definitions can change and new definitions may be added to this IMAS. In order to set the definitions in time, new definitions or changed definitions will have the relevant date in the brackets below the word or term to be defined. All other definitions are assumed to have been included in the second edition of IMAS 04.10 dated 01 January 2003.

See Appendix 2 for a complete list of mine action terms and definition used in IMAS.

There is currently only one standard in the IMAS Series 6:

**> 06.10 | Management of training**

In almost all mine action programmes, there will be a requirement for the training of staff for operational and management tasks. Training can be carried out in two ways: informal, or on-the-job, training and formal training. On-the-job training is normally carried out with small numbers of staff or on a one-to-one basis. It tends to be ongoing and provided on an 'as required' basis by more senior staff. Formal training is normally delivered to a group of trainees over a finite period of time in the form of, for example, a training course or a workshop. Formal training may be directly conducted by mine action organisations themselves, by a central training facility established by the NMAA, or by international training institutions or experts.

Standard 06.10 provides guidelines for the management of training for mine action staff.



**STANDARD 06.10 MANAGEMENT OF TRAINING**

Training should be developed in response to confirmed needs, so it is necessary to first conduct a training needs analysis. Training should then be delivered by qualified trainers. To ensure good quality training, the NMAA should set national guidelines. These should cover the management of training, monitoring of training progress and delivery and assessment of the outcome. The NMAA should specify the requirements for the management of training in national standards.

This standard provides guidelines for the management of training for mine action staff. It specifically applies to training conducted by mine action organisations for personnel to carry out mine risk education (MRE), explosive ordnance disposal (EOD) and operations including survey, marking, clearance, monitoring and evaluation and quality control activities.

**GENERAL REQUIREMENTS**

The NMAA should establish procedures for the management of training within their programmes. Such procedures should be laid out in national standards and cover the following requirements:

- > training should be based on a Training Needs Analysis
- > training should be properly designed and prepared
- > comprehensive Training Management Packages (TMP) should be prepared
- > training should only be delivered by capable trainers
- > evaluation and testing of training should be carried out
- > training should be subject to internal and external monitoring
- > training administration procedures should be developed

### **TRAINING DESIGN AND PREPARATION**

This involves deciding what type of training will best meet training needs; establishing objectives for the training, sessions and possible lessons; designing session plans; and deciding on a method for evaluating and testing the training.

- > **Type of training** - in the context of mine action, training may be classified as on-the-job training (OJT), or formal training in the form of either basic, refresher or continuation training. OJT is normally ongoing and facilitated while the staff member is carrying out duties and responsibilities within their current level of Knowledge, Skills and Attitudes (KSA). Formal training is normally delivered in the form of a training course or workshop to a group of trainees for a finite period, often in a location away from an operational worksite.
- > **Training, session and lesson objectives** - training should be designed with specific and measurable training objectives. A training objective is a brief, clear statement of what a trainee should know or be able to do at the completion of the training. Each training objective should be broken down into a number of specific and measurable session objectives. Session objectives describe the specific KSA that should be acquired by trainees in one session. A session should generally last no more than half a day and be comprised of several lessons. Individual lesson objectives that focus specifically on one KSA may be developed. See Annex C for an example of tasks, training and session objectives for basic mine action training.
- > **Session plan** - training should be broken down into a number of sessions. Session plans provide much of the detail required to run the training and permit trainers to prepare and satisfactorily deliver each session. An example of a session plan is included at Annex D.
- > **Training test** - the last preparation step should be the development of training tests. These tests should be applied at the end of the training, by which time the training objectives should have been achieved.

### **TRAINING MANAGEMENT PACKAGE (TMP)**

A TMP is a set of documents that provide all the information necessary to run formal training. The NMAA should specify what should be included in a TMP within their programmes. A TMP should include, where relevant: training, session and lesson objectives; session plans and a schedule; a description of activities; practical exercises; training testing tools; PowerPoint presentations and overhead sheets; a list of training equipment; a list of training aids; hand-outs; reference materials; and training administration procedures.

**STANDARD 06.10 MANAGEMENT OF TRAINING****QUALIFICATIONS AND EXPERIENCE OF TRAINING STAFF**

Mine action organisations should ensure that all trainers have the appropriate qualifications and necessary experience to provide effective and technically sound training.

**TRAINING ADMINISTRATION PROCEDURES**

Training administration procedures should be included in the TMP. Procedure details may include: trainer requirements, including specific knowledge and skills; translator support; accommodation requirements; transport requirements, including safety vehicles; medical support; communications; procedures for the management of re-tests; procedures for any pre-assessment of students who may already have the KSA covered in a lesson; internal and external monitoring requirements; and examples of training documentation such as student duty lists, equipment issue forms and sample training reports. Other requirements are:

- > criteria for the selection of trainees
- > training equipment and materials
- > training mines and ERW
- > training facilities and areas
- > management of training records

**RESPONSIBILITIES**

Where the UN is acting on behalf of the NMAA or supporting NMAA/MAC in the development of national mine action capacity, the UN shall, where applicable, ensure that organisations conduct mine action training in accordance with the TMP and that planned results are being achieved. The NMAA shall establish and maintain national standards, regulations and procedures for the management of training within their programmes. The organisations conducting mine action training shall produce comprehensive TMP, and ensure that their TMP is in compliance with the organisation's SOPs and with the national standards.

**RELEVANT ANNEXES**

**Annex C** | an example of training & session objectives for a basic demining training

**Annex D** | an example of a session plan: operate current metal detectors

**Annex E** | an example of a training testing plan

There are currently eight full standards in Series 7. Of these, four standards address the management of demining operations:

- > **07.10** | Guide for the management of demining operations
- > **07.30** | Accreditation of demining organisations and operations
- > **07.40** | Monitoring of demining organisations
- > **07.42** | Monitoring of stockpile destruction programmes

Demining is carried out by many different types of organisations, such as non-governmental organisations, commercial companies, national mine action teams or military units. Despite differences in approach, there are common core activities and therefore common responsibilities.

The effective management of demining operations aims to release land in a safe and efficient manner. This is achieved by developing and applying appropriate management processes, by establishing and continuously improving the skills of managers and deminers, by obtaining accurate and timely information on the mine and ERW hazards, by applying safe and effective operational procedures, and by using appropriate and efficient equipment.

Three standards address the management of mine risk education (MRE) projects and programmes:

- > **07.11** | Guide for the management of mine risk education
- > **07.31** | Accreditation of mine risk education organisations and operations
- > **07.41** | Monitoring of mine risk education programmes and projects

The first two editions of the IMAS did not include MRE-specific standards and guides. This guide and other MRE standards (see Series 8, 12 and 14) address the particular needs of MRE, as an integral part of mine action. The IMAS standards for MRE have been developed from, and replace, the 1998 International Guidelines for Landmine and ERW Awareness Education drafted by UNICEF on behalf of the UN system. These draft standards became full standards in 2004.

- > **07.20** | Guide for the development and management of mine action contracts

This standard establishes principles and provides guidance on the process of contracting and on the drafting of effective contracts. It examines general concepts behind the process of mine action contracting and identifies key issues that should be included in mine action contracts.

### **STANDARD 07.10**

#### **GUIDE FOR THE MANAGEMENT OF DEMINING OPERATIONS**

Mine action organisations should ensure that all trainers have the appropriate qualifications and necessary experience. The management of demining operations is not just about planning and supervising current tasks. It is also about reviewing current practices and procedures to improve safety, effectiveness and efficiency, and ensuring a constant link between demining operations and the mine-affected communities.

Standard 07.10 examines the demining process and recommends a management system that will ensure the safe, effective and efficient conduct of demining.

#### **RESPONSIBILITY FOR THE MANAGEMENT OF DEMINING OPERATIONS**

The NMAA is responsible for ensuring that national and local conditions enable the effective management of demining projects. The NMAA is ultimately responsible for all phases of a demining project within its national boundaries, including defining the clearance requirement, the accreditation of demining organisations, the monitoring of demining organisations during clearance, and post-clearance inspections prior to accepting full responsibility for the cleared land.

Ultimately, it is the individual demining organisation, of whatever type, that is required to establish an appropriate and effective management system, demonstrate it to the national mine authority, and apply it throughout the demining project. Where the NMAA is in the process of formation, the demining organisation is also responsible for assisting the formation process, by giving advice and assistance, including the framing of national standards.

**STANDARD 07.10**  
**GUIDE FOR THE MANAGEMENT OF DEMINING OPERATIONS**

**THE FOUR STAGES OF THE DEMINING MANAGEMENT PROCESS**

There are four stages of the demining management process: planning, preparation, clearance and post-clearance activities.

- > **Planning** - planning for mine action requires information on the form, scale and impact of the hazards posed by mines and ERW hazards. Such information will come from assessment missions and surveys, from ongoing local mine action projects and tasks, and from local knowledge. Guidance on the requirements for the general mine action assessment is given in IMAS 08.10.
- > **Preparation** - preparation includes all enabling activities that help to clarify the clearance requirement and develop the capacity of a demining organisation and its sub-units to carry out a clearance task. This includes the selection and accreditation of demining organisations as set out in IMAS 07.30.
- > **Clearance** - the need for effective and safe operational procedures is essential. Standing operating procedures (SOPs) should be prepared for all operational processes, practices and drills and to achieve the standards that have been set for a particular task. SOPs are instructions that define the preferred method of conducting an operational task or activity.
- > **Post-clearance** - the inspection of cleared land aims to provide confidence that the clearance requirements have been met, and as such forms an essential part of the overall clearance process. IMAS 09.20 provides guidance on the implementation of a management system for inspecting the quality of land by sampling.

Prior to the handover of cleared land, the area should be surveyed and marked, and all necessary documentation should be prepared, including a formal handover certificate. IMAS 08.30 provides guidance on post-clearance handover requirements and management responsibilities.

**RELEVANT IMAS ANNEXES**

**Annex C** | Demining process

**Annex D** | ISO 9000

**STANDARD 07.11****GUIDE FOR THE MANAGEMENT OF MINE RISK EDUCATION****WHAT IS MINE RISK EDUCATION?**

The term mine risk education (MRE) refers to educational activities which seek to reduce the risk of injury from mines and ERW by raising awareness and promoting behavioural change.

MRE aims to ensure that communities are aware of the risks from mines and ERW, and are encouraged to behave in a way which reduces the risk to people, property and the environment. The objective is to reduce the risk to a level where people can live safely and recreate an environment where economic and social development can occur free from the constraints imposed by landmine contamination.

MRE should not normally be a stand-alone activity. It is an integral part of mine action planning and implementation. It has three components: public information dissemination, education and training and community mine action liaison. They are complementary and mutually reinforcing.

**PUBLIC INFORMATION DISSEMINATION**

Public information dissemination as part of MRE refers to information activities that seek to minimise deaths and injuries from mines and ERW by raising awareness of the risk among individuals and communities, and by promoting behavioural change. It is primarily a one-way form of communication transmitted through mass media.

In an emergency post-conflict situation, due to time constraints and lack of accurate data, public information dissemination is often the most practical means of communicating safety information to reduce risk.

**EDUCATION AND TRAINING**

Education and training refers to all educational and training activities that seek to minimise deaths and injuries from mines and ERW by raising awareness of the risk among individuals and communities and by promoting behavioural change. Education and training demand a two-way process, which involves the imparting and acquiring of knowledge, attitudes and practices through teaching and learning. Activities may be conducted in formal and non-formal environments.



**STANDARD 07.11****GUIDE FOR THE MANAGEMENT OF MINE RISK EDUCATION****COMMUNITY MINE ACTION LIAISON**

Community mine action liaison refers to the system and processes used to exchange information between national authorities, mine action organisations and communities on the presence of mines, ERW and their potential dangers. It enables communities to be informed about demining activities near to them and allows communities to inform local authorities and mine action organisations on the location, extent and impact of contaminated areas. Community mine action liaison aims to ensure that mine action projects address community needs and priorities.

**NEEDS ASSESSMENT**

Prior to implementing MRE projects, activities and tasks, a needs assessment should be conducted (see IMAS 08.50 for guidance). There may be other data collection activities, such as landmine impact surveys, task assessment and planning or other community studies, as well as ongoing community mine action liaison. All of these form part of an active surveillance process to establish and to monitor the problems faced by affected communities.

The purpose of collecting data and conducting a needs assessment is to identify, analyse and prioritise the local mine and ERW risks, to assess the capacities and vulnerabilities of the communities and to evaluate the options for conducting MRE. A needs assessment will provide sufficient information necessary to make informed decisions on the objectives, scope and form of the resulting MRE project.

**PLANNING**

The strategic planning of MRE should be conducted as part of the overall planning process for mine action. At the level of the mine-affected community, the planning of MRE should be conducted in close conjunction with the planning of other mine action activities (in particular demining). At the community level, planning may be conducted with affected communities themselves.

The purpose of the planning phase of a specific MRE project is to find the most effective way to address the identified needs. The plan should define the overall objectives, establish a plan of activities and tasks aimed at achieving these objectives, determine suitable measures of success, and establish systems for monitoring and evaluation.

Guidance on conducting planning for MRE organisations is given in IMAS 12.10.

**STANDARD 07.11****GUIDE FOR THE MANAGEMENT OF MINE RISK EDUCATION****MONITORING**

Monitoring is an essential part of the MRE project cycle. Together with accreditation and evaluation, it provides stakeholders with the necessary confidence that MRE projects are achieving the agreed goals and objectives in an appropriate, timely and affordable manner.

Monitoring will normally involve an assessment of the MRE organisation's capabilities (people, procedures, tools and methods) and how these capabilities are being applied.

Monitoring is an ongoing process, conducted throughout implementation to provide feedback and information on the application, suitability and effectiveness of MRE tools and methods.

Guidance on the monitoring of MRE programmes and projects is given in IMAS 07.41.

**EVALUATION**

For MRE, evaluation aims to measure the acquisition of knowledge, attitudes and practices among the target communities, assess the impact and use of specific tools and methods, and make recommendations for changes to these tools and methods. In practice, the evaluation of MRE is usually difficult to achieve as it may not be possible to identify the connections between the cause (ie the MRE intervention), and the effect (ie behavioural change).

Evaluation is usually conducted upon completion of a project but may also be conducted at specific intervals throughout the life of the project, to assess its actual impact and justify its continuation. Guidance on the evaluation of MRE programmes and projects is given in IMAS 14.20.

**STANDARD 07.11**  
**GUIDE FOR THE MANAGEMENT OF MINE RISK EDUCATION**

**ACCREDITATION OF MRE ORGANISATIONS AND OPERATIONS**

Organisational accreditation is the procedure by which an MRE organisation is formally recognised as competent and able to plan and manage MRE activities safely, effectively and efficiently.

Operational accreditation, sometimes referred to as certification, is the procedure by which an MRE organisation is formally recognised as competent and able to carry out specific MRE activities.

For most mine action programmes, the NMAA will be the body which provides accreditation. International organisations such as the United Nations or regional bodies may also introduce accreditation schemes. Accreditation will be given to the in-country headquarters of an organisation for a finite duration, normally for a period of two to three years.

Guidance on the accreditation of MRE organisations and operations is given in IMAS 07.31.

**GUIDING PRINCIPLES FOR MRE**

Guiding issues and principles for MRE programmes can be grouped into eight generic requirements:

- > stakeholder involvement
- > coordination requirements
- > integration
- > community participation and empowerment
- > information management and exchange
- > community targeting
- > educational tools and methods
- > the provision of appropriate and effective training to those responsible for implementing MRE projects

These principles are considered in each of the MRE standards in the IMAS.

**RELEVANT IMAS ANNEXES**

**Annex C** | The MRE cycle

### **STANDARD 07.20 GUIDE FOR THE DEVELOPMENT AND MANAGEMENT OF MINE ACTION CONTRACTS**

The aim of the standard is to provide guidelines for the preparation of contracts for mine action and the subsequent management of the contracted activity. Even when work is carried out under an arrangement such as a letter of agreement rather than a formal contract, certain basic principles and considerations should be contained in that arrangement.

#### **THE DEFINITION OF A MINE ACTION CONTRACT**

A mine action contract is a formal agreement between two or more parties that allows a mine action activity to be implemented and conducted. The use of contracts serves three purposes. Firstly, it binds the parties involved in the activity and gives a degree of assurance that the activity will be carried out, and that the commitments and undertakings made by the parties will be honoured. Secondly, it clearly defines the work to be undertaken, the outcomes to be achieved and the roles, responsibilities and interaction of the respective parties. Thirdly, it serves to assign responsibilities to the respective parties.

There are six crucial elements to the formation of a contract. The absence of any of these elements renders the contract invalid. The elements are:

- > an offer
- > an acceptance of that offer
- > a promise to perform
- > a valuable consideration (payment)
- > a timeframe in which performance must be made
- > terms and conditions for performance

**STANDARD 07.20 GUIDE FOR THE DEVELOPMENT  
AND MANAGEMENT OF MINE ACTION CONTRACTS****GENERAL PRINCIPLES**

There are seven principles underpinning the development of effective, efficient and appropriate mine action contracts. These are:

- > the contract must recognise the environment and conditions in which the activity is to be undertaken
- > it must recognise the capabilities and capacities of the parties
- > it must be realistic in its performance requirements and other obligations, and must specify them as completely as possible
- > it must be fair and equitable to all parties
- > it should assign specific risk to that party most able and best motivated to control it
- > the wording of the contract should be clear, concise and unambiguous
- > it should encourage cooperation rather than confrontation between the parties

In addition, it is essential that the principal incorporates any requirements for the contractor to comply with IMAS and/or national mine action standards of the country involved in the contract. Even if the contracting authority has opted for a single preferred mine action organisation under an arrangement such as a letter of agreement, it is recommended that relevant IMAS or national standards are applied within the terms of the agreement.

### STANDARD 07.20 GUIDE FOR THE DEVELOPMENT AND MANAGEMENT OF MINE ACTION CONTRACTS

#### TYPES OF MINE ACTION CONTRACTS

There are a variety of contract types but the two primary contracts used in mine action are:

- a) **fixed price contracts** — either for a specific scope of work to be achieved within an agreed time-frame or for a specific number of assets to be provided over an agreed time-frame
- b) **cost-plus contracts** — the principal reimburses the contractor for all costs and pays a percentage of these costs as a fixed fee

#### STRUCTURE OF MINE ACTION CONTRACTS

A mine action contract can be considered to consist of three distinct but inter-related components. These are the legal components which describe the relationship between the parties and general requirements and obligations, the technical component which describes the outcomes to be achieved and the manner in which the work is to be conducted, and the price component which describes the price to be paid by the principal and the payment structure and methodology to be adopted.

#### RELEVANT IMAS ANNEXES

**Annex C** | The process of contracting for mine action

**Annex D** | Basic points for mine action contracts

**Annex E** | Points for inclusion in the bid document

**Annex F** | Specimen common reporting form

## **STANDARD 07.30 ACCREDITATION OF DEMINING ORGANISATIONS AND OPERATIONS**

Most national mine action authorities apply some form of accreditation procedures. The form and extent of such accreditation varies from country to country, but the aim is similar — to establish and confirm the quality of demining organisations, particularly those with specialist capabilities such as mine detection dogs or mechanically-assisted demining. Standard 07.30 provides guidance for the implementation of an accreditation system for a demining organisation, both before and during the clearance process.

### **ACCREDITATION PRINCIPLE**

Standard 07.30 makes a distinction between organisational accreditation and operational accreditation.

- > Organisational accreditation is the procedure by which a demining organisation is formally recognised as competent and able to plan and manage demining activities safely, effectively and efficiently. For most mine action programmes, the NMAA will be the body which provides accreditation. International organisations such as the United Nations or regional bodies may also introduce accreditation schemes.

Accreditation will be given to the in-country headquarters of an organisation for a finite duration, normally for a period of two to three years.

- > Operational accreditation is the procedure by which a demining organisation is formally recognised as competent and able to carry out particular demining activities. This may sometimes be referred to as certification in order to distinguish between an organisation's accreditation to work in a country and its accreditation for certain distinct tasks.

Each operational accreditation shall refer to the capabilities required to carry out a particular activity such as survey, manual clearance, community liaison or use of mine detection dogs.

### **STANDARD 07.30 ACCREDITATION OF DEMINING ORGANISATIONS AND OPERATIONS**

#### **A TWO-STAGE PROCESS FOR ACCREDITATION**

In most situations accreditation is awarded in two stages.

The first stage involves a provisional desk assessment by the NMAA or its agent based on documentary evidence presented by the demining organisation, such as organisational charts, management qualifications and proven experience.

The second stage involves an on-site assessment to confirm that people, equipment, materials and procedures are being used as intended, and that demining activities are being conducted in a safe, effective and efficient manner.

The NMAA shall establish a fair and impartial system to enable demining organisations to appeal against decisions of the accreditation body that they feel are unfair, or when new evidence comes to light.

The appeals system shall include the use of independent arbitration from the international community present in a mine-affected country, for example a representative from the UN system.

#### **RELEVANT IMAS ANNEXES**

**Annex C** | The management process for accreditation



## **STANDARD 07.31 ACCREDITATION OF MINE RISK EDUCATION ORGANISATIONS AND OPERATIONS**

Most national mine action authorities already apply some form of accreditation procedures to establish and confirm the quality of mine action organisations (see Standard 07.30). The aim of Standard 07.31 is to apply a similar accreditation requirement to mine risk education (MRE). This applies whether the organisation is conducting MRE within an integrated mine action programme or as a stand-alone activity.

There are obvious operational, logistic and administrative advantages in combining the national accreditation and monitoring bodies into one overall “quality management” body. This should be considered by the NMAA.

### **ORGANISATION AND OPERATIONAL ACCREDITATION**

Standard 07.31 makes a distinction between organisational accreditation and operational accreditation.

- > Organisational accreditation is the procedure by which an organisation is formally recognised as competent and able to plan and manage MRE activities safely, effectively and efficiently. For most mine action programmes, the NMAA will be the body which provides accreditation. International organisations such as the United Nations or regional bodies may also introduce accreditation schemes.

Accreditation will be given to the in-country headquarters of an organisation for a finite duration, normally for a period of two to three years.

- > Operational accreditation is the procedure by which an organisation is formally recognised as competent and able to carry out particular MRE activities. This may sometimes be referred to as “certification” in order to distinguish between an organisation’s accreditation to work in a country and its accreditation for certain distinct tasks.

Each operational accreditation shall refer to the capabilities required to carry out a particular MRE function (or component) such as community liaison, public information dissemination, or education and training activities. The granting of such operational accreditation assumes that the capability will not change beyond the scope or intention of the original accreditation.

### **STANDARD 07.31 ACCREDITATION OF MINE RISK EDUCATION ORGANISATIONS AND OPERATIONS**

#### **A TWO-STAGE PROCESS FOR ACCREDITATION**

In most situations it will be appropriate to award accreditation in two stages.

The first stage involves a provisional desk assessment by the NMAA or its agent based on documentary evidence presented by the MRE organisation, such as curricula, organisational charts, management and training qualifications and proven experience.

The second stage involves an on-site assessment to confirm that curricula, materials and procedures are being used as intended and that MRE activities are being conducted in a safe, effective and efficient manner.

#### **RESPONSIBILITY**

The NMAA shall establish national standards and provide guidelines for the accreditation of MRE. The accreditation body shall gain accreditation to operate and accredit MRE organisations and their sub-units. The organisation undertaking MRE shall apply appropriate management practices and operational procedures to facilitate MRE, and maintain and make available all necessary documentation, curricula, reports, records and other data on MRE activities to the accreditation body.

#### **RELEVANT IMAS ANNEXES**

**Annex C** | The management process for accreditation.

**STANDARD 07.40 MONITORING OF DEMINING ORGANISATIONS**

Control of the demining process is achieved through the accreditation and monitoring of demining organisations before and during the clearance process, and by the inspection of cleared land prior to its formal release.

Most NMAA already apply some form of external monitoring. The form and extent of such monitoring varies from country to country, but the aim is similar – to confirm that demining organisations are applying their approved management processes and operational procedures in a manner that will result in the safe, effective and efficient clearance of land. Monitoring is, essentially, an activity conducted by or on behalf of the NMAA. It involves observation, recording and reporting.

This standard provides guidelines for the implementation of a system for the monitoring of demining organisations.

**THE ROLE OF MONITORING**

Monitoring is an essential part of the demining process. It examines the demining organisation's capability (people, equipment and procedures) and observes how this capability is being applied.

External monitoring complements the demining organisation's own internal quality management system. It verifies that the demining organisation's quality assurance procedures and internal quality control inspections are appropriate and are being applied — but it does not replace the demining organisation's responsibility for ensuring the application of safe, effective and efficient operational procedures.

Monitoring will also be used, particularly at the beginning of a demining project, as on-site verification, which is part of the accreditation of a demining organisation. Guidance on accreditation is given in IMAS 07.30.

**PLANNING AND PREPARATION FOR MONITORING**

The role and responsibilities of the monitoring body, including the frequency and form of site visits, should be defined in the clearance contract or other formal agreement.

Site visits should be well prepared. Prior to the visit, the monitoring body should inform the demining organisation of the objectives and programme, and any preparation required (such as ensuring the availability of certain documents or key staff).

The actual date and timing of site visits may be given in advance or visits may be unannounced. Both have advantages and disadvantages. Unannounced visits tend to observe demining organisations in their normal working mode, but such visits may be disruptive and key members of staff may be absent. Announced visits tend to be more productive and less disruptive, but some problems may be hidden from the monitoring body. A combination of both may be appropriate.

**THE CONDUCT OF MONITORING**

The NMAA shall monitor the demining organisation and its sub-units to confirm that the management systems and operational procedures are consistent with the terms of the accreditation. Such monitoring should be random, non-intrusive and should not interfere with the conduct of planned demining activities.

The frequency of monitoring should be dependent on the task and the previous performance of the demining organisation. It should be agreed between the NMAA and the demining organisation. Monitoring should include inspection of:

- > demining management documentation
- > worksite safety
- > available medical support
- > community liaison
- > storage, transportation and handling of explosives
- > investigations of incidents and accidents
- > equipment
- > demining activities

**STANDARD 07.40 MONITORING OF DEMINING ORGANISATIONS**

**CORRECTIVE ACTION**

Any problems identified by the monitoring body should be addressed by the demining organisation. If the problems are sufficiently serious, the demining organisation should be invited to present its corrected management or operational procedures to the NMAA, and demonstrate that it is in full compliance with the stated requirements.

**MONITORING BODY | GENERAL OBLIGATIONS**

The NMAA may accredit and appoint a body to carry out the monitoring on its behalf. Any monitoring body appointed by the NMAA shall be adequately staffed, equipped and trained to monitor the demining organisation and its sub-units in an effective and appropriate manner.

The personnel of the monitoring body shall be free from any political, commercial, financial and other pressures which might affect their judgement. Policies and procedures shall ensure that persons or organisations external to the monitoring body cannot influence the results of observations, inspections and evaluations carried out by the monitoring body.

**RELEVANT IMAS ANNEXES**

There is no relevant annex to this IMAS.

**STANDARD 07.41 MONITORING OF MINE RISK EDUCATION PROGRAMMES AND PROJECTS**

Monitoring is a process of tracking or measuring progress towards the objectives of programmes and projects. In the case of mine risk education (MRE) programmes and projects, it includes the following:

- > internal monitoring of systems and operational procedures in relation to the implementation plan for the project
- > external monitoring of organisations to ensure that they are consistent with the terms of accreditation
- > monitoring change in the mine and explosive remnants of war (ERW) hazards and the environment (ie changes to initial assumptions regarding target groups, the mine/ERW hazards or the broader country context, such as the security situation)

Monitoring should be conducted both internally by the MRE implementing organisation and externally by or on behalf of the NMAA. External monitoring should complement (not replace) the MRE organisation's own internal quality management processes.

Internal and external monitoring and the monitoring of change should be an ongoing process. Monitoring is essential for effective evaluation to take place.

The development of monitoring systems should be guided by the following principles:

- > monitoring systems should be kept simple to be sustainable
- > data collection should be focused on those activities and aspects of the project that may have an impact on achieving its objectives
- > in order to be useful, data collection and analysis should feed into decision making events, such as management meetings, periodic reviews, programme and funding cycles, and national events outside the context of the project

To ensure that monitoring continues throughout the MRE project cycle, adequate resources should be given for monitoring at the inception of all MRE projects. The monitoring plan should be developed during the planning phase.

Monitoring should lead to action, and recommendations arising from monitoring activities should be used to revise and plan activities to improve performance in the short term and influence the impact of the project in the longer term.

**RELEVANT IMAS ANNEXES**

There is no relevant annex to this IMAS.

**STANDARD 07.42****MONITORING OF STOCKPILE DESTRUCTION PROGRAMMES**

An overview of the stockpile destruction process can be achieved through the accreditation and monitoring of destruction organisations before and during the anti-personnel mine destruction process, and by the inspection of the explosive safety and verification systems being used.

Standard 07.42 aims to provide a framework for monitoring the anti-personnel mine destruction process. The goal is to promote a common and consistent approach to the external monitoring of destruction organisations.

**THE ROLE OF MONITORING IN STOCKPILE DESTRUCTION**

Monitoring is an essential part of the destruction process. It provides the NMAA with the necessary confidence that the destruction organisation has destroyed its anti-personnel mine stockpile in accordance with its contractual obligations, and that the destruction process was conducted in a safe, effective and efficient manner.

Monitoring is an activity conducted by or on behalf of the NMAA. It involves observation, recording and reporting.

**GENERAL REQUIREMENTS**

Planning and preparation: the role and responsibilities of the monitoring body, including the frequency and form of site visits, should be defined in the destruction contract or other formal agreement.

Site visits should be well prepared. The actual date and timing of site visits may be given in advance or visits may be unannounced. Both have advantages and disadvantages. Unannounced visits tend to observe destruction organisations in their normal working mode, but such visits may be disruptive and key members of staff may be absent. Announced visits tend to be more productive and less disruptive, but some problems may be hidden from the monitoring body. A combination of both may be appropriate.

Monitoring: the NMAA shall monitor the destruction organisation and its sub-units to confirm that the management systems and operational procedures are consistent with the terms of the accreditation and licenses. Such monitoring should be random, non-intrusive and should not interfere with the conduct of planned demining activities.

**STANDARD 07.42****MONITORING OF STOCKPILE DESTRUCTION PROGRAMMES**

Monitoring should include the inspection of:

- > destruction management documentation
- > worksite safety
- > medical support
- > storage, transportation and handling of explosives
- > investigations of incidents and accidents
- > equipment
- > destruction activities

Corrective action: any problems identified by the monitoring body should be addressed by the destruction organisation. If the problems are sufficiently serious, the destruction organisation should be invited to present its corrected management or operational procedures to the NMAA, and demonstrate that it is in full compliance with the stated requirements.

**MONITORING BODY | GENERAL OBLIGATIONS**

The NMAA may accredit and appoint a body to carry out the monitoring on its behalf. Any monitoring body appointed by the NMAA shall be adequately staffed, equipped and trained to monitor the destruction organisation and its sub-units in an effective and appropriate manner.

The monitoring body shall prepare and maintain records of all site visits, and any information needed to understand and interpret them. All records shall be safely stored for a period of at least five years, held secure and in confidence to the applicant, unless otherwise required by law.

The personnel of the monitoring body shall be free from any political, commercial, financial and other pressures which might affect their judgement. Policies and procedures shall be implemented to ensure that persons or organisations external to the monitoring body cannot influence the results of observations, inspections and evaluations carried out by the monitoring body.

**RELEVANT IMAS ANNEXES**

There is no relevant annex to this IMAS.



## **SERIES 8**

### **LAND RELEASE AND SURVEY**

Series 8 of the IMAS focuses on survey in mine action operations and the release of previously suspected hazardous areas (SHA). Land release is defined as the process of applying all reasonable effort to identify or better define a hazardous area and remove suspicion of mines/ERW through non-technical survey (NTS), technical survey (TS) and clearance. Activities may be undertaken separately or in parallel but all are interlinked.

There are currently seven full standards in Series 8 on land release and survey:

- > **08.10** | General mine action assessment
- > **08.20** | Land release
- > **08.21** | Non-technical survey
- > **08.22** | Technical survey
- > **08.30** | Post-clearance documentation
- > **08.40** | Marking mine and ERW hazards
- > **08.50** | Data collection and needs assessment for mine risk education

IMAS 08.20 land release, 08.21 non-technical survey and 08.22 technical survey cover land release. They were produced in 2009 and the content has effectively been accepted by the mine action community. However, the full introduction of these IMAS will require changes to other IMAS; some may need small changes for consistency while a few will change substantially. These changes will now be initiated and, when completed, they will be exchanged with the current version and published accordingly. At that time, the land release IMAS will be consistently integrated into the complete IMAS series.

It should be noted that the new IMAS 08.21 and 08.22 completely replace the old IMAS 08.20 (technical survey), which has been archived. The existing IMAS 08.10 will remain in the IMAS framework pending the acceptance by the IMAS Review Board of a new draft IMAS, which will be called 05.10 Information Management.

Mine action organisations and authorities should use the land release approach and terminology related to land release. They should use the processes that are outlined in these IMAS in dealing with the suspicion of hazards and the subsequent actions to remove this suspicion in the 'package' of land release IMAS.

Pending the full integration of the Land Release IMAS into the IMAS series, care should be taken when encountering inconsistencies or references to General Mine Action Assessment and Technical Survey in other IMAS.

**STANDARD 08.10 GENERAL MINE ACTION ASSESSMENT**

Should a decision be taken to develop a national mine action programme, a comprehensive assessment of the mine-affected country will be needed. This assessment will need to be continually updated. Existing programmes should also continually assess the general mine and ERW situation in the country.

The NMAA is ultimately responsible for all phases of a demining project within its national boundaries. In particular, the NMAA shall establish and maintain a system and procedures for the collection, collation, analysis and dissemination of information on the mine and ERW hazards and its ongoing impact.

**PURPOSE AND SCOPE**

General assessment of the mine and ERW situation is required in order to:

- > assess the scale and impact of the landmine problem on the country and individual communities
- > investigate all reported and/or suspected areas of mine or ERW contamination, quantities and types of explosive hazards
- > collect general information such as the security situation, terrain, soil characteristics, climate, routes, infrastructure and local support facilities, to assist the planning of future mine action projects

General mine action assessment, or the process of continually gathering mine and ERW relevant information, helps to identify national capabilities and potential to address the problem, and the need for external assistance including financial, human skills, material and information. The information collected should be sufficient to enable priorities to be established or updated and plans to be developed. It is a continuous process.

The scope and extent of the general mine action assessment depends on many factors, including the availability of (and access to) existing information, the local security situation, and the human and financial resources available. It can vary over time. The scope and thoroughness of an initial assessment will depend on the urgency and need for planning information. The process of gathering information carried out in the early stages of an emergency programme will be quite different in form and detail to those conducted as part of a more stable developmental mine action programme.

**GENERAL PRINCIPLES**

Although the way information is gathered will vary significantly in terms of scope, complexity and duration, four general principles apply.

1. General mine action assessment forms part of a national mine action programme, and all information gathered should therefore be controlled by the NMAA. The NMAA should normally be custodian of the data, reports and related products such as maps.
2. General mine action assessment is a continuous process. It is not merely a “snapshot” of the situation on a particular date. As such, a general mine action assessment should use systems and methods which are robust and sustainable.
3. General mine action assessment is a collaborative process. Government departments, UN agencies, NGOs, commercial demining contractors and other organisations operating within a mine-affected country shall assist by providing access to information and by giving practical support, if needed.
4. Whenever possible, information collected should not be restricted or sensitive. The use of unclassified material will assist and encourage the wide distribution of survey reports, maps, data and assessments. But there will be occasions when information is provided with national security implications, and with restrictions on its further distribution. Where information collected is not sensitive or restricted it should be made widely available to all stakeholders.

**PLANNING AND PREPARATION**

Careful planning and preparation is essential in order to ensure that general mine action assessment objectives can be achieved with the resources available and in a timely manner. All possible sources of information should be considered. Survey or assessment teams will provide the principal sources of information.

**STANDARD 08.10 GENERAL MINE ACTION ASSESSMENT****COLLECTION**

The type and detail of the data collected will vary and should be appropriate to its intended use. Time and resources will be obvious constraints, but the aim should be to implement as comprehensive a system of data collection as early as possible.

General mine action assessment shall collect information on:

- > the numbers, locations and livelihoods of communities at risk and otherwise affected by the presence, or perceived presence, of mine and explosive remnants of war (ERW) hazards. It should identify the numbers and demography of mine victims and survivors, and the availability of victim assistance. It should include an assessment of the ability of the affected communities to cope and adapt to the hazards
- > the extent of the national mine and ERW hazards
- > the approximate location and extent of each suspected or confirmed hazard area
- > the local terrain including ground profile, soil type, soil contamination (mineral and scrap metal), drainage, vegetation (type and density) and access
- > the mine and ERW types and density
- > the anti-personnel mine stockpile situation

General mine action assessment should also collect information on:

- > the condition and potential of the local infrastructure, including logistic facilities, transportation, communications and medical facilities which could be used to support technical survey and/or clearance projects
- > the availability of suitable local staff for employment as deminers, support staff and management
- > the local climate (rainfall, temperature and humidity) and its potential impact on technical survey and/or clearance projects

The information should be collected in a systematic and consistent manner. Wherever possible, standard and proven information management systems and Geographic Information Systems (GIS), such as the Information Management System for Mine Action (IMSMA), should be used.

#### **DATA RELIABILITY**

Each source of information should be assessed in terms of its proven reliability and credibility. Inaccurate and misleading data will impact on later stages of the process, and may reduce confidence in other (and more accurate) information collected during the survey.

#### **REPORTING OBLIGATIONS**

States Parties to the Anti-Personnel Mine Ban Convention are required to provide information to the UN through their Article 7 reports. They should consider using the general mine action assessment process to collect, collate and present the necessary information on mined areas which contain, or are suspected to contain, anti-personnel mines.

The UN Department of Disarmament Affairs provides guidance on the level of detail required, the form in which it should be provided, and the reporting schedule.

#### **RELEVANT IMAS ANNEXES**

**Annex C** | Guidance on the use of IMSMA for GMAA

**STANDARD 08.20 LAND RELEASE**

Evidence has frequently shown that only a small proportion of the areas targeted for clearance are actually contaminated by mines and ERW. In many instances, more investigative survey and planning could increase the efficiency of releasing land from suspicion through less expensive and more rapid non-technical survey (NTS) and technical survey (TS) methods.

The focus of the land release concept is to improve the balance between survey activities and clearance. The challenge is to improve the 'decision making' process based on appropriate responses to the level of hazards and to take note of best practices, already undertaken by many operators, across the industry as a whole.

IMAS 08.20 provides guidance on the concept of land release in order to enable the development of a national land release policy and standards. It outlines the broad responsibilities and obligations of the National Mine Action Authorities, demining organisations and agencies involved.

**INITIAL INFORMATION SCREENING**

If conducted correctly, survey activities can provide accurate information which can be a basis for future prioritisation and clearance plans. If conducted inadequately, or if the collected information is used in way other than was intended, a false understanding of the real situation may result. The process of removing duplication and errors is vital in many country databases. Areas removed during this process are labelled as cancelled.

**THE LAND RELEASE PROCESS**

The land release process is an evidence-based information assessment process with a number of principles.

- > **Claim** – land can only be released from past suspicion if there has been a legitimate claim in the first place.
- > **Fear** – people's fear of mines/ERW is not on its own a legitimate, evidence-based claim.
- > **Default** – inaccessible areas should not by default be recorded as suspected or confirmed hazardous area.
- > **Graduated response** – a suspected area should be subject to NTS/TS in order to reduce the area as much as possible before commencing full clearance if absolutely necessary.
- > **Clearance** – an evidence-based information assessment process will produce a better defined area for the commitment of expensive assets,

### STANDARD 08.20 LAND RELEASE

and clearance will be more efficient.

- > **Credibility/documentation** – land should only be released when safe to use after a well documented and credible process.
- > **Community involvement** – local participation is very important throughout the process.
- > **Low impact** – low impact areas should not be released based on impact alone.
- > **ERW** – land can be released from suspicion of mines but there may still be ERW located within the area.

### CONFIDENCE

Before land can be released, it should be established with a high degree of confidence that there is no longer any evidence that the area contains an explosive hazard. High confidence will be gained after all reasonable efforts have been made into investigating whether mines/ERW are to be found within a specific area.

### RISK AND LIABILITY

Liability refers to any legal responsibility, duty or obligation that a country, organisation or individual might have. This may be a concern when releasing land. To address this it is important to develop and agree a well documented concept including the development, where applicable, of national policy, national standards and SOPs. As long as organisations follow the agreed procedures, the issue of liability will be addressed.

### RELEVANT IMAS ANNEXES

**Annex C** | Relevant International Instruments



**STANDARD 08.21 NON-TECHNICAL SURVEY**

Non-technical survey (NTS) is one of the key activities in an efficient and successful land release process. The conclusions drawn play a crucial role in setting the boundaries for future mine action activities in an area. These conclusions are the result of the process of gathering and analysing information and by interviewing landowners, farmers, village leaders, military as well as visiting the general area and analysing old records etc.

IMAS 08.21 explains the context of NTS and identifies criteria to be considered to allow confirmed hazardous areas (CHA) to be defined, and old SHA to be confirmed or cancelled.

**SCOPE**

The process of collecting and analysing new and/or existing information about a new or previously recorded hazardous area without the use of clearance or verification assets is called NTS. Its purpose is to confirm whether or not there is evidence of a hazard, to identify the type and extent of hazards and to define, as far as possible, the perimeter of the actual contaminated areas without physical intervention. Exceptions might occur when assets are used for the sole purpose of providing access for non-technical survey teams. The results from a NTS can replace any previous data relating to the survey of an area.

NTS is undertaken to collect essential information about a hazardous area. Areas may be identified in numerous ways; for example, a rapid information gathering exercise in the immediate aftermath of a conflict, an impact survey, military records or word of mouth etc.

The purpose of the NTS is to decide if an area is contaminated by mines/ERW, to cancel incorrect reports, to reduce the perimeter to a confirmed hazardous area as much as possible and to have enough information to decide what should be done next in an area.

#### METHODOLOGY

NTS activities can range from analysis of existing information and a few short site visits through to a more elaborate system of visits and meetings with a wide range of stakeholders.

NTS actions may include the following:

- > a desk assessment of old records
- > seeking information from central institutions (police, military, provincial authorities etc)
- > interviews with people living and working in the area
- > inspection of the suspected area in the field

#### THE IMPORTANCE OF INFORMATION AND CONFIDENCE IN THE SOURCE OF INFORMATION

It may be useful to sub-classify the information based on its importance. First hand information from a source stating that he/she has seen a mine is of greater importance than a second hand source that states that he/she has heard that mines exist in an area. Confidence, or how much you actually believe in the source of information, should also be taken into account.

#### CRITERIA

Criteria for confirming suspected hazardous areas should be identified, understood and agreed by all stakeholders. If the criteria are not met, the area should be cancelled or released. Criteria for cancelling or releasing land could include: evidence of previous armed conflicts in the area, tactical reason for using mines in the area and no mine/ERW accidents in the area for an agreed period of time.

#### SUB-DIVIDING INTO SMALLER SECTIONS

By dividing a confirmed hazardous area into smaller sectors based on the evidence provided, future technical survey and clearance can be focused more appropriately. Based on the level of threat, different combinations of assets may be deployed in the sectors.

#### RELEVANT IMAS ANNEXES

**Annex C** | Evidence based assessment and decision making

**Annex D** | Illustrated example of the Non-Technical Survey Process

### STANDARD 08.22 TECHNICAL SURVEY

The process of using physical demining assets (manual, mechanical and/or animal detection) in an information gathering role is called technical survey (TS).

IMAS 08.22 provides guidance on the role of TS in the land release process and explains the main principles. It also provides a framework for the conduct of TS.

#### SCOPE

The purpose of TS is to gather detailed information in order to release areas from suspicion or confirm the presence of hazard. The purpose is not actually to clear mines/ERW. In most cases the same assets are used as for clearance but with a different methodology, depending on the evidence collected during the NTS and what would be an appropriate response to the level of threat.

#### METHODOLOGY

Any mine action asset can be used as long as it is established that the asset can provide reliable information. Assets should be used to complement each other. Depending on the level of threat, assets may be used in different manners and combinations. For example, when conducting a TS of an area with very low threat, the area may be covered by a flail followed by visual search, while an area with a higher threat may be covered by a flail followed by a single mine detection dog.

#### TECHNICAL SURVEY ASSETS

All assets used in technical survey shall be specifically accredited by the NMAA for this purpose. Assets used in TS shall be matched to the hazards expected to be found in the suspected areas and shall have demonstrated a capability to identify, remove, destroy or detonate the likely hazards with an acceptable degree of confidence, which will be defined by the NMAA.

The most common assets and methods used are:

- > **manual clearance:** a reliable method providing a high degree of confidence in the quality of the ground that has been searched
- > **animal detection:** animal detection may be a reliable TS method
- > **flail machines:** flails can miss or move a percentage of targets/hazards; this is not necessarily a limitation in their use in TS
- > **tiller machines:** tillers normally crush or destroy hazards rather than detonate them

### STANDARD 08.22 TECHNICAL SURVEY

- > **rollers:** rollers are known to detonate or crush a low percentage of hazards
- > **low sensitivity metal detectors:** sometimes referred to as wide area detectors and may include magnetometers; these detectors may prove to be useful in TS under some circumstances

If several assets are used for TS operations, a confidence classification system should be developed for each individual asset and possible combinations of the assets; this should be based on an assessment on how much and what type of information will be provided when each asset is used. This may assist in determining the minimum requirement for TS.

### TARGETED VERSUS SYSTEMATIC SEARCH

The objectives of TS are to determine whether there are hazards present and to identify the location of these hazards in the most economical manner. Targeted and systematic investigations are two methods that may be applied to achieve this.

- > **Targeted Investigation** - targeted investigation will focus TS efforts on areas that are thought to be more likely to contain hazards. These areas are known as high risk areas.
- > **Systematic Investigation** - systematic investigation is used where there are no obvious high risk areas to target. When there are no high risk areas, the search for information should be spread uniformly over the area. Systematic investigation will require an increased survey requirement (ground coverage) in areas where the mines are not in a predictable pattern.

### RELEVANT IMAS ANNEXES

**Annex C** | High Risk Areas and Buffer Zones

**Annex D** | Illustrated example of the Non-Technical and Technical Survey process

**STANDARD 08.30 POST-CLEARANCE DOCUMENTATION**

Once land has been cleared of mines and ERW, there is usually an urgent need to make it available for productive use without delay. There are some important issues which should be addressed before the land can be considered formally “cleared” and available for use.

In particular, all post-clearance inspections should be completed and any corrective action carried out. Permanent markers should be put down and accurately recorded for future reference. All necessary information such as monitoring and inspection reports should be collated and made available for the formal handover.

In addition, the demining organisation shall ensure that the mine-affected community is fully aware of all demining activities that have taken place in the area and the implications for the community.

Standard 08.30 provides guidance on the procedural requirements for the handover of cleared land.

**CLEARANCE CONFIRMATION**

The documentation which is made available for handover shall provide sufficient evidence, and therefore confidence, that the clearance requirement has been met. Clearance confidence is achieved in two stages:

Stage 1 involves the monitoring of the demining organisation’s management systems and operational procedures before and during the clearance process. IMAS 07.40 provides guidance on monitoring requirements.

Stage 2 involves the inspection of cleared land by sampling. IMAS 09.20 provides guidance on the procedures to be adopted for post-clearance inspections.

Reports produced during the monitoring and post-clearance inspections, together with follow-up inspections to confirm that any corrective action has been successfully completed, should be included in the handover documentation.

**COMPLETION REPORT**

A completion report should be prepared, including the following information:

- > hazard area and task identification numbers
- > clearance requirements — specified area and specified depth
- > a copy of the technical survey report (if available)
- > details of the clearance organisation, including references to its accreditation
- > a summary of the procedures and equipment used to clear the area
- > details of quality assurance of the work
- > post-clearance inspection reports
- > details of the cleared area, including a list of the mines and ERW located and destroyed during clearance
- > details of reduced and cancelled areas
- > details of any incidents and accidents which occurred during clearance
- > a formal recognition from the mine-affected community of community involvement and acknowledgement of the final status of the land
- > a comparison with known minefield records
- > a formal declaration that indicates that the land has been cleared over the specified area to the specified depth

**RESPONSIBILITIES AND OBLIGATIONS**

The NMAA shall develop standards and guidance for the handover documentation. It shall maintain and safely keep all completion reports, handover certificates and supporting information, and make them available to authorities, organisations and the local population as required.

**RELEVANT IMAS ANNEXES**

**Annex C** | Guidance on the use of IMSMA for post-clearance documentation

**Annex D** | Example of a handover certificate and formal declaration

**STANDARD 08.40 MARKING MINE AND ERW HAZARDS**

The marking of mine and ERW hazards is undertaken to provide a clear and unambiguous warning of danger to the local population. Where possible, it should install a physical barrier to reduce the risk of unintentional entry into hazardous areas.

Standard 08.40 compliments two international conventions: the Anti-Personnel Mine Ban Convention and, Amended Protocol II and Protocol V (on ERW) of the Convention on Certain Conventional Weapons. States Party to these conventions have certain specific obligations regarding the marking of hazards.

**HAZARD MARKING SYSTEMS**

The design of mine and ERW hazard marking systems should take account of local materials freely available in the contaminated region and the period for which the marking system will be in place. Materials used in marking systems should have little value for purposes other than mine and ERW hazard area marking. Material with any alternative value is likely to be removed, leaving the hazardous area unmarked.

**CATEGORIES OF MARKING SYSTEMS**

There are three general categories of marking systems.

- > Permanent marking systems should be used to mark the perimeter of mine and ERW hazard areas which are not scheduled for clearance in the near future. They should employ a combination of markers, signs and physical barriers.
- > Temporary marking systems may be used to mark the perimeter of a mine and ERW hazard area in preparation for clearance operations. They should include the use of physical barriers.
- > Improvised marking systems are generally placed by the local population. They may also be used by demining organisations when materials are not available to construct temporary or permanent marking systems.

**MARKING SYSTEM MAINTENANCE**

The NMAA shall be responsible for the maintenance of permanent and temporary marking systems. This should be integrated with national and local mine risk education programmes, and should actively involve the communities at risk.

**RESPONSIBILITIES**

The NMAA shall publish standards for the design and construction of hazard marking systems to be used in national mine action programme and demining projects. It shall also give guidance to regional and local authorities on the retention and maintenance of minefield marking systems.

In the absence of national standards and specifications on hazard marking, demining organisations shall apply the specifications of this standard. They should coordinate their marking systems with other demining organisations operating locally, until a NMAA is established.

**LEGAL OBLIGATIONS**

Each State Party to the Anti-Personnel Mine Ban Convention is obliged “to ensure as soon as possible that all anti-personnel mines in mined areas under its jurisdiction or control are perimeter-marked, monitored and protected by fencing or other means, to ensure the effective exclusion of civilians, until all anti-personnel mines contained therein have been destroyed.”

Amended Protocol II requires States Party to ensure “the effective exclusion of civilians from the (mined) area by fencing or other means. ... Marking must be of a distinct and durable character and must at least be visible to a person who is about to enter the perimeter-marked area.”

**RELEVANT IMAS ANNEXES**

**Annex C** | Hazard signs - minefield and mined areas

**Annex D** | Examples of marking systems



**STANDARD 08.50 DATA COLLECTION AND NEEDS ASSESSMENT FOR MINE RISK EDUCATION**

An essential part of any mine risk education (MRE) programme or project is the needs assessment and the development of a data collection system, which allows an MRE organisation to plan, implement, monitor and evaluate its activities.

Although the needs assessment should precede the planning and implementation of an MRE programme or project, it is not a one-off activity. It is an ongoing task to review the different needs, vulnerabilities and expectations of the affected communities.

This standard should be read in conjunction with IMAS 08.10 — General Mine Action Assessment.

**THE PURPOSE OF THE NEEDS ASSESSMENT**

The purpose of a needs assessment in MRE is to identify, analyse and prioritise the local mine and ERW risks; to assess the capacities and vulnerabilities of the communities; and to evaluate the options for conducting MRE.

The needs assessment should take both primary and secondary information into account. Primary information involves data collected directly at the community level. Secondary information involves data derived from other sources, for example from the mine action database or other institutional and governmental sources.

**ETHICS OF DATA COLLECTION**

The following basic principles should apply during data collection:

- > when data is collected from secondary sources, the original source should be fully referenced as the owner of the data
- > where information is given in confidence, the wishes of the respondent/data provider should be respected
- > interviewers should be careful not to raise the expectations of the target communities through their data collection activities by inadvertently implying mine action will commence immediately
- > care should be taken not to “over-survey” communities, ie visit communities which have previously been visited by mine action organisations and ask similar questions
- > interviewers should conform to basic ethics for conducting interviews, such as being polite, respectful and non-intrusive

### **STANDARD 08.50 DATA COLLECTION AND NEEDS ASSESSMENT FOR MINE RISK EDUCATION**

#### **DATA TO BE COLLECTED**

The data collection and needs assessment provide the foundations upon which the plan can be developed. The data collected will allow the following to be determined:

- > target groups (by collecting data on who is injured, who is taking risks and who is affected by mines and ERW)
- > areas of work (by collecting data on where people are injured, location of hazards, etc)
- > messages (and subsequently the activities) according to target groups (by assessing how people are injured and how they take risks)
- > approaches and methodologies likely to induce behavioural change
- > channels of communication and the way the target groups communicate and learn
- > institutional arrangement and partnerships for providing MRE messages and an emergency response
- > resources available and their allocation
- > timeframe for the project (by collecting data on the nature and size of the mine/ERW problem, and estimated timeframe for removing the impact)

Assessment should be objective and free of bias. The process of data collection and analysis should be transparent.

#### **RELEVANT IMAS ANNEXES**

There is no relevant annex to this IMAS.

There are currently eight standards in Series 9 on mine and ERW clearance:

- > **09.10** | Clearance requirements
- > **09.11** | Battle Area Clearance
- > **09.20** | Inspection of cleared land:  
guidelines for the use of sampling procedures
- > **09.30** | Explosive ordnance disposal
- > **09.40** | Guide for the use of mine detection dogs
- > **09.41** | Operational procedures for mine detection dogs
- > **09.42** | Operational testing of mine detection dogs  
and handlers
- > **09.43** | Remote Explosive Scent Tracing (REST)
- > **09.44** | Guide to medical and general health care of dogs
- > **09.50** | Mechanical demining

IMAS 09.10 and 09.11 specify the quality system (ie the organisation, procedures and responsibilities) necessary to determine that land has been cleared to acceptable standards.

IMAS 09.20 provides guidance for the inspection of cleared land by sampling.

IMAS 09.40 is a guide to the application of the IMAS 09.4 series of standards on the use of MDD. The IMAS 09.4 series addresses most aspects of MDD operations and should be viewed as technical standards and guidelines. They are:

- > **09.40** | Guide for the use of mine detection dogs
- > **09.41** | Operational procedures for mine detection dogs
- > **09.42** | Operational testing  
of mine detection dogs and handlers
- > **09.43** | Remote Explosive Scent Tracing (REST)
- > **09.44** | Guide to medical and general health care of dogs

IMAS 09.50 provides specifications and guidelines for mechanical demining operations.

Humanitarian demining aims to identify and remove or destroy all mine and ERW hazards from a specified area to a specified depth. The beneficiaries of demining programmes must be confident that cleared land is safe for their use. This requires management systems and clearance procedures which are appropriate, effective, efficient and safe.

The local community should also receive regular briefings and explanations during the clearance operation from the demining organisation; this acts as a very effective confidence-building measure. Community liaison is an integral part of the demining process and can be achieved by the services of a mine risk education team, or by suitably trained members of the demining organisation.

Series 9 of the IMAS provides guidance on appropriate clearance methods and techniques.

**STANDARD 09.10 CLEARANCE REQUIREMENTS**

Standard 09.10 specifies the quality system (eg the organisation, procedures and responsibilities) necessary to determine that land has been cleared to acceptable standards.

It adopts a two-stage approach: 1) quality assurance, and 2) quality control.

This combined application of quality assurance (before and during the clearance process) with post-clearance quality control will contribute to ensuring that the land is safe for its intended use. The quality of clearance must be acceptable to both the NMAA and the local community that benefits, and must be measurable and verifiable.

**SPECIFICATION OF CLEARANCE QUALITY**

Land shall be accepted as “cleared” when the demining organisation has ensured the removal and/or destruction of all mine and ERW hazards from the specified area to the specified depth.

In the absence of any reliable information on the expected depth of buried mines and ERW, a default depth should be established by the NMAA. The default depth should be based on an assessment of the likely mine and ERW hazards and should also take into consideration the future use of the land.

**Note:** For buried mines and ERW this depth should normally not be less than 130mm below the original surface level; this figure is based on the effective detection depth of the majority of metal detectors. It may be refined by the NMAA dependent on the type of metal detector that they currently use.

The specified area to be cleared and the required depth of clearance should be presented to the demining organisation in a site specific tasking order. The tasking order may also indicate:

- > any additional activities required, eg marking
- > the demining resources to be used
- > how long the demining organisation is expected to work on the task
- > any additional clearance quality requirements
- > the requirements for monitoring and inspection

### **STANDARD 09.10 CLEARANCE REQUIREMENTS**

The removal and/or destruction of all mine and ERW hazards in the specified area to the specified depth shall be ensured by:

- > using accredited demining organisations with operationally accredited capabilities
- > using appropriate management practices, and applying safe and effective procedures
- > monitoring the demining organisation and its sub-units
- > conducting a process of post-clearance inspection of cleared land, if required

The contractual arrangements should specify the area to be cleared, the clearance depth and the requirements for monitoring and inspection. These should be specified by the NMAA, and agreed during the contractual arrangements.

### **RESPONSIBILITIES AND OBLIGATIONS**

The NMAA shall specify the area to be cleared and depth of clearance in contracts and agreements, and specify the standards for quality assurance and quality control to be applied. The demining organisation shall, for each hazardous area, and prior to any clearance, agree the requirement and formally document both the area and depth of the intended clearance and any monitoring and post-clearance inspections of cleared land.

### **RELEVANT IMAS ANNEXES**

There is no relevant annex to this IMAS.

## **STANDARD 09.11 BATTLE AREA CLEARANCE**

Battle Area Clearance (BAC) is the systematic and controlled clearance of hazardous areas where the risk is known not to include mines. BAC operations involve the location and disposal of ERW, including UXO and Abandoned Explosive Ordnance (AXO), over specific areas. Areas may include battlefields, defensive positions and sites where air delivered or artillery munitions have been fired or dropped. BAC operations do not normally include the disposal of large stockpiles of AXO unless these have been dispersed over a large area, possibly as a result of an explosion. BAC operations do not cover the disposal of stockpiled munitions in national storage facilities. BAC should not be conducted in areas where a landmine hazard is expected. Conversely, landmine clearance procedures should not be conducted in areas where no landmine hazard is expected.

Standard 09.11 guides the quality system necessary to determine that former battle areas have been cleared to accepted standards.

### **BAC REQUIREMENTS**

- > **Area to be cleared** - the extent of the area to be cleared shall be determined by the tasking authority. It shall be developed through the conduct of a non-technical or technical survey that uses sources of reliable information and evidence collected during technical investigation or progressive clearance operations.
- > **Quality of clearance** - the quality requirements for BAC depend on the category of BAC conducted. The two categories of BAC are surface clearance and sub-surface clearance. A risk assessment, factoring humanitarian concerns and clearance resources, shall be performed in order to decide on concurrent or sequential surface and subsurface clearance.
- > **Depth of clearance** - if a battlefield requires sub-surface clearance, the specified depth of clearance shall be determined by the tasking authority and may be developed through the use of a technical survey, or from other reliable information which establishes the depth of the ERW hazards expected in the area and an assessment of the future intended land use. In the absence of reliable information on the depth of ERW hazard, a default depth for clearance should be established by the tasking authority. The required clearance depth can be adjusted as clearance work progresses.
- > **Detection Equipment** - for sub-surface clearance, various detecting techniques may be appropriate including the use of mine detection dogs. For details about detection technology refer to the Metal Detector Handbook for Humanitarian Demining published by the European

**STANDARD 09.11 BATTLE AREA CLEARANCE**

Commission in 2003, and Guidebook on Detection Technologies and Systems for Humanitarian Demining, published by the GICHD in March 2006.

**SAFETY**

The minimum safety distances for BAC operations are dependent on the expected hazard and the type of operation being conducted. For surface search no minimum safety distance need be applied provided that suspected items are not touched in any way, ie they are located visually and marked. However, consideration should always be given to the possibility of booby traps. For a surface clearance investigation of UXO, where there is a risk of movement or disturbance of items of UXO, a safety distance should be considered and the principle of the minimum number of people in a specified danger area applied. For sub-surface clearance involving excavation a suitable safety distance related to the expected munitions should be assessed and applied.

**REPORTING AND RECORDING**

Protocol on Explosive Remnants of War (Protocol V of the CCW) emphasises certain obligations on recording, storage and release of information on UXO and AXO. In line with the intention of this Protocol, the maintenance of comprehensive records relating, among other things, to what has been found in BAC operations, by whom and where and how deep, will assist short and longer term planning.

**RESPONSIBILITIES AND OBLIGATIONS**

In conforming to the principles laid out in the Charter of the United Nations, Protocol V of CCW and the rules of international law of armed conflict, parties to an armed conflict have a responsibility to ensure that civilians are protected from ERW. In cases where EO is used and becomes ERW, the 'users' shall, after the cessation of active hostilities, provide, where feasible, technical, financial, material or human resource assistance to facilitate the marking and clearance, removal or destruction of such ERW. The UN should be prepared to assess situations and assist in the collection of relevant information from parties to a conflict. The NMAA shall develop national standards which specify the area to be cleared, and specify the QA and QC requirement. The organisation undertaking clearance shall apply management practices and operational procedures which aim to clear land to the requirements specified in the contract and tasking agreement(s).

**RELEVANT IMAS ANNEXES**

There is no relevant annex to this IMAS.



## **STANDARD 09.20 INSPECTION OF CLEARED LAND: GUIDELINES FOR THE USE OF SAMPLING PROCEDURES**

General principles and procedures for inspection and sampling have been developed by the International Organisation for Standardisation (ISO). The ISO inspection and sampling procedures provide rules which enable decisions to be taken on the quality of a product — in the case of demining the “product” is cleared land.

The results of sampling are greatly influenced by the way in which a sample is selected. Rigorous procedures for sampling are therefore required. Standard 09.20 provides one method of inspecting cleared land, through selecting random samples. Other methods are possible, and may be developed to meet national and local needs and preferences.

### **GENERAL REQUIREMENTS AND PRINCIPLES**

The inspection of cleared land should be done by inspection bodies, acting on behalf of a NMAA. This inspection forms part of a management process which aims to verify the quality of clearance and to establish sufficient confidence that the demining organisation has removed and/or destroyed all mine and ERW hazards from the specified area to the specified depth.

- > **Sampling plan** - there are a number of alternative sampling methodologies that may be employed. For the purpose of this IMAS, a statistically valid system has been developed. This standard provides one method of selecting random samples, but other methods may be developed to meet national and local needs and preferences.
- > **Method of inspection** - the procedures and equipment used by the inspection body to inspect the samples of cleared land should be approved by the NMAA, and should be agreed with the clearance organisation as part of the contract or agreement. The NMAA and the demining organisation should agree a mutually acceptable time limit within which the sampling inspection must take place.
- > **Acceptance criteria** - a “lot” of land should be considered as “cleared” only if all the samples in the lot are found to be free of mines or ERW down to the depth specified in the contract. Where any sample in the lot is found to contain one or more mines or ERW, the lot containing that sample should be declared to have failed the inspection.
- > **Residual metal fragments** - cleared land may contain other potential non-conformity, such as residual metal fragments following detection by metal detectors, or residual traces of explosives following detection by explosives detectors. Such cases could indicate a potential critical failure of the demining process (equipment, people or procedures) and constitute a critical non-conformity.

### STANDARD 09.20 INSPECTION OF CLEARED LAND: GUIDELINES FOR THE USE OF SAMPLING PROCEDURES

- > **Corrective action** - the NMAA should determine the corrective action to be taken on lots that are rejected. Guidance on corrective action should be provided in advance, should be based on national standards and guidelines, and should form part of the demining organisation's contract or agreement.
- > **Re-inspection** - failed lots should not be offered for re-inspection until the demining organisation has taken corrective action as agreed with the NMAA through inspection body, in accordance with national standards.
- > **Cost - the cost issue** should be clearly articulated in the clearance contract. The NMAA may ask the clearance organisation to cover the costs of re-clearance and re-inspection as appropriate.
- > **Record of inspections and results** - the sample plan, the methods used for inspection and the results should be recorded by the inspection body; this includes the location, depth, types of hazard and other non-conformities specified in the contract such as metal fragments or explosive residue. Details of all corrective action shall also be recorded. All records shall be passed to the NMAA.

### RELEVANT IMAS ANNEXES

**Annex C** | Sampling plan for post clearance inspection

## **STANDARD 09.30 EXPLOSIVE ORDNANCE DISPOSAL**

Under the IMAS, the term “explosive remnants of war” (ERW), including cluster munitions, applies to munitions other than landmines which present a significant risk to human life. ERW may be cleared as part of a demining contract, or a contractor specialising in explosive ordnance disposal (EOD) may clear them under separate arrangements. For the purposes of this standard both activities are included as EOD operations.

Standard 09.30 provides guidance for the management of EOD as part of mine action. It does not provide specific technical guidance for the disposal of particular explosive ordnance.

### **EOD PROCEDURES AND OPERATIONS**

- > **General principles** - EOD operations involve the detection, identification, field evaluation, render safe, recovery and disposal of EO. EOD may be undertaken as a routine part of mine clearance operations following the discovery of ERW in or near hazardous areas. EOD operations may also be undertaken to dispose of ERW discovered outside hazardous areas. Such operations may involve a single item of ERW, or a number of items at a specified location such as a mortar or artillery gun position. It may also involve a stockpile of ammunition left in a bunker or an ammunition point.
- > **Capability** - the effective management of mine action programmes includes, where necessary, the establishment and maintenance of a capability to conduct EOD in a safe and effective manner. This involves a formal risk assessment of the ERW hazards and the development of a safe and effective EOD capability. Such a capability shall include: the preparation of appropriate procedures for neutralisation and disarming; the use of well-trained and qualified deminers and EOD operators; and the use of effective and safe equipment, stores and supplies.
- > **Qualification** - EOD can be carried out at many levels from the neutralisation of large bombs and missiles to the destruction of grenades and submunitions. EOD qualifications should be appropriate to the hazard and the munitions most likely to be found. The qualifications of all EOD operators shall satisfy the requirements and regulations of the NMAA.

## **STANDARD 09.30 EXPLOSIVE ORDNANCE DISPOSAL**

- > **Assessment** - the NMAA and mine action organisations should develop performance criteria, appropriate assessment tools and procedures in order to assess the level and quality of competence of EOD operators. These could include written tests, practical exercises, task demonstration, or procedures for assessment of performance during EOD operations.
- > **Neutralisation and disarming procedures** - individual mines and ERW should be destroyed or neutralised in situ when it is not safe to move them to a nearby disposal site. Relocation to a disposal site will, among other things, help to reduce the contamination of the area with metal fragments from an in situ detonation. The decision to move a particular mine or ERW should be based on an assessment by an appropriately trained EOD operator. If the fuze system is such that it is safe to move for nearby disposal, it may be moved. If the fuze system makes it simple to render the munition safe by neutralisation and/or disarming, it should be rendered safe prior to moving it to a suitable location for disposal.

Demining organisations, with an integral EOD capability, shall prepare SOPs for neutralisation and disarming procedures which are appropriate for the mine and ERW hazards likely to be encountered and which are consistent with accepted international EOD practice.

Should a demining organisation not have a suitable integral EOD capability, or be able to sub-contract that capability with an accredited individual or organisation, then they shall mark, identify and report any mine and ERW located to the NMAA. It shall then be the responsibility of the NMAA to provide an appropriate EOD response.

- > **Destruction procedures** - demining organisations shall prepare SOPs for the effective and safe destruction of relevant mines and ERW. These should include the destruction of mines and ERW in situ, or mines and ERW, including AXO, recovered and destroyed individually. Destruction of bulk AXO should be advised and conducted by suitably trained EOD operators. Special attention shall be given to ensuring the containment of blast and fragmentation effects resulting from the destruction of mines and ERW. Sites chosen for bulk destruction shall be located sufficiently far away from populated areas so as to represent no risk.

### STANDARD 09.30 EXPLOSIVE ORDNANCE DISPOSAL

- > **Transportation, handling and storage of mines and ERW** - when mines or ERW are moved, either for storage or to a site for bulk destruction, demining organisations shall apply national standards which should include reference to relevant national laws. If national standards do not exist or are inappropriate, demining organisations shall apply the general principles given in IMAS 10.50.

#### RESPONSIBILITY

The NMAA shall establish and maintain national standards for EOD procedures. Demining organisations shall establish and maintain SOPs for EOD operations which comply with national standards or IMAS.

#### RELEVANT IMAS ANNEXES

There is no important relevant annex to this IMAS.

**STANDARD 09.40 GUIDE FOR THE USE OF MINE DETECTION DOGS**

Mine Detection Dogs (MDD) can be efficient and cost effective for mine action operations when used under the right conditions. MDD can provide a solution to the problems of locating minimum metal mines and working in ground with a high metallic content. However, the increased use of MDD has created new challenges. There are still contradictory views about the detection capabilities of MDD and some concerns are still raised about the quality and credibility of MDD operations. Despite these doubts, MDD are used in many situations and land is being released as a result of their actions.

IMAS 09.40 is a guide to the application of the IMAS 09.4 series of standards on the general use of MDD. It is the introductory document of the IMAS 09.4 series of standards, which addresses most aspects of MDD operations and, unlike many of the general IMAS, should be viewed as both technical standards and guidelines. There are five IMAS in this series, including this document. They are:

- > **09.40** - Guide for the use of mine detection dogs
- > **09.41** - Operational procedures for mine detection dogs
- > **09.42** - Operational testing of mine detection dogs and handlers
- > **09.43** - Remote Explosive Scent Tracing (REST)
- > **09.44** - Guide to medical and general health care of dogs

**WHY DOGS ARE USED FOR MINE AND ERW DETECTION**

MDD are now a commonly used mine and ERW detection technology. There are four major reasons for this:

- > if implemented correctly, detection by MDD can be faster and more cost effective than manual demining using detection by metal detectors and excavation
- > MDD can detect mines and ERW with low-metal and no-metal content and mines and ERW in areas with high metal contamination or background, such as on railway lines
- > many demining organisations use a variety of demining and ERW clearance 'tools', such as mechanical pre-clearance, manual clearance, and detection by dogs, in a complementary role
- > unlike most vapour sensors, dogs can be used to pinpoint mines and ERW against a background already contaminated by explosives

## **STANDARD 09.40 GUIDE FOR THE USE OF MINE DETECTION DOGS**

### **HOW DOGS CAN BE USED**

- > **General** - MDD can be used in many different roles; however they work best in areas where there are low concentrations of mines and/or ERW. They are well suited for activities such as:
  - > mine and ERW verification
  - > area reduction and delineation of minefield boundaries
  - > searching roads and road verges
  - > clearance verification, including the rapid sampling of cleared land (Quality Control (QC)), which can be done after both manual and mechanical demining
  - > searching pockets of land unreachable by mechanical demining equipment
  - > searching railways and sites heavily contaminated with metal
  - > creation of safe lanes for clearance start-points

Of these the first three are the most common.

- > **Operational procedures** - operational procedures for the use of MDD are covered in more detail in IMAS 09.41. There is no uniform set of operational procedures that can be applied under all conditions, but there are common principles that can be applied to MDD operations.

### **OPERATIONAL TESTING OF MDD AND HANDLERS**

A central feature of the implementation of MDD standards must be the operational testing of MDD teams (dogs and handlers). Operational tests provide an assurance that a minimum standard has been achieved. Operational tests do not provide an assurance that the tested technology will work at all times and other QA procedures need to be established to ensure ongoing compliance with standards. Guidelines for the operational testing of MDD and handlers can be found in IMAS 09.42.

In the past, the operational testing of MDD and accreditation of mine action organisations has been treated as an internal affair and not a matter for the NMAA or donors. This view has changed, both for mine action organisations and MDD teams. Regular operational testing of MDD teams has been implemented in many programmes, and even where external operational testing is not required, some form of internal testing is normal.

**REMOTE EXPLOSIVE SCENT TRACING (REST)**

Another method of detection by animals, known as REST is described in more detail in IMAS 09.43. In a REST system, explosive vapour is captured onto filters, which are transported to locations where specifically trained sniffer animals check the filters for traces of the target odour. Each filter represents a sector of road or land, and the animal's response to a filter informs the demining agency where to focus their clearance activities.

**OCCUPATIONAL HEALTH AND GENERAL DOG CARE**

A successful MDD operation relies on well-fed, well-trained and well-treated dogs. Poor attention to the health of dogs, and their treatment when sick, may result in prolonged training periods and a limited operational output. Dogs may die as a result of poor health care, no vaccinations and neglected symptoms of disease. IMAS 09.44 provides guidance on health and dog care.

**LIMITATIONS ON THE USE OF MDD**

MDD cannot be used successfully under all circumstances. In areas of dense or thorny vegetation, the search pattern of MDD may be restricted giving rise to un-searched areas. Also, vegetation may prevent the handler observing MDD signals, although certain search patterns can reduce this problem. It is not appropriate to use MDD in areas where there is a high concentration of mines/ERW as the number of indications could make these operations inefficient and there are safety implications. Wet or cold conditions restrict the dispersal of the scents that MDD detect. In certain environments rain may spread target odours widely making it difficult for MDD to pinpoint mines, and consistent high winds can interfere with MDD operations by dispersing the vapour.

**RESPONSIBILITIES**

The NMAA shall establish a clear and sustainable national policy on the use of MDD within the mine action programme, and develop relevant national standards governing the testing and use of MDD. The demining organisations carrying out MDD operations shall establish SOPs that are consistent with relevant national standards, or IMAS.

**RELEVANT IMAS ANNEXES**

There is no relevant annex to this IMAS.



### **STANDARD 09.41 OPERATIONAL PROCEDURES FOR MINE DETECTION DOGS**

This standard provides specifications and guidelines for operational procedures to be adopted for MDD operations.

For the purposes of this standard, ‘operational procedures’ means procedures to be applied as part of a MDD operation. They include, but are not limited to: operational accreditation; planning for MDD operations; preparation for MDD operations; MDD search procedures; MDD operations; environmental factors affecting MDD operations; rest and rotation of MDD; use of logbooks; and MDD health and capability checks.

#### **HEALTH AND CAPABILITY CHECK PRIOR TO WORK**

The ability of a MDD to perform properly can depend on its health and well being, which means that a MDD’s detection reliability may vary on a daily basis. It is therefore necessary for demining organisations to assess their MDD on a daily basis before and during any work sessions.

The assessment shall consist of a health check and a capability test to provide confidence in the MDD’s search capability. The capability test also acts as a ‘warm-up’ for the MDD.

#### **PLANNING FOR MDD OPERATIONS**

When planning MDD operations there are a number of elements that should be considered:

- > assessment of the hazards should be made
- > number of MDD available for the task
- > search procedures to be used
- > environmental conditions
- > task management requirements

#### **PREPARATION FOR MDD OPERATIONS**

Preparation for MDD operations involves ensuring that all training and testing requirements for the MDD have been carried out and the MDD are ready for work; ensuring that temporary boxes in a suitable training area are prepared for on-site maintenance training if the demining task is to take more than five days; establishing the MDD worksite in accordance with IMAS 10.20; and ensuring that logistic, administrative and medical support for personnel and MDD are provided.

**MDD OPERATIONAL PROCEDURES**

- > **Search patterns** - two most common search patterns currently in use for MDD operations are:
  - > **The search lane system:** the MDD searches in a series of straight parallel lanes between 0.3 m and 0.5 m wide within a search box or panel. These lanes are typically up to 10 m in length. The lanes may originate from any side of the search box or panel (depending on wind direction). The MDD may search with or without a leash, and the MDD may search on its way out from the handler only, or both on its way out and back.
  - > **The short-leash system:** the MDD searches in a series of straight parallel lanes between 0.3 m and 0.5 m wide within a search box or panel. The lanes may originate from any side of the search area (depending on wind direction). The MDD handler will walk beside and behind the dog in the lane which has been previously cleared by his/her own dog. In high risk areas, the area should have been searched by two MDD before the handler walks on the ground. This generally means that the area has been searched by an MDD on a long-leash before the short-leash system is used.
- > **Safety distances** - IMAS 10.20 provides specifications on safety distances.
- > **Numbers of MDD used** - If MDD are used as the primary detection tool, then all areas are to be searched by at least two different MDD before being considered as cleared. As an exception, one specially trained MDD can be used on its own in cases of urgent medical evacuation.
- > **Target indications** - MDD shall be trained to indicate targets as described in the demining organisation's SOPs, for example by sitting or lying down next to the indication. When indicating, MDD shall not be in physical contact with the point of the indication.
- > **Recording search areas** - the location of each search area shall be surveyed and recorded along with the details of the MDD and handlers that worked in that area.
- > **Quality Management** - MDD operations shall be subject to monitoring in accordance with IMAS 07.40 and post clearance inspections in accordance with IMAS 09.20.

**STANDARD 09.41****OPERATIONAL PROCEDURES FOR MINE DETECTION DOGS****ENVIRONMENTAL FACTORS AFFECTING MDD OPERATIONS**

- > **Wind** - wind has a significant effect on the conduct of MDD operations. A well-trained MDD should be able to indicate the exact location of a target with a head or side wind.
- > **Rain** - light rain has minimal impact on the presence of target odours in the soil and subsequent evaporation may give a short-term release of odour that will improve the detectability of target items. Heavy rain washes target odours deeper into the soil or disperses them over a wider area making MDD operations difficult.
- > **Snow**- MDD should not be used when the ground surface is covered with snow.
- > **Humidity** - to ensure that MDD are capable of operating effectively in the prevailing humidity conditions, the MDD should be trained and tested under these conditions. If conditions change dramatically, additional training and testing should be introduced immediately.
- > **Atmospheric pollution** - atmospheric pollution may prevent a MDD from working effectively, therefore MDD shall not be used in areas where the atmosphere is obviously polluted by gases, smoke or odours from petroleum products, fertiliser, chemicals, garbage, domestic burning (including vegetation) and traffic or factory exhausts.
- > **Vegetation** - MDD should not be used in areas where vegetation prevents searching, or if vegetation restricts the ability of the MDD handler to view and control the search.
- > **Channelling of target odours underground** - plants with extensive and widespread root systems, or tunnel systems, (eg those made by rodents or insects), could result in target odours being transferred away from a target item. Under such circumstances a larger area should be investigated if nothing is found at the site of an indication.
- > **Recording of environmental data** – procedures for a long term collection, recording and storage of environmental data during MDD operations and training should be established.

**STANDARD 09.41****OPERATIONAL PROCEDURES FOR MINE DETECTION DOGS****REST AND ROTATION OF MDD**

Dogs are highly individual in their characters. While some MDD are capable of working continuously for several hours, others need frequent breaks. Environmental conditions also influence the work of MDD. Demining organisations shall establish procedures for the rest and rotation of MDD that take into account the environmental conditions and the individual natures of the MDD.

**RESPONSIBILITIES**

The NMAA shall establish a clear and sustainable national policy, and develop and implement relevant national standards governing the use of MDD within the mine action programme. The demining organisation shall, in compliance with the national standards, establish relevant SOPs for the use of MDD on demining operations.

**RELEVANT IMAS ANNEXES**

There is no relevant annex to this IMAS.

**STANDARD 09.42****OPERATIONAL TESTING OF MINE DOGS AND HANDLERS**

The greatest challenge to the independent operational testing of mine detection dogs (MDD) is to create a test that is truly representative of the operational situation. A test will always be slightly artificial. For example, mines laid for testing may differ from those available operationally because removal of detonators from test mines allows explosive odour to leak more freely. Test minefields are often laid more recently than operational minefields, leading to differences in odour availability and evidence of recent burial, especially in hard packed soils. Test minefields tend to be used repeatedly, which could allow MDD and handlers to learn the position of mines rather than using odour for detection.

This standard provides NMAA and demining organisations with specifications on MDD operational test site selection, preparation and maintenance; management and control of the test process; operational test procedures; and management of testing records. IMAS 09.42 is designed primarily for operational testing of MDD required to work in areas that have not previously been processed.

**TEST SITE**

- > **Layout** - the standard procedure is to lay out the test site in 10m x 10m boxes with safe lanes in between.
- > **Size of test site** - the overall size of the test site is determined by the number of test boxes required, the spacing required between test boxes and any areas needed for administration purposes. The minimum area to be searched by each dog during a test is 400 square metres.
- > **Other factors** - other factors to be considered when selecting a test site include the time(s) of the year and the duration of the demining season.
- > **Initial survey** - an initial survey should be carried out to identify suitable test sites. The survey should consider size, current use, security issues and rights for the use of land for a minimum of five years. It should also consider landscape and vegetation, soil conditions to determine whether the soil type is representative, pollution and any hazards from mine or ERW.
- > **Environmental considerations** – landscape, vegetation, soil type, undesired explosive contamination, metal contamination, wind and noise are among the common factors that have to be considered when selecting a test site.

#### SELECTION OF TEST ITEMS

Representative examples of the most common target objects (mines or ERW or parts thereof) shall be used as test items. Pure explosive substances or artificially prepared scents shall not be used unless officially approved. Ideally, test items that have been recovered from the field should be used.

#### SITE PREPARATION

- > **Measuring and marking test boxes** - the typical length of a search line is 7 to 10 m, but there may be systems that use other search lengths, or where search lines are not worked. Measuring rules shall apply when preparing a site, including: each test box shall be recorded on a map; all corners shall be marked with a metal recognition pole; the test site should have one or more clearly identifiable benchmarks; all sides of a test box should be marked temporarily with tape or a similar material prior to the emplacement of test items; and the location of all test items and recognition pieces in the box or panel shall be to an accuracy of 20mm over a 10 metre length, and shall be recorded on the map.
- > **Minimum distances between test boxes** - spacing between test boxes should be 3 m or more, except when boxes are grouped into panels.
- > **Number of test items in a test box** - test items in a test area of not less than 400 square metres should be five to seven.
- > **Location of test items in a test box** - the location of each test item within a box shall be random and unpredictable. The minimum distance between each test item shall be 3 meters.
- > **Test item depth** - the test items shall be buried at different depths. Depths should be representative of typical depths encountered under operational conditions.
- > **Recognition pieces** - recognition pieces are small pieces of metal that are put in the ground with test items, so that their location can be verified using metal detectors.
- > **Burying test items** - when burying test items, plastic gloves should cover the hands during any contact with the soil and soil disturbance should be minimised. Surplus soil resulting from the added volume of the test item should be removed to outside the test site; the original soil should be used to fill around the test item. Only decontaminated equipment should be used.

### STANDARD 09.42

#### OPERATIONAL TESTING OF MINE DOGS AND HANDLERS

- > **Initial soak time requirements** - an MDD test site should have a minimum soak time of three months before use.
- > **Security and protection of the test site** - it may be necessary to fence the test site or post guards to prevent unauthorised entry into the area.
- > **Test site records** - the test site shall be thoroughly recorded and mapped. The credibility of testing depends on restricted access to the records, including the location and number of test items in the test boxes. Only a few people should be involved in the preparation of the test boxes and they should not be affiliated to any of the demining organisations to be tested.

#### MAINTENANCE OF A TEST SITE

MDD test sites should be regularly inspected by staff from the organisation responsible for the site to ensure that they are adequately secure and have not been interfered with. All test items and recognition pieces should be located at least once a year using a metal detector, preferably after the period with the heaviest rain or snowfall. The locations should then be compared with records to ensure that no migration has occurred, or that no foreign items have been introduced to the test box.

#### MANAGEMENT AND CONTROL OF OPERATIONAL TESTS

All MDD operational tests shall be overseen by a qualified test manager whose responsibilities are to prepare the test site, manage the tests and evaluate the MDD during the test. The test manager must possess the knowledge, skill and experience to be able to professionally evaluate the MDD teams; it is essential to be seen as impartial by demining organisations.

#### OPERATIONAL TEST PROCEDURES

- > **Number of MDD searching a box** - for testing purposes all MDD should work in separate boxes. Although not recommended, in extreme circumstances two MDD may be tested in the same boxes provided that the conditions in the IMAS are applied.
- > **Compliance with demining organisation's SOPs** - the MDD and handler shall undertake the search according to procedures described in the demining organisation's SOPs.
- > **Wind direction** - the MDD handler shall evaluate the wind direction and other environmental factors prior to the test in accordance with SOPs.
- > **Search break** - the MDD handler may take a break to rest the dog and give it water at any time during a search.
- > **Minimum test requirements** - the minimum search area to be covered by each MDD should be at least 400 square metres.
- > **Termination of the test** - the MDD handler may terminate the test if at any time they believe that the MDD is suffering from a lapse in concentration or for some reason is not working properly.
- > **Pass/fail criteria** - the following pass/fail criteria should be applied:
  - > MDD must indicate all the test items in a test box with two or fewer false indications
  - > all positive indications shall be within a 1m radius of the exact location of the test item
  - > any MDD and handler that does not apply the search pattern and procedures as described in the demining organisation's SOPs will be deemed to have failed the test

#### RESPONSIBILITIES

The NMAA shall establish systems, procedures and facilities for the operational testing of MDD operating within the demining programme in accordance with the specifications and guidelines included in this standard. The demining organisation carrying out MDD operations shall establish SOPs for the use of MDD on demining operations. These SOPs are to be consistent with relevant national standards.

#### RELEVANT IMAS ANNEXES

**Annex C** | MDD operational testing after mechanical ground processing



**STANDARD 09.43 REMOTE EXPLOSIVE SCENT TRACING (REST)**

The use of vapour sampling and filter analysis for explosive detection has received limited acceptance from the international mine action community. Only a few organisations are currently using the system, but it has the potential to be an extremely fast and cost-effective way of checking suspected stretches of road or sectors of land for mines or ERW.

The system is named Remote Explosive Scent Tracing (REST). It involves the sampling of air and/or dust containing explosive traces near the ground surface. This is typically undertaken using vehicle-mounted or portable sampling machines capable of sucking air through filter cartridges fitted to the end of plastic tubes.

The aim of IMAS 09.43 is to provide specifications and guidance for the planning, implementation, accomplishment and management of REST operations. It covers the general principles of the different elements of REST.

**THE REST SYSTEM**

The REST system can be described as a process of collecting target substances (usually traces of explosive vapour) from the surface of a mine/ERW suspected area, using filters that are subsequently analysed by specially trained sniffer dogs.

The REST system should not be considered as a demining method but rather as a system for eliminating sectors that do not contain traces of explosives or target scent. Although the system has been applied in the field for a considerable period of time, its accuracy is poorly understood and described.

**SWEEPING TECHNIQUE**

The collection of vapour is normally done through a process of sweeping a vapour collector over a suspect piece of ground. The following aspects should be considered during sweeping:

- > the sweeping shall be undertaken at a steady and constant speed; the sweeping drill, the walking speed and the frequency between each change of cartridge shall be monitored by the scent trapping team leader during the search
- > the filter cartridge should be kept close to the surface during sampling, to ensure a maximum contamination; if air is filtrated near the surface, dust and soil particles will inevitably be sucked into the filter material

**THE ANALYSIS PROCESS**

Upon completion of the sampling process, the used filter cartridges are usually brought to a central location for investigation by specially trained sniffer dogs capable of detecting traces of target substance emanating from the filter cartridge. The dogs will sniff the filter cartridges and indicate if a filter contains traces of TNT or other target substance.

**RELEVANT IMAS ANNEXES**

There is no relevant annex to this IMAS.

**STANDARD 09.44****GUIDE TO MEDICAL AND GENERAL HEALTH CARE OF DOGS**

Like machines and other technology, dogs need to be well looked after and maintained. A lack of attention will result in a limited output, reduced cost efficiency and questions raised about credibility and reliability of dog detection as a whole. Dogs need to be well fed and well treated in order to perform successfully. A well balanced diet facilitates increased resistance against potential diseases. It also makes the dog stronger, increasing its perseverance and its interest during training and live clearance.

IMAS 09.44 is a guide to occupational health and general dog care. It addresses all the basic health and dog care requirements applicable to mine detection dogs worldwide.

**GENERAL HEALTH CARE**

Good physical and mental health is a prerequisite for all working dogs. Strength, resistance to disease, fitness, liveliness, endurance, motivation and learning ability are all essential to the maintenance of an effective MDD. These requirements rely on systematic and comprehensive health care coupled with careful training. Neglecting these requirements can result in poor performance, frequent illness and even permanent disability or death. For example, poorly established vaccination schemes may result in the spread of epidemic diseases, disability or death.

Dogs need to be exercised regularly to remain in top physical and mental condition. This is particularly important in hot climates. Repetitive exercises should be avoided, to prevent boredom.

**HEALTH CONTROL**

A dog often attempts to continue working even if something is wrong. It is therefore necessary to understand and be aware of all possible signs of illness or injury. Proper physical care includes routine grooming and daily examination of the dog's body for evidence of parasites, illness or injury.

A medical record/logbook should be maintained for each dog. Vaccination cards should be established and maintained for each dog. Some countries may also have national regulations with regards to vaccination and the use of vaccination cards.

**MEDICAL SUPPORT FOR DOGS**

Demining organisations should treat the health care of their dogs with the same consideration as they treat the health care of humans. At all times when dogs are working, there should be one person on site with the required knowledge and skill to provide emergency medical treatment for dogs.

**DIETARY REQUIREMENTS**

Working dogs need a comprehensive diet containing the correct proportion of nutrients, minerals, and vitamins. Most commercially-prepared dog food has a good balance of essential nutrients and is of adequate quality.

**KENNEL REQUIREMENTS**

To satisfy their basic housing needs, dogs should be provided with a clean, healthy and low-stress housing environment. Basic kennel facilities should be adequately-sized to provide a certain degree of comfort, freedom of movement and freedom for the expression of natural behaviour.

Permanent kennel facilities are primarily a place for dogs to rest or sleep. All permanent kennel staff should have basic training in general dog health care and kennel maintenance. Plans should be established in the event of a fire or other emergency and kennel staff should be trained in these plans.

Temporary kennel facilities are often established when undertaking operations in remote areas. Temporary kennels should, where possible, satisfy all the basic requirements. Temporary kennels may be of any construction and in some cases transport cages may be used for short periods.

**QUARANTINE REQUIREMENTS**

A period of quarantine is often required for newly arrived dogs that need to be medically assessed for potential diseases and parasites. The purpose of quarantine is to prevent transmission of diseases, parasites and worms to the main kennel facilities and consequently to the other dogs.

**STANDARD 09.44**

**GUIDE TO MEDICAL AND GENERAL HEALTH CARE OF DOGS**

**TRANSPORTATION OF DOGS**

Certain procedures should be followed while transporting dogs.

After shipment into an area, dogs should be given a recovery period of at least 2 days, to allow for acclimatisation to the new environment. Dogs that are frequently transported may require shorter recovery periods than dogs that are rarely moved.

**CONTAGIOUS AND EPIDEMIC DISEASES**

Many diseases are contagious, and some of the most contagious are epidemic. The most common epidemic diseases are viruses or bacteria affecting the digestive tract causing diarrhoea and vomiting. Another common epidemic disease is kennel cough, a collective name for a number of different viral and bacterial diseases which attack the lungs. Epidemic diseases spread very quickly and if not contained, may affect all the dogs in a few days. The best prevention is proper hygiene and vaccination.

**RESPONSIBILITIES**

The NMAA shall develop and implement relevant national standards and other guidelines governing the use of MDD within the programme; these shall include guidelines for occupational health and general dog care. The demining organisation employing MDD shall establish systems, procedures and facilities to ensure the occupational and general health care of MDD. These are to be in accordance with any national standards and other guidelines governing the use of MDD within the programme.

**RELEVANT IMAS ANNEXES**

**Annex C** | Permanent kennel facility requirements

**Annex D** | Parasites that affect dogs

### STANDARD 09.50 MECHANICAL DEMINING

Machines have been used on demining operations for many years now; they have already demonstrated their potential in several areas for significantly increasing output and for making demining a safer activity. However, the full potential of machines has not yet been reached. There are still opportunities to improve the use of machines and to encourage their development and application.

Standard 09.50 provides guidelines and specifications that promote the safe, efficient and effective use of machines in demining operations. It forms the introductory “standard” to a series of IMAS that relate to mechanical demining.

#### USE OF MACHINES ON DEMINING OPERATIONS

Machines used on demining operations can be divided into three general categories.

- > **Mine clearance machines** - are those machines whose stated purpose is the detonation, destruction or removal of landmines. The title does not necessarily reflect their performance and, despite their stated purpose, some machines may not be able to “clear” or destroy or remove all landmines or ERW.
- > **Ground preparation machines** - are primarily designed to improve the efficiency of demining operations by reducing or removing obstacles. Ground preparation tasks may include: vegetation cutting and clearing; removal of tripwires; loosening the soil; removal of metal contamination; removal of building debris, boulders, rubble, defensive wire obstacles etc; and sifting of soil and debris.
- > **Mine protected vehicle (MPV)** - are vehicles specifically designed to protect the occupants and equipment from the effects of a landmine detonation. MPV are commonly used during detection and survey operations, where they may carry equipment such as detector arrays, vapour sampling devices or in some cases push or pull a roller.

**STANDARD 09.50 MECHANICAL DEMINING****MECHANICAL DEMINING OPERATIONS | GENERAL REQUIREMENTS**

Machines used in demining operations shall conform to certain general requirements:

- > each machine shall be tested and evaluated (T&E) to determine its suitability for the task(s) it is expected to carry out in the conditions in which it will work; further guidance on T&E is provided in clause 7 of the standard
- > the operation of each machine shall be assessed and confirmed as safe for the operator and any other person on the worksite. The protection level for machines shall be established through a risk assessment
- > Standing Operating Procedures (SOPs) shall be developed for each machine. These SOPs should include general mechanical operating procedures, procedures specific to the machine, and where necessary, procedures for the integration of the machine with other machines or demining operations

**TESTING AND EVALUATION (T&E)**

T&E of machines is carried out to ensure that a machine is suitable for its intended use in the environment in which it will operate.

The European Committee for Standardisation (CEN) has developed a CEN Workshop Agreement (CWA) for the T&E of demining machines (CWA 15044:2004). This CWA provides standardised methodology for T&E of demining machines. It gives technical criteria for the performance test, survivability test and acceptance test. The CWA also establishes the requirements for the test targets to be used in the performance and acceptance tests. Further information on this CWA and others can be found at [www.mineactionstandards.org](http://www.mineactionstandards.org).

**MECHANICAL PROCEDURES**

Machines should only be employed within the limits of their operational accreditation as established during T&E and as documented in SOPs. Demining organisations shall ensure that operating procedures developed for mechanical operations include the following topics.

- > **Landmine, ERW and other hazards** - if during operations, a hazard is identified which a machine was not designed or approved to be used against, the mechanical operation shall cease and a review of the task shall be carried out.

**STANDARD 09.50 MECHANICAL DEMINING**

- > **Management of mechanical demining operations** - shall ensure that adequate control is exercised over the operation and that it is possible to provide emergency support in accordance with accident response plans.
- > **Medical** - accident response plans for mechanical operations involving crewed machines shall include procedures for the extraction of a casualty from a damaged machine.
- > **Communications** - communications between the site supervisor and the mechanical operator shall be in place and operational at all times while a machine is working in a hazardous area.
- > **Personnel requirement** - mechanical demining worksites shall have sufficient qualified personnel on site while operations are ongoing.

**MACHINE SUPPORT**

- > **Maintenance** - demining organisations should make provisions for the maintenance and servicing of machines in accordance with the manufacturer's recommendations. Mechanical operators should be qualified and experienced in the operation and maintenance of their machines.
- > **Recovery** - operating procedures for mechanical demining operations shall include provisions for the recovery of the machine and operator in the event of a machine becoming stranded in a hazardous area. Such procedure shall ensure the safe extraction of the operator as quickly as possible, and the safe recovery of the machine in a reasonable time.
- > **Fire precautions and drills** - demining organisations employing machines shall develop procedures to be followed in the event of a fire on a machine. These procedures shall cover the immediate actions to be taken and ensure the safe extraction of an operator from a hazardous area. Adequate fire fighting equipment shall be available at all places where refuelling of machines is carried out.



**STANDARD 09.50 MECHANICAL DEMINING**

**ENVIRONMENTAL CONSIDERATIONS**

Where mechanical operations involve the removal of vegetation, or occur on ground that may be subject to erosion, demining organisations shall ensure that measures are taken to limit such erosion or environmental damage. The operation, repair, maintenance and servicing of demining machines shall be carried out in an environmentally acceptable manner, eg by preventing ground or watercourse contamination from fuel, oil and lubricants.

**RESPONSIBILITIES**

The NMAA shall operationally accredit machines in accordance with the requirements of this standard, and develop and implement national standards for the employment of machines on demining operations. The demining organisation shall comply with the national standards for the employment of machines on demining operations, and establish procedures to ensure that machines used on demining operations are properly maintained and serviced and remain safe for the operator and support staff.

**RELEVANT IMAS ANNEXES**

**Annex C** | Example of weekly report format for a mechanical demining unit.

There are currently six standards in Series 10 on mine action safety and occupational health:

- > **10.10** | General requirements
- > **10.20** | Demining worksite safety
- > **10.30** | Personal protective equipment
- > **10.40** | Medical support to demining operations
- > **10.50** | Storage, transportation and handling of explosives
- > **10.60** | Reporting and investigation of demining incidents
- > **10.70** | Protection of the environment

The need to reduce risk and to provide a safe working environment is a fundamental principle of mine action management.

The International Labour Organisation (ILO) has established minimum norms and basic standards which regulate conditions of work and safety in the workplace. These standards apply to all branches of economic activity and categories of employment, including mine action, unless specifically excluded by national legislation. In addition to the legal requirements, mine action imposes a moral imperative and duty of care by managers at all levels.

Managers of mine action programmes and projects are to achieve a safe working environment by providing effective management and supervision, by developing work practices that contribute to risk reduction, by selecting and providing equipment with inherently safe design, by providing appropriate training, and by making available effective personal protective equipment and protective clothing.

Series 10 of the IMAS provides guidance on a number of key aspects to overall safety in mine action.

### STANDARD 10.10 GENERAL REQUIREMENTS

Mine action organisations should develop and maintain management procedures and processes that will enable safety and occupational health risks to be identified, evaluated and reduced in a systematic and timely manner.

Standard 10.10 provides guidance on the development and implementation of safety and occupational health management systems for use in mine action.

National mine action authorities and employers (governments, NGOs and commercial entities) should establish and maintain safety and occupational health management systems.

### NATIONAL RESPONSIBILITIES

National mine action authorities should establish a system to issue or approve regulations, codes of practice, standing operating procedures or other suitable guidance on safety and occupational health in the working environment in order to:

- > provide information and advice to employers with a view to eliminating hazards or reducing them as far as practicable
- > coordinate activities concerned with safety and occupational health which are exercised nationally, regionally or locally by public authorities, by employers and their organisations and representatives, and by other persons or bodies concerned
- > undertake or promote studies and research to identify hazards to safety and health, and find means of overcoming them
- > from time to time, review legislation concerning safety and occupational health and the working environment in the light of experience and advances in technology

NMAA should develop, implement and maintain safety and occupational health management systems in accordance with national standards and guidelines.

### RELEVANT IMAS ANNEXES

**Annex C** | Summary of OHSAS 18001

**STANDARD 10.20 DEMINING WORKSITE SAFETY**

The need to reduce risk and to provide a safe working environment is a fundamental principle of mine action management. Risk reduction involves a combination of safe working practices and operating procedures; effective supervision and control; appropriate education and training; equipment of inherently safe design; and the provision of effective personal protective equipment and clothing.

The provision of a safe working environment includes the design and layout of a demining worksite by fencing and marking hazardous areas; controlling the movement of deminers, visitors and the public; establishing and enforcing working distances; and providing effective medical cover and insurance.

This standard provides specifications and guidance on the development and implementation of policy, and documented procedures and practices which aim to establish and maintain a safe demining worksite. The annexes provide additional detailed information and guidance on how to apply the standard.

**DESIGN OF THE DEMINING WORKSITE**

The demining worksite shall be designed to:

- > provide a clearly visible separation of hazardous areas (including demolition danger areas), cleared areas and useable areas
- > ensure that approved working distances are maintained between individual deminers, machines or Mine Detection Dogs (MDD) and other staff on the demining worksite
- > control the movement of demining worksite staff and visitors (including members of the public) at the worksite
- > control the movement of demining machines and other vehicles
- > limit the number of demining worksite staff and visitors allowed into danger areas
- > take all reasonable precautions to exclude demining worksite staff, visitors and members of the local population from demolition danger areas during the controlled destruction of mines and Explosive Remnants of War (ERW), or provide suitable protection inside buildings, bunkers or mobile structures
- > include measures to prevent structural and environmental damage

**STANDARD 10.20 DEMINING WORKSITE SAFETY****DEMINING INCIDENT**

Procedures for the response to a demining incident shall be established and formally documented as SOPs. The SOPs should include:

- > the organisation and capabilities needed to respond to a demining incident, including the procedures, training, equipment and material (see IMAS 10.40)
- > procedures for the investigation, analysis and corrective action to be taken following a demining incident (see IMAS 10.60)

**RESPONSIBILITY**

The NMAA shall develop a policy and establish and maintain documented procedures for S&OH on demining worksites. These should include:

- > minimum requirements for the establishment of demining worksites
- > the establishment of working distances based on a risk assessment
- > emergency response and casualty evacuation procedures on demining worksites

The demining organisation shall establish and maintain SOPs that comply with the national standards and/or IMAS. The demining employees shall comply with the instructions in the SOPs and shall take all reasonable care for their own safety and that of other persons on the worksite.

**RELEVANT IMAS ANNEXES**

**Annex C** | Determining working distance for manual demining

**Annex D** | Dealing with visitors to demining worksites

**STANDARD 10.30 PERSONAL PROTECTIVE EQUIPMENT**

The levels of Personal Protective Equipment (PPE) provided for use in suspected hazardous areas must be decided after considering the local risk(s), operational procedures and tools, and local environmental conditions, and after making a written risk assessment. It is possible that different levels of PPE may be appropriate for use during different activities at different parts of a workplace.

This IMAS provides specifications and guidance to NMAA and demining organisations on the minimum requirements of PPE for use in mine action.

**SUITABILITY AND APPROPRIATENESS**

PPE provided shall fit the employee and be designed to provide reasonable protection against the predictable risks present at a demining worksite. Other clothing provided shall be suitable for the prevailing weather conditions and include footwear with suitably slip-resistant soles. Cultural practices and gender requirements should also be taken into consideration.

If the predictable risk is from AP blast mines, and ERW containing greater than 240 gm of TNT, and there is a high risk that the mine(s) or ERW may be initiated during the procedures that will be used, the use of other procedures or enhanced protection shall be considered.

**MINIMUM PPE REQUIREMENT**

PPE shall be capable of protecting the parts of the body that are covered against the blast effects of 240 gm of TNT at distances appropriate to the wearer's activity.

The amount of PPE provided shall be determined as a result of a field risk assessment and management decision. The minimum PPE inside the safety distance of a suspected hazardous area or when engaged in any activity that involves being close to mines and ERW, shall be:

**STANDARD 10.30 PERSONAL PROTECTIVE EQUIPMENT**

- > body armour capable of satisfying the ballistic test outlined in STANAG 2920, achieving a V50 rating (dry) of 450m/s for 1.102g fragments. It shall also be capable of protecting the chest, abdomen and groin area against the blast effects of 240 gm of TNT at 60 cm from the closest part of the body
- > eye protection that is held over the eyes in a frame that prevents blast ingress from beneath. The eye protection shall be capable of retaining integrity against the blast effects of 240 gm of TNT at 60 cm and shall provide protection equivalent to not less than 5 mm of untreated polycarbonate. It is recommended that eye protection should be a part of frontal head protection capable of protecting against the blast effects of 240 gm of TNT at 60 cm and providing full frontal coverage of face and throat.

Commonly available industrial safety spectacles do not meet the minimum requirement of this standard and shall not be used as demining PPE.

**FRAGMENTATION PROTECTION**

The fragmentation danger from most fragmentation mines cannot be protected against with lightweight and practical PPE. This emphasises the need to minimise risk through the use of inherently safe procedures. Although the level of protection may not be sufficient, PPE provided to reduce the risk from fragmentation mines shall be at least that used as protection against a blast effect described above.

**HAND TOOLS**

Hand tools should be constructed in such a way that their separation or fragmentation resulting from the detonation of an AP blast-mine incident is reduced to a minimum. Hand tools should be designed to be used at a low angle to the ground and should provide adequate stand-off from an anticipated point of detonation. The use of gloves can provide protection against non explosive injury and should be considered.

**BLAST RESISTANT FOOTWEAR**

During the risk reduction process, demining organisations may consider providing blast resistant boots for the protection of feet and lower limbs, where there is a significant risk that cannot be reduced by SOPs alone. However, the blast resistant boots being considered should be proven to be effective in reducing the risk presented by the anticipated hazards.

**PROTECTING HEARING**

When conducting demolitions at minimum safety distances, the use of protection for the ear-drums is recommended.

**EXPLOSIVE ORDNANCE DISPOSAL (EOD) CLEARANCE SITES**

When engaged in the clearance of EOD sites, an enhanced level of protection may be necessary. This should be defined in Standing Operating Procedures (SOPs), and may include conventional body armour or other specialist PPE ensembles.

**RESPONSIBILITIES**

NMAA and employers shall establish and maintain policy, standards and guidelines on the minimum requirements of PPE for use in different situations in national mine action programmes. These should distinguish between the obligations and responsibilities at the national level, and those of the employer and employee. The demining organisations shall apply the documented NMAA standards for PPE, providing PPE for each activity undertaken that meets, or exceeds, the minimum requirements. Employees of demining organisations shall use PPE in accordance with the requirements specified by their employers and the manufacturer's specification for the PPE.

**RELEVANT IMAS ANNEXES**

There is no relevant annex to this IMAS.



**STANDARD 10.40 MEDICAL SUPPORT TO DEMINING OPERATIONS**

Demining organisations and employees shall be properly trained and equipped to respond to demining accidents. In addition, since demining is often conducted in an environment degraded by conflict and other humanitarian challenges, diseases such as malaria, tuberculosis, triptosomiasis and cholera, previously kept in check by national medical control measures, can again become widespread.

Developing a capacity to provide an appropriate response to a demining accident requires good planning, well-trained staff and the availability of medical services able to provide effective emergency treatment. In mine-affected countries suffering from post-conflict trauma, medical facilities may be limited, and overstretched. In these circumstances, mine action authorities and demining organisations should not place unrealistic demands on the host nation's medical infrastructure, in particular during the initial stages of a demining programme, but should plan to be as medically self-sufficient as possible.

Standard 10.40 provides guidance on the provision of appropriate medical support to demining operations in the field.

**GENERAL REQUIREMENTS**

- > **Accident plan** - a demining accident response plan shall be developed and maintained by the demining organisation for each demining workplace.
- > **Occupational health plan** - an occupational health plan shall be developed that shall include briefing all staff on health hazards.
- > **Evacuation** – the management of the on-site emergency procedures, first aid, movement of victims and drugs and equipment maintenance.
- > **Demining accident response capability** - each demining workplace shall include demining teams with resources to:
  - > provide immediate first aid to a victim of a demining accident
  - > remove victim(s) from the hazardous area
  - > transport the victim(s) to an appropriate medical treatment or surgical facility
  - > provide en-route medical care for the victim(s)
  - > communicate with the medical facilities responsible for assisting the demining organisation in response to a demining accident. Each demining workplace shall also include staff trained and equipped to clean and dress wounds correctly, stabilise fractures, give analgesia, and give antibiotics and anti-tetanus prophylaxis if the victim is not otherwise likely to receive them within six hours of the demining accident
- > **Training** - all people working at or visiting demining workplaces shall receive appropriate training on precautions to reduce the risk of a demining accident, and the action to be taken in the event of a demining accident.

**RELEVANT IMAS ANNEXES**

**Annex C** | Level of medical training

**STANDARD 10.50  
STORAGE, TRANSPORTATION AND HANDLING OF EXPLOSIVES**

The provision of a safe working environment includes the safe storage, transportation and handling of explosives and explosive materials. This requires appropriate storage facilities, equipment and vehicles to be made available and national mine action authorities and demining organisations to develop and maintain appropriate policy and procedures. Where existing national government regulations differ from those contained in IMAS, the more stringent requirement should be met.

Standard 10.50 provides national mine action authorities and demining organisations with guidance on the safe storage, transportation and handling of explosives.

**GENERAL REQUIREMENTS**

Modern explosives are safe if they are stored, transported and handled in accordance with the manufacturer's instructions. Demining organisations should not use explosives of uncertain origin or age, or where the environmental storage conditions have not met the manufacturer's requirements.

There are no specific international regulations or codes of practice that relate directly to the safe storage of ammunition and explosives. This is a national responsibility, although the IMAS refers to the UN Ammunition and Explosive Regulations as a default guide.

**ENVIRONMENTAL REQUIREMENTS**

The environmental requirements (temperature, humidity and vibration) of ammunition and explosives vary; they are dependent on their intended storage conditions (including shelf life), transportation, handling and use. The performance of explosives will be unpredictable and the safety will be reduced if the manufacturer's environmental conditions are not met.

In general, explosives should be:

- > kept dry and well ventilated
- > kept as cool as possible and free from excessive or frequent changes of temperature
- > protected from direct sunlight
- > kept free from excessive and constant vibration

### **STANDARD 10.50**

#### **STORAGE, TRANSPORTATION AND HANDLING OF EXPLOSIVES**

##### **PHYSICAL SECURITY**

Demining organisations shall provide for appropriate levels of physical security for explosives in their possession during storage, transportation and use. Consideration should be given not only to the immediate physical security provided by the storage facility but also to accounting procedures and control of access. There may be occasions when additional measures such as appropriately equipped guards are necessary. The national standard should be the minimum level provided.

##### **RESPONSIBILITIES AND OBLIGATIONS**

The NMAA shall develop documented procedures for the storage, transportation and handling of explosives, which include:

- > standards for storage of explosives, including storage on mine clearance sites
- > standards for the carriage of explosives, including warning signs and symbols to be used on vehicles
- > safety distances for the storage and handling of explosives

##### **RELEVANT IMAS ANNEXES**

**Annex C** | Bibliography

**Annex D** | General requirements for the construction of magazines

**Annex E** | Fire prevention

**Annex F** | Table of distances for the storage of explosive materials

**Annex G** | Hazard classification codes

**STANDARD 10.60**  
**REPORTING AND INVESTIGATION OF DEMINING INCIDENTS**

The need to report and investigate demining incidents in a clear, comprehensive and timely manner is an essential part of mine action management. Standard 10.60 provides guidance on the minimum requirements for the reporting and investigation of demining incidents.

**INCIDENT REPORTING**

The following incidents shall be reported to the NMAA:

- > an accident in which a mine or item of ERW harms a demining employee, visitor or member of the local population at a demining workplace
- > an incident in which a mine or ERW damages equipment or property at a demining workplace
- > the discovery of a mine or ERW located in an area previously cleared or recorded as cleared, regardless of whether harm has resulted from the missed mine or ERW
- > any unplanned detonation of mine or ERW on a demining worksite irrespective of the cause or outcome

Authorities receiving reports of incidents that highlight inadequacies of equipment, standards or approved standing operating procedures (SOPs), or that indicate the presence of new types of hazard, shall disseminate a general warning to all demining organisations applying the same equipment, standard or SOP, or likely to meet the same new hazards. In the absence of a NMAA the demining organisations themselves shall assume this responsibility.

**INVESTIGATIONS**

The following incidents should be subject to investigation by an appropriately qualified and experienced third party:

- > demining incidents resulting from the application of approved standards or procedures
- > a mine or ERW hazard missed during the clearance process
- > demining accidents resulting in injury or death
- > damage to property
- > damage that may result in a major claim for compensation from a member of the local population

### STANDARD 10.60

#### REPORTING AND INVESTIGATION OF DEMINING INCIDENTS

##### INVESTIGATION PROCEDURES

The aim of the demining incident investigation is to identify problems or opportunities to improve the safety and quality of the demining process. It is neither a criminal investigation nor an investigation to assist in the assessment of a current or possible future insurance claim.

For investigation of accidents, an investigation team of three individuals is recommended. It should be made up of a mine action centre representative, an independent person and a representative of the organisation suffering the accident, but not a member of the immediate site workforce or its chain of command.

##### REPORTING AND DISSEMINATION

The following information should be widely distributed:

- > the circumstances contributing to and harm resulting from the incident
- > an analysis of the information collected during the investigation
- > the findings of the investigation

The NMAA shall disseminate information on demining incidents. In the absence of a NMAA, demining organisations should make this information available to other demining organisations through the United Nations Mine Action Service (UNMAS). In the event of the identification of new hazards, the dissemination of information should be immediate.

##### RELEVANT IMAS ANNEXES

**Annex C** | Example of demining incident reporting procedure

**Annex D** | Example of demining incident investigation SOP

**STANDARD 10.70**  
**PROTECTION OF THE ENVIRONMENT IN MINE ACTION**

Demining operations have significant potential to damage the environment in which they are conducted. This damage includes both the short-term effects caused by demolition activities, and the long-term effects that may be caused by contamination of soil and water systems, removal of vegetation, disruption to watercourses or changes to soil structure. Demining operations may also damage the natural habitats of insects and wildlife and affect areas of historical or cultural significance.

This standard provides guidelines for the minimum environmental protection measures that should be in place to ensure that environments affected by demining operations are not degraded and are fit for their intended use once demining is completed.

**GENERAL REQUIREMENTS**

- > Demining operations should be carried out without damaging property or infrastructure, in a manner that minimises the impact on the environment and is safe for local communities and demining staff.
- > Planning for demining operations shall take into account the effects of those operations, and any supporting activities, on the environment; any possible damage to property or infrastructure; and harm to personnel.
- > Demining organisations should ensure that land where demining operations have taken place is left in a suitable state for its intended use once demining operations cease.
- > Particular attention should be given to property, infrastructure or land required for subsistence or economic purposes to ensure that these activities can continue after demining operations have been completed.

**DEMINING OPERATIONS**

- > **Mechanical operations** - the operation, repair, maintenance and servicing of machines used on demining operations shall be carried out in a manner that minimises the impact on the environment and in accordance with the requirements of the NMAA.
- > **EOD operations** - mines and ERW should be disposed of in a manner that minimises environmental impact and does not damage property or infrastructure. If mines or ERW must be destroyed in situ and there is a risk to property or infrastructure, protective works shall be used. If, even with protective works, there is still a risk of damage to property or infrastructure, the NMAA, local authorities and local communities shall be consulted about the operation.
- > **Disposal of debris, rubble and wire** - debris, rubble, wire and any other remains of obstacles removed from a demining worksite shall be disposed of in accordance with the local waste management regulations and requirements of the NMAA. When applicable, local communities are to be consulted about such disposal.
- > **Disposal of toxic and hazardous waste** - toxic and hazardous waste are not normally found in landmines. However, if explosives contents are open to the environment, the explosives or their residues can contaminate soil and water and may have a substantial effect upon the environment. In addition, asbestos chemicals and liquid propellants can be found in missiles and fuzing systems. Chemical weapons, including chlorine and mustard gas munitions, and depleted uranium projectiles may also be encountered.
- > **Obstruction of watercourses** - demining organisations shall not obstruct or divert the natural flow of watercourses unless it is necessary to divert or dam the watercourse to allow demining to be conducted. If it is necessary to divert or dam a watercourse, the landowner or local community is to be consulted and their agreement obtained before work commences.
- > **Degradation of air quality** - when demining organisations are conducting operations, they are to remain aware of the location of local communities, the prevailing wind conditions in the area and the ability of prevailing winds to carry smoke, dust and toxic fumes to local communities. Demining organisations shall ensure that the impact on local communities of any degradation of air quality is minimised.
- > **Burning of vegetation** - burning of vegetation should be avoided. When vegetation burning is to be carried out, where applicable, certain procedures and control measures should be applied.



**STANDARD 10.70**  
**PROTECTION OF THE ENVIRONMENT IN MINE ACTION****STOCKPILE DESTRUCTION OPERATIONS**

Stockpile destruction operations shall be planned and conducted in a manner that minimises the impact to the environment. If deemed necessary by the NMAA, this may include the conduct of an Environmental Impact Assessment (EIA).

**WORKSITES AND TEMPORARY ACCOMMODATION FACILITIES**

The establishment and operation of worksites and temporary accommodation facilities shall be carried out in a manner that minimises any contamination of the land or water systems and has minimal affect on flora and the natural habitats of insects or wildlife. Temporary accommodation facilities shall comply with all national or local regulations concerning the construction of temporary facilities.

**TRANSPORTATION OF HAZARDOUS MATERIALS**

During the transportation of any hazardous, toxic or flammable materials with the potential to damage the environment, precautions shall be taken to ensure that risk is minimised. These should include the transportation of all materials in containers that will minimise or prevent spills or leakage; secure loading of materials in the transport; fire precautions relevant to the materials being transported; safe and careful driving of vehicles carrying hazardous material; and vehicles which meet NMAA and or host nation regulations for the transportation of these materials.

**AREAS OF CULTURAL OR HISTORICAL SIGNIFICANCE**

Demining operations may occur in locations where there are areas of cultural or historical significance. Where this occurs, demining organisations should take all possible steps to prevent damage to these sites.

##### **ENVIRONMENTAL INCIDENTS**

Environmental incidents shall be reported to the NMAA as soon as practicable after the incident occurred. Reports shall include the circumstances surrounding the incident, the action taken, results of the action taken and the effects of the incident on the environment.

##### **RESPONSIBILITIES AND OBLIGATIONS**

The NMAA shall document its environmental management policy in a national standard. Environmental management policies shall be in accordance with national policies. Demining organisations shall document their environmental management requirements in Standing Operating Procedures (SOPs) or other relevant documents and ensure that all personnel are aware of the requirements.

##### **RELEVANT IMAS ANNEXES**

**Annex C** | Introduction to ISO 14000 Environmental management

**Annex D** | Environmental management checklist for temporary support facilities

There are currently three standards in Series 11 on stockpile destruction:

- > **11.10** | Guide for the destruction of stockpiled anti-personnel mines
- > **11.20** | Principles and procedures for open burning and open detonation (OBOD) operations
- > **11.30** | National planning guidelines for stockpile destruction

Article 4 of the Anti-Personnel Mine Ban Convention requires that States undertake to destroy or ensure the destruction of all stockpiled anti-personnel mines they own or possess, or that are under their jurisdiction or control, as soon as possible but not later than four years after they become Parties to the Convention.

Stockpiled anti-personnel mines rarely pose an immediate hazard to human life, but they do provide the capability for the deployment of new minefields. The removal of this capability is therefore an important factor for the continuing success of the Anti-Personnel Mine Ban Convention, and the reduction of the hazards from landmines worldwide.

Stockpiles tend to be large in quantity, but relatively small in terms of weight and net explosive content; however, the destruction of these stockpiles can be a complex logistic operation.

Series 11 of the IMAS provides guidance on the destruction of anti-personnel mine stockpiles.

**STANDARD 11.10 GUIDE FOR THE DESTRUCTION OF STOCKPILED ANTI-PERSONNEL MINES**

Physical destruction techniques for stockpiled anti-personnel mines range from relatively simple open burning and open detonation (OBOD) techniques to highly sophisticated industrial processes. Standard 11.10 seeks to inform national authorities only of the technical and logistic issues involved in stockpile destruction. It is not possible to provide template solutions.

**GENERAL PRINCIPLES**

The selection of the most suitable technique or technology by a national authority will depend primarily on the resources available, the physical condition and quantity of the stockpile, the national capacity and the applicable environmental and explosives legislation.

In terms of stockpile destruction, anti-personnel mines are no different to other types of munitions. They all contain fuzing systems and high explosives, so the inherent dangers present during transport, storage, processing and destruction are the same.

The most influential factor is likely to be economies of scale. The more anti-personnel mines there are to destroy, the larger the economies of scale; therefore there is a wider range of available technology (for example, making industrial demilitarisation a more realistic option for some States). National authorities may wish to consider stockpile destruction on a regional basis in order to achieve the large economies of scale.

For this reason, it is recommended that the stockpile destruction of anti-personnel mines should not be looked at in isolation. Where appropriate, consideration should be given to the destruction of other munitions in parallel to the anti-personnel mines.

## **STANDARD 11.10 GUIDE FOR THE DESTRUCTION OF STOCKPILED ANTI-PERSONNEL MINES**

### **DESTRUCTION TECHNIQUES**

There are many differing techniques and technologies available for anti-personnel mine destruction. The selection of the most suitable technique/technology will depend primarily on available finance, condition of the stockpile, in-country capacity and the environmental legislation of the State concerned.

- > **Open burning and open detonation** - in Europe, many nations have banned OBOD of all munitions, unless there is no alternative and it can only be justified on safety grounds. This has necessitated the construction of expensive demilitarisation facilities, hence the requirement for the disposal of ammunition types other than anti-personnel mines and the necessity for economies of scale if pursuing this option.

The argument as to the environmental effect of OBOD is still ongoing, and sound scientific evidence has been developed to support a case that OBOD of certain anti-personnel mine types may not be all that damaging to the environment. This means that OBOD still remains a viable destruction option for anti-personnel mines and may well be the most suitable option for areas of the world with virtually no industrialised demilitarisation capacities.

- > **Industrial demilitarisation** - industrial-scale demilitarisation has many advantages; mechanical disassembly, incineration in environmentally controlled systems and the ability to operate 24 hours a day, 365 days a year. Its major disadvantage is the high capital set-up costs of design, project management, construction and commissioning.
- > **Traditional disposal options for ammunition** - traditionally there were five options for the logistic disposal of ammunition and explosives but, in the case of anti-personnel mines, four of these options are banned by international treaty. The Anti-Personnel Mine Ban Convention itself precludes sale, gift or increased use in training of anti-personnel mines, while the Oslo Convention now bans deep sea dumping. Therefore, the international community is left with destruction as the only available option for the disposal of anti-personnel mines.

### **RELEVANT IMAS ANNEXES**

**Annex C** | The demilitarisation cycle

**Annex D** | Industrial demilitarisation technologies

**Annex E** | Rotary kiln technology

**Annex F** | Plasma arc technology

**Annex G** | Open Burning and Open Detonation

### **STANDARD 11.20 PRINCIPLES AND PROCEDURES FOR OPEN BURNING AND OPEN DETONATION OPERATIONS**

In many cases, open burning and open detonation (OBOD) will be the only practical, viable or affordable technique available. Standard 11.20 establishes the principles and procedures for the safe conduct of large-scale destruction operations using OBOD techniques.

#### **PRIORITIES AND PRINCIPLES**

The destruction of ammunition and explosives is a potentially hazardous task. The risks are minimised if the correct procedures are followed. If they are not, the possibility of serious accident becomes very high.

There are many different detailed disposal procedures but certain rules apply to all disposal tasks:

- > know the ammunition
- > plan the task carefully
- > create a safe working environment
- > give and obey directions precisely
- > observe all the safety precautions and use only the approved methods
- > do not take short cuts, they kill
- > clear the disposal area prior to departure

Almost all known accidents would not have happened had these rules been obeyed. After any accident, the Officer in Charge of Disposals concerned shall be called upon to explain why it was not prevented.

#### **METHODS OF LOCAL DISPOSAL**

There are three methods of local destruction:

- > detonation
- > burning
- > incineration

The method used with a particular mine will depend upon its type of explosive filling and design

#### **RELEVANT IMAS ANNEXES**

**Annex C** | Schematic layout of a disposal site

**Annex D** | Control of destruction operations

**STANDARD 11.30****NATIONAL PLANNING GUIDELINES FOR STOCKPILE DESTRUCTION**

Stockpile destruction can be carried out by different types of organisations, such as commercial companies, national mine action teams or military units.

Standard 11.30 explains systems and procedures that can be used at the national level to plan the destruction of a nation's stockpile of anti-personnel mines.

**MANAGEMENT PROCESS**

The management process for stockpile destruction has four stages: planning, preparation, destruction and verification.

Planning for stockpile destruction requires accurate and timely information on the quantity, storage location, type and technical design of anti-personnel mines, together with knowledge of the available destruction technology.

For new stockpile destruction programmes, the planning process should ideally start with a formal assessment of the country situation. This assessment will draw heavily on existing information provided by the military, research agencies and, if applicable, commercial companies. Technical expertise is essential during the planning process, and countries can request the support of the UN Mine Action Service (UNMAS) to assist in the planning process.

Preparation includes all enabling activities that help to clarify the destruction requirement and to develop the capacity of a NMAA and destruction organisation to carry out a destruction task.

The accuracy of the national ammunition account is very important so that future monitoring and verification do not identify accounting errors once the stockpile destruction process has started.

### **STANDARD 11.30**

#### **NATIONAL PLANNING GUIDELINES FOR STOCKPILE DESTRUCTION**

Destruction is the process of final conversion of ammunition and explosives into an inert state that can no longer function as designed.

The need for effective and safe operational procedures is essential. Standing operating procedures (SOPs) should be prepared for all operational procedures, practices and drills. These are instructions that define the preferred method of conducting an operational task or activity. SOPs should reflect local requirements and circumstances.

The NMAA and destruction organisation shall design and implement a verification system as a security and confidence-building measure.

### **RELEVANT IMAS ANNEXES**

**Annex C** | Destruction process

**Annex D** | The demilitarisation cycle

**Annex E** | Example of financial model

**Annex F** | ISO 9000



There are currently two standards in Series 12 on mine risk education (MRE):

- > **12.10** | Planning for mine risk education programmes and projects
- > **12.20** | Implementation of mine risk education programmes and projects

In total, seven standards deal with MRE, namely:

- > **07.11** | Guide for the management of MRE
- > **07.31** | Accreditation of MRE organisations and operations
- > **07.41** | Monitoring of MRE programmes and projects
- > **08.50** | Data collection and needs assessment for MRE
- > **12.10** | Planning for MRE programmes and projects
- > **12.20** | Implementation of MRE programmes and projects
- > **14.20** | Evaluation of MRE programmes and projects

Standard 07.11 should be read prior to reading the other six MRE standards and guides.

**STANDARD 12.10 PLANNING FOR MINE RISK EDUCATION PROGRAMMES AND PROJECTS**

Planning is the way in which organisations wishing to conduct mine risk education (MRE) programmes and projects identify the most effective way to reduce the risk of injury from mines and ERW to target populations through raising awareness and promoting behavioural change. The organisational accreditation of a MRE organisation will usually depend on its demonstrated ability to plan effectively.

**GENERAL PRINCIPLES**

Planning is essential to effective implementation and should be based upon careful and ongoing assessment of the needs of the affected communities. Planning should determine how monitoring and evaluation of the programme or project will be conducted.

Planning for MRE should be carried out in support of the national mine action programme and annual plan, or be linked to its development where a programme and plans have yet to be developed. Planning should also be linked to community development initiatives.

**THE PLANNING PROCESS**

Any planning process involves setting the overall objective of the programme or project, and then setting a series of enabling objectives and activities to achieve them. Each activity should contribute to achieving a specific objective; for each activity planned, it should be clearly stated what inputs (resources) are required and the expected outputs. Measurable indicators and sources for verification should be established for assessing the achievement of each enabling objective.

One way of conducting such a planning approach is through the use of logical framework analysis. This approach allows for the clear presentation of planned activities (in a framework format) to relevant stakeholders.

**PLANNING FOR PUBLIC INFORMATION DISSEMINATION**

Public information dissemination involves the use of mass media to convey messages to the general public. The level of media usage and type of media predominantly used will vary between and within countries; the plan should consider the target audience and the selection of the most appropriate media to reach that audience.

**STANDARD 12.10 PLANNING FOR MINE RISK EDUCATION PROGRAMMES AND PROJECTS**

To do this, the audience viewing/listening figures of different TV and radio stations and the circulation figures of newspapers and magazines should be broken down geographically and demographically, where possible. The timing, frequency and intensity of the messages should also be considered in order to have maximum impact.

**PLANNING FOR EDUCATION AND TRAINING**

There are two categories of education and training activities:

- a) direct education and training by the MRE organisation
- b) training of trainers

The two approaches are not mutually exclusive; organisations will often start off conducting direct training and progress towards training of trainers. An important part of planning is to consider whether the training will be conducted directly or through partners, and then to select the most appropriate partners for communicating the message effectively to the target groups. The plan shall then consider the time and resources required to train and provide support to the trainers.

**PLANNING FOR COMMUNITY MINE ACTION LIAISON**

Community mine action liaison refers to the system and processes used to exchange information between national authorities, mine action organisations and communities on the presence of mines and ERW, their impact and mine action activities. Community mine action liaison aims to ensure that mine action projects address community needs and priorities.

Community mine action liaison with the affected populations may start far in advance of demining activities. It may help the development of a capacity at the community level to assess the risk, manage the information and develop local risk reduction strategies. Liaison may also assist communities to gather the information necessary to lobby relevant stakeholders and advocate for mine action and other assistance intervention.

The requirement that community mine action liaison be conducted prior to any demining operation means that MRE and demining organisations working in a similar geographical area should coordinate fully with each other.

**RELEVANT IMAS ANNEXES**

There is no relevant annex to this IMAS.

**STANDARD 12.20 IMPLEMENTATION OF MINE RISK EDUCATION PROGRAMMES AND PROJECTS**

The effective implementation of a MRE programme or project should be guided by the standards for data collection and needs assessment (see IMAS 08.50) and planning (see IMAS 12.10), and should be responsive to the feedback from monitoring and evaluation.

Effective implementation should work with existing community structures and local authorities, accessing influential members of communities to facilitate project implementation. One of the key factors to ensure effective implementation is the establishment of a coordination framework with other key stakeholders.

The methods adopted to implement MRE will vary according to the type of activity. Some specific requirements for the three main components of MRE are discussed below.

**PUBLIC INFORMATION DISSEMINATION**

Public information dissemination as part of MRE is a one-way form of communication. It is transmitted through mass media to reduce the risk of injury from mines and ERW by raising awareness of the risk to individuals and communities and by promoting behavioural change.

Public information dissemination projects may be “stand alone” MRE projects that are implemented independently and often in advance of other mine action activities. In an emergency post-conflict situation, due to time constraints and lack of accurate data, public information dissemination is often the most practical means of communicating safety information to reduce risk. Equally they may form part of a more comprehensive risk reduction strategy within a mine action programme, supporting community based MRE, demining or advocacy activities.

In addition to using the mass media, public information may also be disseminated via “small media”, such as posters and leaflets. Such media may be disseminated to areas with reduced access to mass media or as a support to mass media approaches. Posters and leaflets have limited value alone and should always be used in support of a wider MRE project.

**STANDARD 12.20 IMPLEMENTATION OF MINE RISK EDUCATION PROGRAMMES AND PROJECTS****EDUCATION AND TRAINING**

Education and training is a two-way process. It involves the imparting and acquiring of knowledge, attitudes and practices through teaching and learning.

MRE education and training activities may be conducted in formal and non-formal environments. For example, this may include teacher to child education in schools, parent to children and children to parent education in the home, child to child education, peer to peer education in work and recreational environments, landmine safety training for humanitarian aid workers and the incorporation of landmine safety messages in regular occupational health and safety practices.

The implementation of education and training activities will differ according to the type of activity planned. Some organisations will conduct the training directly to affected communities, and others will work with implementing partners to conduct the education and training to the target groups. The implementation of a train-the-trainer programme will require more time to be spent working with partners, training, supporting and monitoring activities.

**COMMUNITY MINE ACTION LIAISON**

Community mine action liaison refers to the system and processes used to exchange information between national authorities, mine action organisations and communities on the presence of mines and ERW, their impact and mine action activities. Community mine action liaison aims to ensure that mine action projects address community needs and priorities.

Community mine action liaison with the affected populations may start far in advance of demining activities. It may help the development of community-level capacity to assess the risk, manage the information and develop local risk reduction strategies. Liaison may assist communities to gather the information necessary to lobby relevant stakeholders and advocate for mine action and other assistance intervention.

The requirement for community mine action liaison to be conducted prior to any demining operation means that MRE and demining organisations working in a similar geographical area should coordinate fully with each other.

**RELEVANT IMAS ANNEXES**

There is no relevant annex to this IMAS.

There are currently two standards in Series 14 on evaluation of mine action programmes. These are:

- > **14.10** | Guide for the evaluation of mine action interventions
- > **14.20** | Evaluation of mine risk education programmes and projects

A standard for general mine action evaluation is being drafted.

The purpose of evaluation in mine action is to assess the value of programmes and to confirm whether projects have been conducted as planned. Evaluations provide feedback to programme planners and information on programme strategies and project outputs, and confirm whether they have satisfied the needs and priorities of the affected populations. Evaluations provide important recommendations which may be used to improve future programmes and projects.

Evaluation usually takes place at the end of a project or on completion of a significant phase of the project; monitoring is an ongoing activity conducted throughout the project.

Evaluation and monitoring are complementary activities, closely linked but with separate and distinct functions. In MRE, monitoring is the process by which the MRE activities and the outputs of the project are quality assured in accordance with the plan; evaluation focuses on the achievement of objectives, the impact of the project, accountability and lessons learnt.

Evaluations may be carried out by MRE organisations themselves or by an external body or agency.

**STANDARD 14.10****GUIDE FOR THE EVALUATION OF MINE ACTION INTERVENTIONS**

Evaluations are widely recognised as an important element of mine action and a stage in the project or programme cycle. Many mine action clients and donors insist on evaluations as a component of commercial contracts and funding agreements. The scope of evaluation is vast. Evaluations may be carried out on a mine action policy, programme or project within a mine action programme. Evaluations may be carried out on specific aspects of mine action (mine risk education, for example). In addition, evaluations may just look at the design, planning and implementation of a project or programme; or may examine all these aspects, including the post implementation impact and sustainability of the intervention.

Standard 14.10 provides general guidelines for the preparation and conduct of mine action evaluations and for the reporting, dissemination and use of evaluation findings, conclusions, lessons and recommendations.

**PURPOSE OF EVALUATION**

The principal purposes served by evaluations are:

- > performance improvement in terms of the outcomes or enhanced wellbeing and capacities of local people and organisations resulting from the mine action project or programme
- > enhancement of accountability to stakeholders donors, NMAA, target beneficiaries, etc

Evaluation should endeavour to benefit multiple stakeholders, including communities affected by mine action, donor agencies sponsoring mine action, the government and its supporting organs such as the NMAA and MAC, and the implementing agency and its partners.

### STANDARD 14.10

#### GUIDE FOR THE EVALUATION OF MINE ACTION INTERVENTIONS

##### EVALUATION | GENERAL PRINCIPLES

The scope and scale of evaluations will vary across mine action interventions; however certain general principles should apply:

- > evaluations should only be conducted when there is an identified need for an independent and impartial assessment of a mine action project or programme
- > evaluation planning should be incorporated into the original design of an intervention so that baseline information and progress indicators are collected, providing vital evidence for evaluators
- > evaluation should be useful; it is intended to improve the planning and delivery of an intervention and it contributes to decision making and strategy formulation
- > where possible, evaluation should be a collaborative undertaking with participation from all stakeholders
- > evaluation results should be disseminated to all stakeholders including the beneficiaries of a mine action intervention

##### EVALUATION | PLANNING CONSIDERATIONS

There are a number of factors that should be considered when planning for evaluation. These are discussed briefly below.

- > **Identified need** - evaluations should only be planned when there is an identified need for an independent and impartial assessment of a mine action project or programme and there is intent to use the evaluation findings to improve performance and accountability.
- > **Timeliness** - evaluation results are often used for critical decisions in project or programme cycles; evaluations should be planned sufficiently in advance to ensure there is time to conduct report and disseminate the results.
- > **Harmonisation** - evaluations place significant demands on the staff of NMAA, mine action organisations and other stakeholders. Where feasible, organisations commissioning evaluations should attempt to harmonise their evaluation plans and to undertake joint evaluations.



### STANDARD 14.10

#### GUIDE FOR THE EVALUATION OF MINE ACTION INTERVENTIONS

- > **Stakeholder participation** - where possible, beneficiaries and other stakeholders of an intervention should participate in the planning of evaluations to foster a sense of ownership of evaluation results. Where appropriate, special efforts should be made to obtain the views of women and of groups who may lack adequate opportunities to express their views.
- > **Scope of the evaluation** - the scope of an evaluation and the issues to be evaluated should be carefully considered to ensure that the most critical issues are addressed.
- > **Accountability** - plans for evaluations should address the inherent responsibility of the organisations involved to be accountable for their management of resources and the results achieved.

### DESIGN OF EVALUATIONS

Terms of Reference (TOR) for each evaluation shall be designed and prepared which provide detailed guidance to the evaluators on all aspects of the evaluation.

### IMPLEMENTING EVALUATIONS

- > **Engaging and working with evaluators** - evaluations should be conducted by well-qualified teams, selected by means of a transparent process that assesses the team as a whole as well as its individual members.
- > **The preparation of an evaluation work plan** - involves conducting initial interviews, file and documentary research and preliminary analysis. The work plan requires a substantial investment in time; however, a thoroughly prepared work plan can provide sufficient information to allow much of the analysis work to occur even before the field visit takes place.
- > **Conducting evaluation** - evaluations should be conducted in a professional and ethical manner, giving appropriate opportunities for the participation of all relevant stakeholders and respecting the confidentiality and dignity of those providing information. Evaluation procedures should be realistic, diplomatic, gender and culturally-sensitive, and reflect both cost-consciousness and respect for the time of those asked to provide information.

### STANDARD 14.10

#### GUIDE FOR THE EVALUATION OF MINE ACTION INTERVENTIONS

- > **Reporting** - evaluation reports should be logically structured, containing evidence-based findings, conclusions, lessons and recommendations; they should be free of information that is not relevant to the overall analysis. The report should be presented in a way that makes the information accessible and comprehensible. It should provide an explanation of the evaluation criteria that were used. It also is important to make the basis of value judgments transparent. Performance standards or benchmarks used should also be described.
- > **Dissemination** - evaluation reports should be disseminated, in whole or in part, to stakeholders and should be made available to others within the mine action community.

### FOLLOW-UP ON EVALUATION RECOMMENDATIONS

Project or programme managers should respond to the recommendations resulting from an evaluation. This may take the form of a management response, action plan and/or agreement clearly stating responsibilities and accountabilities.

### RESPONSIBILITIES

The UN should ensure periodic, independent evaluation of the programme or projects supported to ensure that national ownership is being achieved. The NMAA should encourage the evaluation of mine action programmes and projects and ensure that mine action organisations have made provisions for project evaluations. The organisations implementing mine action projects should evaluate their own progress against objectives and should evaluate the outcomes and, where feasible, the impact of their intervention. Donor organisations, where relevant, should ensure that projects have an evaluation component and the necessary resources to undertake them.

### RELEVANT IMAS ANNEXES

There is no relevant annex to this IMAS.

**STANDARD 14.20 EVALUATION OF MINE RISK EDUCATION PROGRAMMES AND PROJECTS**

The purposes of evaluation may include:

- a) improvement of the programme or project being evaluated
- b) generating knowledge and learning for wider application (lessons learnt and missed opportunities)
- c) making project results transparent and accountable

More specifically, in the case of mine risk education (MRE), evaluation of MRE programmes and projects should be measured against the objectives stated in the original MRE project document. They may include:

- a) reflecting on the rate of accidents
- b) measuring the acquisition of knowledge, attitudes, practices, behavioural change, reduction in risk and reduction of accidents in the target communities which have resulted from MRE activities
- c) assessing the impact of using specific MRE methods and tools
- d) identifying the extent to which the target communities' MRE needs and expectations have been addressed by the project

Five specific evaluation criteria should be used: relevance, effectiveness, efficiency, impact and sustainability.

An evaluation will normally review and revisit the needs and information gathered during data collection and needs assessment, review the objectives and indicators defined during planning and assess MRE outputs confirmed through monitoring.

### STANDARD 14.20 EVALUATION OF MINE RISK EDUCATION PROGRAMMES AND PROJECTS

#### ISSUES TO BE EVALUATED

- > **Stakeholder involvement** - an evaluation should assess the degree to which the programme stakeholders (mine-affected communities, mine action organisations, governments and public institutions, aid agencies and community groups) were engaged in it.
- > **Coordination** - an evaluation should assess the degree to which the MRE project was coordinated. Similarly, the presentation and outreach of the findings and recommendations of the project evaluation should be well coordinated.
- > **Integration** - MRE activities should be fully integrated with the other mine action, humanitarian and development activities to achieve a synergistic effect. An evaluation should assess the degree to which the MRE project was integrated with other activities.
- > **Community participation and empowerment** - the affected communities should be actively involved in the evaluation and communities that have been involved in the evaluation process should be given feedback on the results of the evaluation.
- > **Information management and exchange** - an evaluation should assess the quality of the information gathered, the way it has been analysed and its use and appropriateness for project planning and impact measurement in different phases of the project. It should also assess whether the exchange of information between affected communities and mine action organisations has been efficient and effective in the community mine action liaison process.
- > **Appropriate targeting** - an evaluation should assess whether appropriate targeting has been achieved and maintained by the MRE project, and it should assess the impact of the project on the target groups. In particular, the evaluation should include the views and recommendations of the target groups and should assess the selection of target groups and the process of selection.
- > **Education** - where applicable, the evaluation should consider the quality of educational methodology and materials. This may include examining messages, training and curricula components.
- > **Training** - the competency of MRE staff and the effectiveness of the staff training programme may be assessed as part of the evaluation. In addition, evaluation staff that are likely to be exposed to mine and ERW hazards shall undergo landmine safety training.

#### RELEVANT IMAS ANNEXES

There is no relevant annex to this IMAS.





## APPENDIX 1

### GLOSSARY OF ACRONYMS

<b>APM</b>	anti-personnel mine	<b>JRC</b>	Joint Research Centre (European Union)
<b>AXO</b>	abandoned explosive ordnance	<b>KSA</b>	knowledge, skills and attitudes
<b>BOI</b>	board of inquiry	<b>MAC</b>	mine action centre
<b>COTS</b>	commercial off-the-shelf	<b>MDD</b>	mine detection dog
<b>EIA</b>	environmental impact assessment	<b>MOU</b>	memorandum of understanding
<b>EOD</b>	explosive ordnance disposal	<b>MRE</b>	mine risk education
<b>ERW</b>	explosive remnants of war	<b>NGO</b>	non-governmental organisation
<b>FS</b>	feasibility study	<b>NTS</b>	non-technical survey
<b>GICHD</b>	Geneva International Centre for Humanitarian Demining	<b>NMAA</b>	national mine action authority
<b>GIS</b>	geographic information system	<b>OA</b>	operational analysis
<b>GMAA</b>	general mine action assessment	<b>OBOD</b>	open burning and open detonation
<b>GPS</b>	global positioning system	<b>OTS</b>	off-the-shelf
<b>HLS</b>	helicopter landing site	<b>PPE</b>	personal protective equipment
<b>ILO</b>	International Labour Organisation	<b>PPR</b>	post-project review
<b>IMAS</b>	International Mine Action Standards	<b>QA</b>	quality assurance
<b>IMSMA</b>	Information Management System for Mine Action	<b>QC</b>	quality control
<b>ISO</b>	International Organisation for Standardisation	<b>QM</b>	quality management
<b>ITEP</b>	International Test and Evaluation Programme for Humanitarian Demining	<b>REST</b>	Remote Explosive Scent Tracing

### GLOSSARY OF ACRONYMS

<b>S&amp;OH</b>	safety and occupational health
<b>SON</b>	statement of operational need
<b>SOP</b>	standing (or standard) operating procedure
<b>SOR</b>	statement of requirement
<b>STO</b>	statement of tasks and output
<b>TS</b>	technical survey
<b>T&amp;E</b>	test and evaluation
<b>TOR</b>	terms of reference
<b>UN</b>	United Nations
<b>UNDP</b>	United Nations Development Programme
<b>UNICEF</b>	United Nations Children's Fund
<b>UNMAS</b>	United Nations Mine Action Service
<b>UNOPS</b>	United Nations Office for Project Services
<b>US</b>	United States
<b>UXO</b>	unexploded ordnance



## APPENDIX 2

### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### 3.1 abandoned cluster munitions (2009)

cluster munitions or explosive submunitions that have not been used and that have been left behind or dumped, and that are no longer under the control of the party that left them behind or dumped them. They may or may not have been prepared for use. (CCM)

#### 3.2. Abandoned Explosive Ordnance (AXO) (2005)

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

#### 3.3. acceptance (2005)

the formal acknowledgement by the sponsor, or the sponsor's nominated representative that the equipment meets the stated requirements and is suitable for use in mine action programmes. An acceptance may be given with outstanding caveats.

#### 3.4. access lane

a marked passage leading through a hazardous area that has been cleared to provide safe movement to a required point or area.

#### 3.5. accident

an undesired event which results in harm.

**Note:** Modified from definition in OHSAS 18001:1999.

#### 3.6. accreditation (2009)

the procedure by which a mine action organisation is formally recognised as competent and able to plan, manage and operationally conduct mine action activities safely, effectively and efficiently.

**Note:** For most mine action programmes, the NMAA will be the body which provides accreditation. International organisations such as the United Nations or regional bodies may also introduce accreditation schemes.

**Note:** ISO 9000 usage is that an 'Accreditation' body accredits the 'Certification or Registration' bodies that award ISO 9000 certificates to organisations. The usage in IMAS is completely different to this, and is based on the main definition above, which is well understood in the mine action community.

#### 3.7. accreditation body

an organisation, normally an element of the NMAA, responsible for the management and implementation of the national accreditation system.

#### 3.8. advocacy

in the context of mine action, the term refers to.... public support, recommendation or positive publicity with the aim of removing, or at least reducing, the risk from, and the impact of, mines and ERW.

#### 3.9. agreement (2004)

an alternative term for a contract. An agreement includes all the crucial elements of a contract.

**Note:** Definition when used in a legal sense.

#### 3.10. all reasonable effort (2009)

describes what is considered a minimum acceptable level of effort to identify and document hazardous areas or to remove the presence or suspicion of mines/ERW. All reasonable effort has been applied when the commitment of additional resources is considered to be unreasonable in relation to the results expected.

#### 3.11. Amended Protocol II (APII) / Amended Protocol II (APII) to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which May be Deemed to be Excessively Injurious or to have Indiscriminate Effects (CCW)

**Note:** It prohibits the use of all undetectable anti-personnel mines and regulates the use of wider categories of mines, booby-traps and other devices. For the purposes of the IMAS, Article 5 lays down requirements for the marking and monitoring of mined areas. Article 9 provides for the recording and use of information on minefields and mined areas. The Technical Annex provides guidelines on, inter alia, the recording of information and international signs for minefields and mined areas.

#### 3.12. ammunitions see munition

#### 3.13. anti-handling device

a device intended to protect a mine and which is part of, linked to, attached or placed under the mine and which activates when an attempt is made to tamper with or otherwise intentionally disturb the mine. (APMBC)

### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### **3.14. Anti-Personnel Mine Ban Convention (APMBC) / Ottawa Convention Mine Ban Treaty (APMBC)**

**Note:** Provides for a complete ban on the use, stockpiling, production and transfer of anti-personnel mines (APMs) and on their destruction. For the purposes of IMAS documents, Article 5 of the APMBC lays down requirements for the destruction of APMs in mined areas. Article 6 details transparency measures required under the Treaty including information on the location of mined or suspected mined areas and measures taken to warn the local population.

#### **3.15. Anti-Personnel Mines (APM)**

a mine designed to be exploded by the presence, proximity or contact of a person and that will incapacitate, injure or kill one or more persons.

**Note:** Mines designed to be detonated by the presence, proximity or contact of a vehicle as opposed to a person that are equipped with anti-handling devices, are not considered APM as a result of being so equipped. (APMBC)

#### **3.16. applied research**

research focused at clearly defined problems and market opportunities.

**Note:** Its principal purpose is to establish the feasibility of applying technology to solve a clearly defined problem, within defined parameters such as cost, time and risk.

#### **3.17. armed (2009)**

the state of a mine or explosive ordnance when all elements of the fuzing train are in line and capable of initiation/firing by applied energy.

#### **3.18. audit (2006)**

an assessment of the adequacy of management controls to ensure the economical and efficient use of resources; the safeguarding of assets; the reliability of financial and other information; the compliance with regulations, rules and established policies; the effectiveness of risk management; and the adequacy of organisational structures, systems and processes.

#### **3.19. battlefield (2007)**

refers to an area in which ERW including UXO and AXO have been found. This may include former battle areas, defensive positions and sites where air delivered or artillery munitions have been left, fired or dropped.

#### **3.20. Battle Area Clearance (BAC) (2005)**

the systematic and controlled clearance of hazardous areas where the hazards are known not to include mines

#### **3.21. benchmark (2004)**

in the context of humanitarian demining, the term refers to.... a fixed point of reference used to locate a marked and recorded hazard or hazardous area. It should normally be located a short distance outside the hazardous area.

**Note:** A benchmark may not be necessary if the reference point is sufficiently close to the perimeter of the hazardous area.

#### **3.22. Bomb Live Unit (BLU) (2004)**

part of the nomenclature of a type of submunition e.g. BLU 26 or BLU 97.

#### **3.23. bomblet see submunition.**

#### **3.24. booby trap**

an explosive or non-explosive device, or other material, deliberately placed to cause casualties when an apparently harmless object is disturbed or a normally safe act is performed. (AAP-6)

#### **3.25. boundary lane**

a cleared lane around the perimeter of a hazardous area.

#### **3.26. box (2005)**

a squared area that is developed for the purpose of being searched by MDDs.

**Note:** A box normally measures 10m x 10m, but other sizes may be preferred.

#### **3.27. briefing area (2004)**

in the context of humanitarian demining .... a clearly identifiable control point intended to be the first point of entry to a demining worksite.

**Note:** The briefing area contains a plan of the minefield and its current level of clearance, at a scale large enough for briefing purposes, showing the location of control points (car park, first aid point, explosive storage areas, the areas where mine clearance work is progressing and distances), and where safety equipment is issued to visitors.

### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### **3.28. burning site (2005)**

an area authorised for the destruction of munitions and explosives by burning.

#### **3.29. cancelled area (2009)**

an area of land previously recorded as a hazardous area which subsequently is considered, as a result of non-technical and technical surveys, not to represent a risk from mines and ERW.

**Note:** This change in status will be the result of more accurate and reliable information, for example from non-technical I survey, and will normally only be authorised by the NMAA, in accordance with national land release criteria. The documentation of all cancelled areas shall be retained together with a detailed explanation of the reasons for the change in status.

#### **3.30. CCM (the 2008 Convention on Cluster Munitions) (2009)**

the CCM prohibits all use, stockpiling, production and transfer of Cluster Munitions. Separate articles in the Convention concern assistance to victims, clearance of contaminated areas and destruction of stockpiles.

#### **3.31. CCW (the 1980 Convention on Certain Conventional Weapons) (2007)**

**Note:** The 1980 Convention on Prohibitions and Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to Have Indiscriminate Effects as amended on 21 December 2001. It has five parts, or “protocols.” Only two of them are related to mine action. Amended Protocol II deals with landmines, booby-traps and other devices, and Protocol V deals with the problem of explosive remnants of war (ERW).

#### **3.32. CEN (Committee European Normalisation)**

CEN is the European Committee for Standardisation.

**Note:** The mission of CEN is to promote voluntary technical harmonisation in Europe in conjunction with worldwide bodies and its European partners. European standards (referred to as EN (Europe Normalisation)) form a collection which ensures its own continuity for the benefit of users.

#### **3.33. CWA (CEN Workshop Agreement) (2007)**

an agreement developed by a CEN Workshop, which reflects the consensus of identified individuals and organisations responsible for its contents.

#### **3.34. certification committee**

a committee appointed by UNMAS to regularly review compliance of the impact component of the GMAA process with the UN certification guidelines based on the reports of the UN quality assurance monitor from the field.

**Note:** Acceptance of the findings of the impact component of the GMAA of a specific country by the international community is dependent on its certification by the UN certification committee.

#### **3.35. clearance (2009)**

in the context of mine action, the term refers to ..... tasks or actions to ensure the removal and/or the destruction of all mine and ERW hazards from a specified area to the specified depth.

#### **3.36. cleared area (2004)**

cleared land an area that has been physically and systematically processed by a demining organisation to ensure the removal and/or destruction of all mine and ERW hazards to a specified depth.

**Note:** IMAS 09.10 specifies the quality system (i.e. the organisation, procedures and responsibilities) necessary to determine that land has been cleared by the demining organisation in accordance with its contractual obligations.

**Note:** Cleared areas may include land cleared during the technical survey process, including boundary lanes and cleared lanes.

#### **3.37. cleared lane / safety lane**

the generic term for any lane, other than a boundary lane, cleared by a survey or clearance team to the international standard for cleared land. This may include access lanes outside the hazardous area or cross/verification lanes inside a hazardous area.

#### **3.38. Cluster Bomb Unit (CBU)**

an expendable aircraft store composed of a dispenser and sub-munitions. (AAP-6)

a bomb containing and dispensing sub-munitions which may be mines (anti-personnel or anti-tank), penetration (runway cratering) bomblets, fragmentation bomblets etc.

### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### 3.39. cluster munition (2009)

**Note:** The following definition of cluster munition is for political purposes as defined in the CCM. From a technical point of view cluster munitions are included in the overall definition of ERW.

Cluster munition refers to a conventional munition that is designed to disperse or release explosive submunitions each weighing less than 20 kilograms, and includes those explosive submunitions. (CCM)

It does not include the following:

- a) a munition or submunition designed to dispense flares, smoke, pyrotechnics or chaff; or a munition designed exclusively for an air defence role;
- b) a munition or submunition designed to produce electrical or electronic effects;
- c) a munition that in order to avoid indiscriminate area effects and the risks posed by unexploded submunitions, has all of the following characteristics:
  - (i) each munition contains fewer than 10 explosive submunitions
  - (ii) each explosive submunition weighs more than four kilograms
  - (iii) each explosive submunition is designed to detect and engage a single target object
  - (iv) each explosive submunition is equipped with an electronic self-destruction mechanism
  - (v) each explosive submunition is equipped with an electronic self deactivating feature

#### 3.40. cluster munition contaminated area (2009)

an area known, or suspected, to contain cluster munition remnants. (CCM)

#### 3.41. collaboration

in the context of mine action equipment procurement, the term refers to.... an activity which applies solely to the procurement of common equipment by two or more organisations.

#### 3.42. Commercial off the Shelf (COTS)

in the context of mine action equipment procurement, the term refers to.... an equipment that is available direct from the manufacturer and requires no further development prior to introduction into service apart from minor modifications.

#### **3.43. commonality**

in the context of mine action equipment procurement, the term refers to..... a state achieved when groups of individuals or organisations use common procedures and/or equipment.

#### **3.44. community liaison (2009) / community mine action liaison**

liaison with men and women in mine/ERW affected communities to exchange information on the presence and impact of mines and ERW, create a reporting link with the mine action programme and develop risk reduction strategies. Community liaison aims to ensure that the different community needs and priorities are central to the planning, implementation and monitoring of mine action operations.

**Note:** Community liaison is based on an exchange of information and involves men, women, boys and girls in the communities in the decision making process, (before, during and after demining), in order to establish priorities for mine action. In this way mine action programmes aim to be inclusive, community focused and ensure the maximum involvement of all sections of the community. This involvement includes joint planning, implementation, monitoring and evaluation of projects.

**Note:** Community liaison also works with communities to develop specific interim safety strategies promoting individual and community behavioural change. This is designed to reduce the impact of mines/ERW on individuals and communities until such time as the hazard is removed.

#### **3.45. compatibility**

in the context of mine action equipment procurement, the term refers to..... the capability of two or more components or sub-components of equipment or material to exist or function in the same environment without mutual interference.

#### **3.46. concept formulation**

the first stage in the procurement process, and covers the period of the emergence of the idea to the initial SON.

#### **3.47. Confirmed Hazardous Area (CHA) (2009)**

an area identified by a non-technical survey in which the necessity for further intervention through either technical survey or clearance has been confirmed.



### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### **3.48. contaminated area (2009)**

in the context of mine action, the term refers to ..... an area known or suspected to contain mines and, or ERW.

#### **3.49. contract (2009)**

a formal legally binding agreement with specific terms between two or more entities in which there is a promise to do something in return for a valuable benefit known as a consideration.

#### **3.50. contractor (2009)**

any organisation (governmental, non-government or commercial entity) contracted to undertake a mine action activity. The organisation liable under contract responsible for the conduct of the overall contract is referred to as the 'prime contractor'. Other organisations or parties the prime contractor engages to undertake components of the larger contract are referred to as 'sub-contractors'. Sub-contractors are responsible to the prime contractor and not to the principal.

#### **3.51. control area or point (2004)**

all points or areas used to control the movements of visitors and staff on a demining worksite.

#### **3.52. cost-effectiveness**

an assessment of the balance between a system's performance and its whole life costs.

#### **3.53. cost-plus contract (2004)**

a contract in which the contractor is reimbursed all costs incurred in undertaking a specific scope of work and is paid an additional lump sum or fixed percentage of the reimbursable costs.

#### **3.54. critical non-conformity (2004)**

the failure of a 1.0m<sup>2</sup> unit of land during inspection to meet the stated clearance requirements. IMAS identifies two types of critical non-conformities: the discovery of a mine or ERW; and other critical non conformities as defined by NMAA.

#### **3.55. decontamination**

a process of removing undesired contamination from test items, tools and accessories that are used when preparing a field test. (Definition for MDD use only).

#### **3.56. Defined Hazardous Area (DHA) (2009)**

an area, generally within a Confirmed Hazardous Area, that requires full clearance. A DHA is normally identified through thorough survey.

#### **3.57. deflagration (2009)**

a technical term describing subsonic combustion that usually propagates through thermal conductivity [(hot burning material heats the next layer of cold material and ignites it (AOP 38)].

#### **3.58. demilitarisation (2009)**

the act of removing or otherwise nullifying the military potential of a munition. Demilitarisation is a necessary step for military items prior to their release into a non-military setting (AOP 38).

the process that renders munitions unfit for their originally intended purpose.

#### **3.59. deminer (2009)**

a man or woman qualified and employed to undertake demining activities on a demining worksite.

#### **3.60. demining / humanitarian demining**

activities which lead to the removal of mine and ERW hazards, including technical survey, mapping, clearance, marking, post-clearance documentation, community mine action liaison and the handover of cleared land. Demining may be carried out by different types of organisations, such as NGOs, commercial companies, national mine action teams or military units. Demining may be emergency-based or developmental.

**Note:** in IMAS standards and guides, mine and ERW clearance is considered to be just one part of the demining process.

**Note:** in IMAS standards and guides, demining is considered to be one component of mine action.

**Note:** in IMAS standards and guides, the terms demining and humanitarian demining are interchangeable.

#### **3.61. demining accident**

an accident at a demining workplace involving a mine or ERW hazard (cf mine accident).

### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### **3.62. demining accident response plan**

a documented plan developed for each demining workplace which details the procedures to be applied to move victims from a demining accident site to an appropriate treatment or surgical care facility.

#### **3.63. demining machine (2009)**

in the context of mine action, the term refers to ..... a unit of mechanical equipment used in demining operations.

#### **3.64. demining incident**

an incident at a demining workplace involving a mine or ERW hazard (cf mine incident).

#### **3.65. demining organisation**

refers to any organisation (government, NGO, military or commercial entity) responsible for implementing demining projects or tasks. The demining organisation may be a prime contractor, subcontractor, consultant or agent.

#### **3.66. demining sub-unit (2004)**

an element of a demining organisation, however named, which is operationally accredited to conduct one or more prescribed demining activities, such as technical surveys, manual clearance, EOD or the use of MDD teams.

#### **3.67. demining worker (2009)**

all employees, male and female, who work at a demining worksite.

#### **3.68. demining worksite (2004)**

any workplace where demining activities are being undertaken.

**Note:** Demining worksites include workplaces where survey, clearance and EOD activities are undertaken including centralised disposal sites used for the destruction of mines and ERW identified and removed during clearance operations.

**Note:** Survey, in relation to a demining worksite includes general survey undertaken to identify mine and ERW hazards and hazardous areas.

#### **3.69. demolition (dml)**

destruction of structures, facilities or material by use of fire, water, explosives, mechanical or other means (AAP 6).

#### **3.70. demolition ground (2004)**

an area authorised for the destruction of munitions and explosives by detonation.

#### **3.71. destroy (destruction) in situ (2009) / blow in situ**

the destruction of any item of ordnance by explosives without moving the item from where it was found, normally by detonating an explosive charge alongside.

#### **3.72. destruction (2004)**

the process of final conversion of munitions and explosives into an inert state whereby they can no longer function as designed.

#### **3.73. destruction organisation (2004)**

refers to any organisation (government, military or commercial entity) responsible for implementing stockpile destruction projects or tasks. The destruction organisation may be a prime contractor, subcontractor, consultant or agent.

#### **3.74. detection (2004)**

in the context of humanitarian demining, the term refers to..... the discovery by any means of the presence of mines or ERW.

#### **3.75. detonator**

a device containing a sensitive explosive intended to produce a detonation wave. (AAP-6)

#### **3.76. disarm**

the act of making a mine or explosive ordnance safe by removing the fuze or igniter. The procedure normally removes one or more links from the firing chain.

#### **3.77. dispenser (2009)**

a container or device which is used to carry and release submunitions (AAP-)

#### **3.78. disposal/destruction site (2009)**

an area authorised for the destruction of munitions and explosives by detonation and/or burning.

### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### **3.79. DNT (Dinitrotolulene) (2005)**

a residual product of TNT manufacture, and a breakdown product of TNT decay. Is normally present in varying amounts in any explosive device containing TNT. The vapour pressure of DNT is much higher than that of TNT, and under some conditions it may be easier to detect DNT than TNT.

#### **3.80. donor (2009)**

all sources of funding.

#### **3.81. drill munition (2005)**

an inert replica of a munition specifically manufactured for drill, display or instructional purposes.

#### **3.82. durability**

the ability of an item or material to continue to perform its required function under stated conditions as time progresses. Durability is a function of reliability with time.

**Note:** Durability involves resistance to degradation, corrosion, cracking, de-lamination, thermal shock, wear and the effects of foreign object damage.

#### **3.83. efficiency (2009)**

in the context of mine action evaluation, the term refers to... a measure of how economically resources/inputs (funds, expertise, time, etc.) are converted to results (outputs and outcomes).

#### **3.84. effectiveness (2009)**

in the context of mine action evaluation, the term refers to... the extent to which the intervention's objectives were achieved, or are expected to be achieved, taking into account their relative importance.

#### **3.85. ensemble**

the group of protective clothing designed to be worn as a protective measure.

#### **3.86. environment**

surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelation. (ISO 14001:2004 (E))

#### **3.87. environmental aspects**

element of an organisation's activities or products or services that can interact with the environment. (ISO 14001:2004 (E))

#### **3.88. environmental factors**

factors relating to the environment and that influence the transportation of odour from the mine, the detection of the target odour or the ability of people and dogs to work safely and effectively. (i.e. Wind, rain, temperature, humidity, altitude, sun and vegetation). (Definition for MDD use only).

#### **3.89. environmental impact (2006)**

any change to the environment, whether adverse or beneficial, wholly or partly resulting from an organisation's environmental aspects. (ISO 14001:2004 (E))

#### **3.90. Environmental Impact Assessment (EIA) (2007)**

in the context of mine action, the term refers to .....the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant environmental effects of mine action activities prior to decisions being taken and commitments made.

#### **3.91. Environmental Management System (EMS) (2006)**

part of an organisation's management system used to develop and implement its environmental policy and manage its environmental aspects. (ISO 14001:2004 (E))

#### **3.92. environmental policy (2006)**

overall intentions and direction of an organisation related to its environmental performance as formally expressed by top management. (ISO 14001:2004 (E))

#### **3.93. equipment**

a physical, mechanical, electrical and/or electronic system which is used to enhance human activities, procedures and practices.

#### **3.94. European Normalisation (EN) (2005)**

See CEN (Committee European Normalisation)

### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### 3.95. evaluation (2009)

the analysis of a result or a series of results to establish the quantitative and qualitative effectiveness and worth of software, a component, equipment or system, within the environment in which it will operate.

**Note:** Definition when used in context of equipment test and evaluation.

an assessment, as systematic and objective as possible, of an on-going or completed project, programme or policy, its design, implementation and results. The aim is to determine the relevance and fulfilment of objectives, developmental efficiency, effectiveness, impact and sustainability. An evaluation should provide information that is credible and useful, enabling the incorporation of lessons learned into the decision-making process of both recipients and donors.

**Note:** Definition from Principles for Evaluation of Development Assistance, Organisation for Economic Cooperation and Development, DAC, 1991.

a process that attempts to determine as systematically and objectively as possible the merit or value of an intervention.

**Note:** The word 'objectively' indicates the need to achieve a balanced analysis, recognising bias and reconciling perspectives of different stakeholders (all those interested in, and affected by programmes, including both male and female beneficiaries as primary stakeholders) through use of different sources and methods.

**Note:** Evaluation is considered to be a strategic exercise.

**Note:** Definition when used in relation to programmes. (UNICEF Policy and Programming Manual)

#### 3.96. excavation (2009)

procedures employed in the process of demining whereby ground is removed to detect or confirm the presence of sub-surface mines and/or ERW.

#### 3.97. explosive materials

components or ancillary items used by demining organisations which contain some explosives, or behave in an explosive manner, such as detonators and primers.

#### **3.98. Explosive Ordnance (EO)**

all munitions containing explosives, nuclear fission or fusion materials and biological and chemical agents. This includes bombs and warheads; guided and ballistic missiles; artillery, mortar, rocket and small arms ammunition; all mines, torpedoes and depth charges; pyrotechnics; clusters and dispensers; cartridge and propellant actuated devices; electro-explosive devices; clandestine and improvised explosive devices; and all similar or related items or components explosive in nature. (AAP-6)

#### **3.99. Explosive Ordnance Disposal (EOD) (2005)**

the detection, identification, evaluation, render safe, recovery and disposal of EO. EOD may be undertaken:

- > as a routine part of mine clearance operations, upon discovery of ERW
- > to dispose of ERW discovered outside hazardous areas, (this may be a single item of ERW, or a larger number inside a specific area)
- > to dispose of EO which has become hazardous by deterioration, damage or attempted destruction.

#### **3.100. Explosive Remnants of War (ERW) (2005)**

Unexploded Ordnance (UXO) and Abandoned Explosive Ordnance (AXO). (CCW protocol V).

#### **3.101. explosives**

a substance or mixture of substances which, under external influences, is capable of rapidly releasing energy in the form of gases and heat. (AAP-6)

#### **3.102. explosive submunition (2009)**

a conventional munition that in order to perform its task is dispersed or released by a cluster munition and is designed to function by detonating an explosive charge prior to, on or after impact. (CCM)

#### **3.103. failed cluster munition (2009)**

a cluster munition that has been fired, dropped, launched, projected or otherwise delivered and which should have dispersed or released its explosive submunitions but failed to do so. (CCM)



### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### **3.104. failure**

an event in which any system, equipment, components or sub-components does not perform as previously specified.

**Note:** Failures may be classified as to cause, degree, relevance, dependence and responsibility.

#### **3.105. Feasibility Study (FS)**

a study to establish the feasibility of the Statement of Tasks and Outputs (STO) in terms of technology, costs and time.

#### **3.106. field editor**

an individual whose main responsibility is to ensure accuracy, consistency, readability and clarity of the information gathered by enumerators in the field.

**Note:** The field editor must work closely with the survey teams in order to ensure that the review process is done shortly after the survey has been completed and while the teams are in the same general vicinity as the community being reviewed.

#### **3.107. fixed price contract (2004)**

a contract in which a contractor is paid a fixed price to undertake a specific scope of work or to provide a specific number of assets (demining teams, MDD teams or mechanical equipment) over an agreed time-frame. The fixed price covers the whole of the works, supplies and services to be provided by the contractor.

#### **3.108. force majeure (2009)**

a common clause in contracts which essentially frees both parties from liability or obligation when an extraordinary event or circumstance occurs that is beyond the control of the contracting parties,

#### **3.109. Full Development (FD)**

the procedure containing all of the engineering processes, trials and tests necessary to establish the final detailed design to enable full production to commence.

#### **3.110. fuze**

a device which initiates an explosive train. (AAP-6)

#### **3.111. gender analysis (2009)**

the study of the differences in men's and women's roles as well as their different access to and control over resources. It is a tool for improving the understanding of how the differences between men and women influence their opportunities and problems and can identify the challenges to participation in development. (IDRC)

#### **3.112. gender equality (2009)**

the equal rights, responsibilities and opportunities of men and women and implies that the interests, priorities and needs of both are taken into consideration equally.

#### **3.113. gender mainstreaming (or mainstreaming a gender perspective) (2009)**

refers to the process of assessing the different implications for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels. It is a strategy for making the concerns and experiences of both women and men an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. (UNMAT 2005)

#### **3.114. gender sensitive (2009)**

A gender sensitive approach to mine action takes into consideration the different impact landmines have on men, women, boys and girls. The ultimate aim of gender sensitive mine action is to conduct mine action in such a way that respects and is based on gender equality (see gender equality).

#### **3.115. General Mine Action Assessment (GMAA) (2001)**

the continuous process by which a comprehensive inventory can be obtained of all reported and/or suspected locations of mine or ERW contamination, the quantities and types of explosive hazards, and information on local soil characteristics, vegetation and climate; and assessment of the scale and impact of the landmine and ERW problem on the individual, community and country.

#### **3.116. generic requirement**

The performance and environmental characteristics which will be common to all planned uses of the proposed equipment.

### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### **3.117. georeferencing**

a process whereby graphic coordinates or other indirect referencing codes are added to tabular data in order to allow simple comparison, compilation and analysis of disparate datasets based on common locations.

#### **3.118. GIS / Geographical Information System**

an organised collection of computer hardware, software, geographic data, and personnel designed to efficiently capture, store, update, manipulate, analyse, and display all forms of geographically referenced information.

**Note:** GIS allows a user to graphically view multiple layers of data based on their geographic distribution and association. GIS incorporates powerful tools to analyse the relationships between various layers of information.

#### **3.119. ground preparation (2009)**

preparing of ground in a confirmed or defined hazardous area by mechanical means by reducing or removing obstacles to clearance eg tripwires, vegetation, metal contamination and hard soil to make subsequent clearance operations more efficient. Ground preparation may or may not involve the detonation, destruction or removal of landmines.

#### **3.120. group interview (2009)**

the conduct of a formal interview with a group of key informants, both men and women, in an impacted community on what to survey within that community.

#### **3.121. handover (2009)**

the process by which the beneficiary (for example, the NMAA on behalf of the local community or land user) receives and accepts land which was previously suspected of containing an explosive hazard but which has subsequently had this suspicion removed, or reduced to a tolerable level, either through non-technical survey, technical survey or clearance.

#### **3.122. handover certificate (2009)**

documentation used to record the handover of land which was previously suspected of containing an explosive hazard but which has subsequently had this suspicion removed or reduced to a tolerable level.

#### **3.123. hardware**

equipment with physical size and mass; as opposed to software.

#### **3.124. harm**

physical injury or damage to the health of people, or damage to property or the environment. (ISO Guide 51:1999(E))

#### **3.125. harmful event (2004)**

occurrence in which a hazardous situation results in harm. (ISO Guide 51:1999(E)).

#### **3.126. hazard**

potential source of harm. (ISO Guide 51:1999(E))

#### **3.127. hazard (ous) area (2009) / contaminated area**

a generic term for an area perceived to have mines and/or ERW.

#### **3.128. hazard marker**

object(s), other than hazard signs, used to identify the limits of a mine and ERW hazard area. Hazard markers shall conform to the specification established by the NMAA.

#### **3.129. hazard marking system**

a combination of measures (signs and barriers) designed to provide the public with warning and protection from mine and ERW hazards. The system may include the use of signs or markers, or the erection of physical barriers.

#### **3.130. hazard sign**

a permanent, manufactured sign which, when placed as part of a marking system, is designed to provide warning to the public of the presence of mines or ERW.

#### **3.131. hazardous situation (2004)**

circumstance in which people, property or the environment are exposed to one or more hazards. (ISO Guide 51:1999(E)).

### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### 3.132. health (2004)

in relation to work, indicates not merely the absence of disease or infirmity, it also includes the physical and mental elements affecting health, which are directly related to safety and hygiene at work. (ILO C155)

#### 3.133. high risk area (2009)

an identifiable area that is typically mined in a Confirmed Hazardous Area, or an area that is described by a non-technical survey as being more likely to be mined, or contain ERW than others.

#### 3.134. humanitarian demining

see demining. (In IMAS standards and guides, the terms demining and humanitarian demining are interchangeable.)

#### 3.135. impact (2009)

in the context of mine action, the term refers to...the level of social and economic suffering experienced by the community resulting from the harm or risk of harm caused by mine and ERW hazards and hazardous areas.

**Note:** Impact is a product of:

- a) the presence of mine/ERW hazards in the community
- b) intolerable risk associated with the use of infrastructure such as roads, markets etc
- c) intolerable risk associated with livelihood activities such as use of agricultural land, water sources etc
- d) number of victims of mine and ERW incidents within the last two years

**Note:** In the context of mine action evaluation, the term refers to ..... the positive and negative, primary and secondary long-term effects produced by an intervention, directly or indirectly, intended or unintended. The term 'final outcome' may be substituted.

#### 3.136. impact free (2004)

a term applied to countries that may still have mines but where the mined areas are not having a negative socio-economic impact on communities, eg the mines may be in remote, marked and unpopulated areas.

**Note:** In most cases, "impact free" should be considered in a static sense (ie impact free at this point in time) because changes in socio-economic patterns may bring people into contact with mines/ERW that previously had no impact

#### **3.137. impact survey (2009)**

an assessment of the socio-economic impact caused by the actual or perceived presence of mines and ERW, in order to assist the planning and prioritisation of mine action programmes and projects.

#### **3.138. IMSMA (Information Management System for Mine Action) (2007)**

**Note:** This is the United Nation's preferred information system for the management of critical data in UN-supported field programmes. IMSMA provides users with support for data collection, data storage, reporting, information analysis and project management activities. Its primary use is by the staffs of MACs at national and regional level, however the system is also deployed in support of the implementers of mine action projects and demining organisations at all levels.

#### **3.139. incident (2004)**

an event that gives rise to an accident or has the potential to lead to an accident.

#### **3.140. inert**

a munition that contains no explosive, pyrotechnic, lachrymatory, radioactive, chemical, biological or other toxic components or substances.

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

#### **3.141. informal demining (2009)**

self-supporting mine and/or ERW clearance and hazardous area marking, normally undertaken by local inhabitants, on their own behalf or the behalf of their immediate community. Often described as a self-help initiative or spontaneous demining, informal demining usually sits outside or in parallel with formal mine action structures, such as demining undertaken by militaries or humanitarian demining such as is supported by the UN, international and national non-governmental organisations, private enterprise and governments, among others.

**Note:** Informal demining is sometimes referred to as “village demining”.

### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### **3.142. inspection (2004)**

the observation, measurement, examination, testing, evaluation or gauging of one or more components of a product or service and comparing these with specified requirements to determine conformity.

#### **3.143. inspection body**

an organisation which conducts post-clearance QC on behalf of the NMAA by applying random sampling procedures, or other appropriate and agreed methods of inspection.

#### **3.144. insurance (2009)**

an arrangement for financial compensation in the event of damage to or loss of (property, life of a person) to an individual or organisation to predetermined levels and due to specific listed circumstances.

**Note:** Insurance should include appropriate medical, death and disability coverage for all personnel as well as third party liability coverage.

**Note:** Such insurance need not necessarily have to be arranged through an insurance broker or company, unless otherwise required by contractual arrangements. Self insurance (under-writing) schemes, provided they are formally constituted on accepted actuarial principles and provide adequate cover, may be an acceptable alternative.

#### **3.145. integrated mine action and development (linking mine action and development) (2009)**

(1) Efforts to enhance the contribution that mine action makes to socio-economic development and poverty reduction, particularly in contexts where contamination by landmines and ERW impedes post-conflict reconstruction and development. (2) Efforts by development actors, working with mine action organisations, to actively promote the development of mine-affected communities and regions.

#### **3.146. intended use (land)**

use of land following demining operations.

**Note:** Intended use: use of a product, process or service in accordance with information provided by the supplier. (ISO Guide 51:1999(E))

**Note:** Intended land use should be included in the clearance task specification and clearance task handover documentation.

#### **3.147. interchangeability**

in the context of mine action equipment procurement, the term refers to.... a condition which exists when two or more items of equipment possess such functional and physical characteristics as to be equivalent in performance and durability, and are capable of being exchanged for one another without alteration of the items themselves, or of adjoining items, except for adjustment, and without selection for fit and performance.

#### **3.148. intermediate point (2004)**

survey markers used between turning points that are more than 50m apart.

#### **3.149. International Mine Action Standards (IMAS) (2009)**

documents developed by the UN on behalf of the international community, which aim to improve safety, quality and efficiency in mine action by providing guidance, by establishing principles and, in some cases, by defining international requirements and specifications.

**Note:** They provide a frame of reference which encourages, and in some cases requires, the sponsors and managers of mine action programmes and projects to achieve and demonstrate agreed levels of effectiveness and safety.

**Note:** They provide a common language, and recommend the formats and rules for handling data which enable the free exchange of important information; this information exchange benefits other programmes and projects, and assists the mobilisation, prioritisation and management of resources.

#### **3.150. International Organisation for Standardisation (ISO)**

**Note:** A worldwide federation of national bodies from over 130 countries. Its work results in international agreements which are published as ISO standards and guides. ISO is a NGO and the standards it develops are voluntary, although some (mainly those concerned with health, safety and environmental aspects) have been adopted by many countries as part of their regulatory framework. ISO deals with the full spectrum of human activities and many of the tasks and processes which contribute to mine action have a relevant standard. A list of ISO standards and guides is given in the ISO Catalogue ([www.iso.ch/infoe/catinfo/html](http://www.iso.ch/infoe/catinfo/html)).

**Note:** The revised mine action standards have been developed to be compatible with ISO standards and guides. Adopting the ISO format and language provides some significant advantages including consistency of layout, use of internationally recognised terminology, and a greater acceptance by international, national and regional organisations who are accustomed to the ISO series of standards and guides.



### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### **3.151. intrusive machine (2007)**

in the context of mine action, the term refers to ..... a machine designed to work inside a hazardous area, while the term 'non-intrusive machine' refers to those designed to operate from a cleared or known safe area, with its mechanical tool working in the hazardous area.

#### **3.152. investment appraisal**

the process of defining the objectives of expenditure, identifying the alternative ways of achieving those objectives and assessing which way is likely to give best value for money.

#### **3.153. key informants (2009)**

all men, women and children who have relatively good knowledge on the hazardous areas in and around their community.

**Note:** Key informants may include, but are not limited to, community leaders, mine-affected individuals, schoolteachers, religious leaders etc.

#### **3.154. lachrymatory ammunition**

lachrymatory ammunition contains chemical compounds that are designed to incapacitate by causing short-term tears or inflammation of the eyes.

#### **3.155. land release (2009)**

in the context of mine action, the term describes the process of applying all reasonable effort to identify, or better define, Confirmed Hazardous Areas and remove all suspicion of mines/ERW through non technical survey, technical survey and/or clearance.

**Note:** criteria for "all reasonable effort" shall be defined by the NMAA.

#### **3.156. letter of agreement (2004)**

a simpler form of contract that states the essentials of the agreement without including all the detail. It may be used as a precursor to a formal contract or, in some cases, may be used in place of a more formal contract.

#### **3.157. licence (2004)**

in the context of mine action, the term refers to..... a certificate issued by a NMAA in relation to the capacity or capability of a facility, for example a demolition site may be licensed for certain explosive limits and explosive storage areas may be licensed for certain types and quantities of munitions. Demining organisations receive organisational or operational accreditation from an accreditation body authorised by a NMAA.

#### **3.158. Linking Mine Action with Development (LMAD) (2009)**

see integrated mine action and development.

#### **3.159. local requirement**

the performance and characteristics of the proposed equipment which reflect local environmental conditions, operating procedures and operational requirements.

#### **3.160. logistic disposal (2004)**

in the context of mine action, the term refers to ..... the removal of munitions and explosives from a stockpile utilising a variety of methods, (that may not necessarily involve destruction). Logistic disposal may or may not require the use of RSP.

#### **3.161. lot size**

in the context of humanitarian demining, the term refers to ..... an area (comprising a number of 1.0m<sup>2</sup> units of cleared land) offered for inspection.

#### **3.162. magazine (2004)**

in the context of mine action, the term refers to ..... any building, structure or container approved for the storage of explosive materials.

#### **3.163. maintainability (2009)**

the ability of an equipment, component or sub-component under stated conditions of use, to be retained or restored to a specific condition, when maintenance is performed by staff having specific skill levels, under stated conditions and using prescribed procedures and resources.

#### **3.164. marking**

emplacement of a measure or combination of measures to identify the position of a hazard or the boundary of a hazardous area. This may include the use of signs, paint marks etc, or the erection of physical barriers.

#### **3.165. marking system**

an agreed convention for the marking of hazards or hazardous areas.

#### **3.166. mechanical demining operations (2007)**

refers to the use of machines in demining operations and may involve a single machine employing one mechanical tool, a single machine employing a variety of tools or a number of machines employing a variety of tools.

### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### **3.167. mechanical demining unit (2007)**

a single machine or it may refer to more than one machine that works as part of a system for example, a front end loader and a screening plant.

#### **3.168. mechanical tools (2007)**

the working component(s) attached to a machine, such as flails, tillers, sifters, rollers, excavators, ploughs, magnets etc. A single machine may utilise a number of different tools, which may be fixed or interchangeable.

#### **3.169. medical support staff (2009)**

men and women employees of demining organisations designated, trained and equipped to provide first aid and further medical treatment of demining employees injured as a result of an accident.

#### **3.170. Memorandum of Understanding (MOU)**

a document used to facilitate a situation or operation when it is not the intention to create formal rights and obligations in international law but to express commitments of importance in a non-binding form.

#### **3.171. mine**

munition designed to be placed under, on or near the ground or other surface area and to be exploded by the presence, proximity or contact of a person or a vehicle. (APMBC)

#### **3.172. mine accident**

an accident away from the demining workplace involving a mine or ERW hazard (cf demining accident).

#### 3.173. mine action (2009)

activities which aim to reduce the social, economic and environmental impact of mines, and ERW including cluster munitions.

**Note:** Mine action is not just about demining; it is also about people and societies, and how they are affected by landmine and ERW contamination. The objective of mine action is to reduce the risk from landmines and ERW to a level where people can live safely; in which economic, social and health development can occur free from the constraints imposed by landmine and ERW contamination, and in which the victims' different needs can be addressed. Mine action comprises five complementary groups of activities:

- a) MRE
- b) humanitarian demining, ie mine and ERW survey, mapping, marking and clearance
- c) victim assistance, including rehabilitation and reintegration;
- d) stockpile destruction
- e) advocacy against the use of APM

**Note:** A number of other enabling activities are required to support these five components of mine action, including: assessment and planning, the mobilisation and prioritisation of resources, information management, human skills development and management training, QM and the application of effective, appropriate and safe equipment.

#### 3.174. Mine Action Centre (MAC) (2009) / Mine Action Coordination Centre (MACC)

an organisation that, on behalf of the NMAA where it exists, typically is responsible for planning, coordination, overseeing and in some cases implementation of mine action projects. For national mine action programmes, the MAC/MACC usually acts as the operational office of the NMAA.

#### 3.175. Mine Action Coordination Centre (MACC)

see Mine Action Centre (MAC)

### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### **3.176. mine action organisation (2009)**

refers to any organisation (government, military, commercial or NGO/civil society) responsible for implementing mine action projects or tasks. The mine action organisation may be a prime contractor, subcontractor, consultant or agent.

#### **3.177. mine awareness (2004)**

see Mine Risk Education (MRE).

#### **3.178. mine clearance**

the clearance of mines and ERW from a specified area to a predefined standard.

#### **3.179. Mine Detection Dog(s) (MDD)**

a dog trained and employed to detect mines, ERW and other explosive devices.

#### **3.180. mine free (2004)**

a term applied to an area that has been certified as clear of mines to a specified depth. Also applied to a country or an area that has not had a mine contamination problem.

#### **3.181. mine incident**

an incident away from the demining workplace involving a mine or ERW hazard (cf demining incident).

#### **3.182. mine risk (2004)**

the probability and severity of physical injury to people, property or the environment caused by the unintentional detonation of a mine or ERW. (Adapted from ISO Guide 51:1999(E))

#### **3.183. Mine Risk Education (MRE) (2009)**

activities which seek to reduce the risk of injury from mines/ERW by raising awareness of men, women, and children in accordance with their different vulnerabilities, roles and needs, and promoting behavioural change including public information dissemination, education and training, and community mine action liaison.

#### **3.184. mine risk reduction (2004)**

those actions which lessen the probability and/or severity of physical injury to people, property or the environment. (Adapted from ISO Guide 51:1999(E)) Mine risk reduction can be achieved by physical measures such as clearance, fencing or marking, or through behavioural changes brought about by MRE.

#### **3.185. mine sign**

a sign which, when placed as part of a marking system, is designed to provide warning to the public of the presence of mines.

#### **3.186. mined area**

an area which is dangerous due to the presence or suspected presence of mines. (APMBC)

#### **3.187. minefield**

an area of ground containing mines laid with or without a pattern. (AAP-6)

#### **3.188. monitoring (2009)**

refers to a continuing function that uses systematic collection of data on specified indicators to provide management and the main stakeholders of an ongoing project, programme or policy with indications of the extent of progress and achievement of objectives, and progress in the use of allocated funds. (OECD/DAC)

#### **3.189. monitoring body**

an organisation, normally an element of the NMAA, responsible for management and implementation of the national monitoring system.

#### **3.190. MRE organisation (2009)**

any organisation, including governmental, non-governmental, civil society organisations (eg women's organisations, youth organisations, red cross and red crescent societies etc.), commercial entities and military personnel (including peace-keeping forces), which is responsible for implementing MRE projects or tasks. The MRE organisation may be a prime contractor, subcontractor, consultant or agent. The term 'MRE sub-unit' refers to an element of an organisation, however named, that is accredited to conduct one or more prescribed MRE activities such as a public information project, a schools based education project or a community mine action liaison project evaluation.

### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### 3.191. MRE partner (2004)

an institution or agent within the mine-affected community who is able to work with an MRE organisation to facilitate, establish and implement an MRE project.

#### 3.192. munition

a complete device charged with explosives, propellants, pyrotechnics, initiating composition, or nuclear, biological or chemical material for use in military operations, including demolitions. (AAP 6)

**Note:** In common usage, 'munitions' (plural) can be military weapons, ammunition and equipment.

#### 3.193. national authority (2004)

in the context of stockpile destruction the term refers to ..... the government department(s), organisation(s) or institution(s) in each country charged with the regulation, management and coordination of stockpile destruction.

#### 3.194. National Mine Action Authority (NMAA) (2009)

the government entity, often an inter-ministerial committee, in a mine-affected country charged with the responsibility for the regulation, management and coordination of mine action.

**Note:** In the absence of a NMAA, it may be necessary and appropriate for the UN, or some other recognised international body, to assume some or all of the responsibilities, and fulfil some or all the functions, of a MAC or, less frequently, an NMAA.

#### 3.195. neutralise

the act of replacing safety devices such as pins or rods into an explosive item to prevent the fuze or igniter from functioning.

**Note:** It does not make an item completely safe as removal of the safety devices will immediately make the item active again (cf disarm).

**Note:** A mine is said to be neutralised when it has been rendered, by external means, incapable of firing on passage of a target, although it may remain dangerous to handle. [AAP-6]

#### **3.196. non-sparking material (2004)**

material that will not produce a spark when struck with tools, rocks, or when the material itself strikes hard surfaces.

#### **3.197. non-technical Survey (2009)**

survey activity which involves collecting and analysing new and/or existing information about a suspected hazardous area. Its purpose is to confirm whether there is evidence of a hazard or not, to identify the type and extent of hazards within any hazardous area and to define, as far as is possible, the perimeter of the actual hazardous areas without physical intervention. A non-technical survey does not normally involve the use of clearance or verification assets. The results from a non-technical survey can replace any previous data relating to the survey of an area.

#### **3.198. Operational Analysis (OA) (2009) / operational research**

a field of research that applies scientifically based quantitative and qualitative analysis to assist management decisions relating to operations.

#### **3.199. operational research**

see Operational Analysis (OA)

#### **3.200. output (2009)**

in the context of mine action evaluation, the term refers to ..... the products, capital goods and services which result from a mine action intervention. Outputs may also include changes resulting from the intervention which are relevant to the achievement of outcomes (such as the development of local capacities).

#### **3.201. outcome (2009)**

in the context of mine action evaluation, the term refers to ..... the likely or achieved short-term and medium-term effects of an intervention's outputs. Outcomes are related to the 'effectiveness' of an intervention.

#### **3.202. particle board (2009)**

a composition board made of small pieces of wood, bonded together frequently used as profile boards for testing soil penetration by demining machines.



### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### **3.203. permanent marking system**

a marking system having an indefinite period of use, usually requiring maintenance (cf temporary marking system).

#### **3.204. Personal Protective Equipment (PPE)**

all equipment and clothing designed to provide protection, which is intended to be worn or held by an employee at work and which protects him/her against one or more risks to his/her safety or health.

#### **3.205. pilot test**

a process ahead of the commencement of wide range data collection to ensure that all survey project elements, such as team deployment, data collection, reporting and administration, are functioning as planned.

#### **3.206. policy (2009)**

defines the purpose and goals of an organisation, and articulates the rules, standards and principles of action that govern the way in which the organisation aims to achieve these goals.

#### **3.207. post clearance assessment (2009)**

surveys to assess the effectiveness and efficiency of mine action planning, priority setting, and implementation processes, aiming to enhance the productivity and effectiveness of mine action, monitor post-clearance land use, ensure priority-setting processes are clear, transparent and carried out correctly, and help identify problems faced by communities in transforming the outputs of mine action (eg cleared land) into sustainable developmental outcomes.

#### **3.208. post clearance inspection (2004)**

in the context of humanitarian demining, the term refers to ..... the process of measuring, examining, testing or otherwise comparing a sample of cleared land against the clearance requirements.

#### **3.209. Post Design Services (PDS)**

further services such as ongoing development and modification of equipment, subsequent to the acceptance of the equipment.

**Note:** PDS may be used after the initial contract in order to update the equipment in response to changing circumstances and requirements.

#### **3.210. Preliminary Development (PD) (2004)**

the planning, design and engineering work necessary to explore areas of technical uncertainty and to provide detailed estimates of duration and cost before the decision to proceed to full development is made.

**Note:** During PD a relatively flexible relationship should exist between the technical specification and the operational requirements.

#### **3.211. preliminary study**

a study to give an indication of the practicability of the idea in terms of technological possibilities and cost.

#### **3.212. pre-test**

a process at the start of a survey to validate clarity and appropriateness of the selected survey instrument.

#### **3.213. primer**

a self-contained munition which is fitted into a cartridge case or firing mechanism and provides the means of igniting the propellant charge.

#### **3.214. principal (2004)**

the entity that contracts another entity to undertake the required mine action activity. The principal may be a donor, an NMAA, an organisation acting on behalf of the NMAA, a commercial organisation or any entity that desires mine action to be conducted and engages a mine action organisation to do so.

#### **3.215. priority-setting (2009)**

the process of deciding which tasks should be undertaken first, given limited resources and time. Priority-setting applies to all aspects of mine-action (MRE, land release stockpile destruction, and advocacy).

#### **3.216. procurement**

the process of research, development and production or purchase which leads to an equipment being accepted as suitable for use, and continues with the provision of spares and Post Design Services (PDS) throughout the life of the equipment.

### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### **3.217. prodding**

a procedure employed in the process of demining whereby ground is probed to detect the presence of sub-surface mines and/or ERW (cf sapping).

#### **3.218. programme (2009)**

a group of projects or activities which are managed in a co-ordinated way to deliver benefits that would not be possible or as cost effective were the projects and/or contracts managed independently.

#### **3.219. project (2004)**

an endeavour in which human, material and financial resources are organised to undertake a unique scope of work, of given specification, within constraints of cost and time, so as to achieve beneficial change defined by quantitative and qualitative objectives.

#### **3.220. project management (2004)**

the process by which a project is brought to a conclusion.

#### **3.221. protective measure**

means used to reduce risk. (ISO Guide 51:1999(E))

#### **3.222. Protocol V (2007)**

Protocol V to the CCW on Explosive Remnants of War

**Note:** Under Protocol V, States Parties and parties to armed conflict are required to take action to clear, remove or destroy ERW (Art. 3), and record, retain and transmit information related to the use or abandonment of explosive ordnances (Art. 4). They are also obligated to take all feasible precautions for the protection of civilians (Art. 5) and humanitarian missions and organisations (Art. 6). States Parties in a position to do so should provide cooperation and assistance for marking, clearance, removal, destruction, and victim assistance, among other things (Art. 7 & 8). Protocol V entered into force on 12 November 2006.

#### **3.223. prototype**

an equipment, component or sub-component built as nearly as possible to the final design and build standard.

**Note:** Prototypes are used to aid development of the final production standard and/or to demonstrate performance or specification compliance.

#### **3.224. proximity verification**

an activity to observe mine/ERW hazard areas reported during the community interview.

**Note:** Observation must be done from a safe area and in accordance with the relevant protocols.

#### **3.225. public education (2009)**

the process aimed at raising general awareness of the hazards of mines and ERW; through public information, formal and non-formal education systems.

**Note:** Public education is a mass mobilisation approach that delivers information on mine and ERW hazards. It may take the form of formal or non-formal education and may use mass media techniques. There may be a difference in access to education between men, women, boys and girls, which may affect the outreach of the mine awareness message and may call for the adoption of different educational means, message and material.

**Note:** In an emergency situation, due to time constraints and the lack of available data, it is the most practical means of communicating safety information. In other situations it can support community liaison.

#### **3.226. public information dissemination (2004)**

information concerning the mine and ERW situation, used to inform or update men, women and children. Such information may focus on particular issues, such as complying with mine ban legislation, or may be used to raise public support for the mine action programme. Such projects usually include risk reduction messages, but may also be used to reflect national mine action policy.

#### **3.227. quality**

degree to which a set of inherent characteristics fulfils requirements. (ISO 9000:2000)

### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### 3.228. Quality Assurance (QA) (2005)

part of QM focused on providing confidence that quality requirements will be fulfilled. (ISO 9000:2000)

**Note:** The purpose of QA in humanitarian demining is to confirm that management practices and operational procedures for demining are appropriate, are being applied, and will achieve the stated requirement in a safe, effective and efficient manner. Internal QA will be conducted by demining organisations themselves, but external inspections by an external monitoring body should also be conducted.

#### 3.229. Quality Control (QC)

part of QM focused on fulfilling quality requirements. (ISO 9000:2000)

**Note:** QC relates to the inspection of a finished product. In the case of humanitarian demining, the 'product' is safe cleared land.

#### 3.230. Quality Management (QM)

coordinated activities to direct and control an organisation with regard to quality. (ISO 9000:2000)

#### 3.231. random sampling

selection of samples by a process involving equal chances of selection of each item. Used as an objective or impartial means of selecting areas for test purposes.

#### 3.232. raster data

the use of an imaginary grid of cells to represent the landscape. Point features are stored as individual column/row entries in a grid; lines are identified as a set of connected cells; and areas are distinguished as all of the cells comprising a feature.

#### 3.233. RDX (1, 3, 5-triazacyclohexane) (2005)

RDX is another military explosive which is used extensively as an explosive in many munitions formulations. RDX is relatively insensitive; it has a high chemical stability, although lower than that of TNT. RDX is never handled pure and dry because of the danger of accidental explosion. It is used as a component in explosive mixtures, especially plastic explosives.

#### **3.234. reasonably foreseeable misuse (2004)**

use of a product, process or service in a way not intended by the supplier, but which may result from readily predictable human behaviour.  
(ISO Guide 51:1999(E))

#### **3.235. recognition piece (2004)**

A metal piece, which is placed under test items to make them recognisable with a metal detector.

#### **3.237. reference point / landmark**

a fixed point of reference some distance outside the hazard(ous) area. It should be an easily recognised feature (such as a cross-roads or a bridge) which can be used to assist in navigating to one or more benchmarks.

**Note:** Internationally these are often also referred to as Geodetic Points when they refer to a pre-surveyed location such as a trig point.

#### **3.238. Relational Database Management System (RDMS)**

as opposed to a single table with numerous fields for each record entered, a RDMS uses identification codes to link multiple tables of data. The codes used establish the relationship between data tables. RDMS are very effective in managing large amounts of data and permitting detailed queries to determine the relationship among data compiled against different records.

#### **3.239. relevance (2009)**

in the context of mine action evaluation, the term refers to....the extent to which the objectives of a project, programme or policy are consistent with beneficiary requirements, country needs, global priorities, and donor policies.

#### **3.240. reliability**

the ability of an equipment, component or sub-component to perform a required function under stated conditions for a stated period of time.

### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### **3.241. reliable (mine action) information (2009)**

information deemed acceptable by the NMAA for the conduct of demining operations.

#### **3.242. Render Safe Procedure (RSP)**

the application of special EOD methods and tools to provide for the interruption of functions or separation of essential components to prevent an unacceptable detonation.

#### **3.243. research**

the systematic inquiry, examination and experimentation to establish facts and principles.

#### **3.244. residual risk**

in the context of humanitarian demining, the term refers to..... the risk remaining following the application of all reasonable efforts to remove and/or destroy all mine or ERW hazards from a specified area to a specified depth. (Modified from ISO Guide 51:1999)

#### **3.245. risk**

combination of the probability of occurrence of harm and the severity of that harm. (ISO Guide 51:1999(E))

#### **3.246. risk analysis**

systematic use of available information to identify hazards and to estimate the risk. (ISO Guide 51:1999(E))

#### **3.247. risk assessment**

overall process comprising a risk analysis and a risk evaluation. (ISO Guide 51:1999(E))

#### **3.248. risk evaluation**

process based on risk analysis to determine whether the tolerable risk has been achieved. (ISO Guide 51:1999(E))

#### **3.249. risk reduction**

actions taken to lessen the probability, negative consequences or both, associated with a particular risk.

#### **3.250. safe (2009)**

the absence of risk. Normally the term tolerable risk is more appropriate and accurate.

**Note:** in the context of munitions, the term safe is related to the “safe position” of a fuze

#### **3.251. safety**

the reduction of risk to a tolerable level. (ISO Guide 51:1999(E))

#### **3.252. sample**

in the context of humanitarian demining, the term refers to..... one or more 1.0m<sup>2</sup> units of land drawn at random from a lot.

#### **3.253. sample size**

in the context of humanitarian demining, the term refers to..... the number of 1.0m<sup>2</sup> units of land in the sample.

#### **3.254. sampling**

in the context of humanitarian demining, the term refers to..... a defined procedure whereby part or parts of an area of cleared land are taken, for testing, as a representation of the whole area.

#### **3.255. sampling plan**

in the context of humanitarian demining, the term refers to..... a specific plan that indicates the number of 1.0m<sup>2</sup> units of land from each lot which are to be inspected (sample size or series of sample sizes) and the associated criteria for determining the acceptability of the lot (acceptance and rejection numbers).

#### **3.257. scent**

a distinctive odour.



### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### **3.258. secondary fragmentation**

in an explosive event, fragmentation which was not originally part of the mine/ ERW.

#### **3.259. self-destruction mechanism (2009)**

an incorporated automatically-functioning mechanism which is in addition to the primary initiating mechanism of the munition and which secures the destruction of the munition into which it is incorporated. (CCM)

#### **3.260. self-neutralisation**

action generated by means of a device integral to a mine, which renders the mine inoperative, but not necessarily safe to handle. In landmines, this process may be reversible. (AAP-6)

#### **3.261. sex and age disaggregated data (SADD) (2009)**

collection of data which includes details on sex and age, knowing who is affected – men or women, boys or girls - and who among them is the most at risk, and so prevents the services provided from being off target. Data on the population affected by the crisis should always be broken down by age and sex and other relevant factors such as ethnicity or religion. (IASC)

#### **3.262. specified area**

in the context of humanitarian demining, the term refers to..... that area for which mine or ERW clearance activity has been contracted or agreed, as determined by the NMAA or an organisation acting on its behalf.

#### **3.263. specified depth**

in the context of humanitarian demining, the term refers to ..... the depth to which a specified area is contracted or agreed to be cleared of mine and ERW hazards, as determined by the NMAA or an organisation acting on its behalf.

#### 3.264. Specified Quality Limit (SQL)

in the context of humanitarian demining, the term refers to .....an indication of the quality required from clearance operations.

**Note:** For acceptance sampling purposes, the SQL is a specified borderline between what can be considered reasonable as a process average and what can not. It has to be attainable by the producer (demining organisation) but tolerable to the consumer (NMAA or contracting agency).

**Note:** In the case of mine and ERW clearance, the SQL indicates the average contamination (in terms of non-conforming items per square metre) following a lengthy and steady process run.

#### 3.265. sponsor

the sponsor of an equipment trial is the authority requiring the trial to be carried out.

**Note:** This is most likely to be an international organisation, national MAC, donor or demining organisation.

#### 3.266. standard

a standard is a documented agreement containing technical specifications or other precise criteria to be used consistently as rules, guidelines, or definitions of characteristics to ensure that materials, products, processes and services are fit for their purpose.

**Note:** Mine action standards aim to improve safety and efficiency in mine action by promoting the preferred procedures and practices at both head-quarters and field level. To be effective, the standards should be definable, measurable, achievable and verifiable.

#### 3.267. Standard Operating Procedures (SOPs)

instructions which define the preferred or currently established method of conducting an operational task or activity.

**Note:** Their purpose is to promote recognisable and measurable degrees of discipline, uniformity, consistency and commonality within an organisation, with the aim of improving operational effectiveness and safety. SOPs should reflect local requirements and circumstances.

### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### **3.268. standards**

requirements, specifications or other precise criteria, to be used consistently to ensure that materials, products, processes and services are fit for their purpose.

**Note:** Mine action standards aim to improve safety and efficiency in mine action by promoting the preferred procedures and practices at both head-quarters and field level.

#### **3.269. Standing Operating Procedures (SOPs)**

see Standard Operating Procedures (SOPs).

#### **3.270. Statement of Operational Need (SON) (2004)**

the document that describes the user's operational needs.

**Note:** The SON should be prepared by the User who has identified the need, or by a sponsor acting on a user's behalf.

#### **3.271. Statement of Requirement (SOR)**

the document that provides a detailed statement of the characteristics and performance expected of the equipment, based on the preferred solution.

#### **3.272. Statement of Tasks and Outputs (STO)**

the document that articulates the user's needs in broad terms, giving the tasks of the equipment and the key characteristics, with the emphasis on the output required rather than the means of achieving it, so as to enable full consideration of alternative solutions.

#### **3.273. stockpile**

in the context of mine action, the term refers to..... a large accumulated stock of EO.

#### **3.274. stockpile destruction (2009)**

the physical destructive procedure towards a continual reduction of the stockpile of explosive ordnance.

#### **3.275. submunition**

any munition that, to perform its task, separates from a parent munition. (AAP-6)

mines or munitions that form part of a CBU, artillery shell or missile payload.

#### **3.276. survey marker (2004)**

a durable and long lasting marker used to assist in the management of marked and cleared land during demining operations.

#### **3.277. survivor (landmine/ERW) (2004)**

persons either individually or collectively who have suffered physical, emotional and psychological injury, economic loss or substantial impairment of their fundamental rights through acts or omissions related to the use of mines or the presence of ERW. Mine/ERW survivors or victims include directly impacted individuals, their families, and communities affected by landmines and ERW.

#### **3.278. survivor assistance**

see victim assistance

#### **3.279. Suspected Hazardous Area (SHA) (2009)**

an area suspected of having a mine/ERW hazard.

**Note:** A SHA can be identified by an impact survey, other form of national survey, or a claim of presence of explosive hazard.

#### **3.280. sustainability (2009)**

In the context of mine action evaluation, the term refers to....the continuation of benefits from a mine action intervention after major assistance has been completed.

#### **3.281. systematic investigation (2009)**

a systematic process of applying technical survey in a Confirmed Hazardous Area. It is typically used where there are no areas within the Confirmed Hazardous Area that are more likely to be mined, or contain ERW, than others.

### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### **3.282. targeted investigation (2009)**

the investigation, during technical survey, of certain areas within a Confirmed Hazardous Area that are more likely to be mined or contain ERW.

#### **3.283. task identification number (ID)**

a unique number used to designate a hazardous area. Task identification numbers shall be allocated by the NMAA.

#### **3.284. technical survey (2009)**

describes a detailed intervention with clearance or verification assets into a Confirmed Hazardous Area, or part of a Confirmed Hazardous Area. It should confirm the presence of mines/ERW leading to the definition of one or more Defined Hazardous Area and may indicate the absence of mines/ERW which could allow land to be released when combined with other evidence.

#### **3.285. temporary marking system**

a marking system having a stated finite period of use (cf permanent marking system).

#### **3.286. test**

determination of one or more characteristics according to a procedure. (ISO 9000:2000)

#### **3.287. Test and Evaluation (T&E)**

activities associated with the testing of hardware and software.

**Note:** Activities include the formation and use of procedures and standards, the reduction and processing of data and the assessment and evaluation of test results and processed data against criteria such as defined standards and specifications.

#### **3.288. test site (2005)**

the site at which a series of test boxes or lanes are prepared for the purpose of operational accreditation testing of MDD.

#### **3.289. theft resistant (2004)**

construction designed to deter and/or delay illegal entry into facilities used for the storage of explosives.

#### **3.290. TNT (2, 4, 6 Trinitrotoluene)**

one of the most widely used military high explosives. TNT is very stable, non-hygroscopic and relatively insensitive to impact, friction, shock and electrostatic energy. TNT is the most widespread type of explosive used in mines and munitions.

#### **3.291. tolerable risk**

risk which is accepted in a given context based on current values of society. (ISO Guide 51:1999(E))

#### **3.292. trial**

a series of tests organised in a systematic manner, the individual results of which lead to an overall evaluation of a component, equipment or system.

#### **3.293. triangulation (2009)**

in the context of mine action evaluation the term refers to...the use of multiple theories, sources or types of information, or types of analysis to verify and substantiate an assessment. The sources of information may not necessarily be people but include documents, maps, photographs, satellite imagery etc.

#### **3.294. turning point (2004)**

a fixed point on the ground which indicates a change in direction of the perimeter of the hazardous area. It shall be clearly marked and recorded. Buried metal objects should be used to mark all turning points for permanent future reference.

#### **3.295. unexploded bomblet (2009)**

an explosive bomblet that has been dispersed, released or otherwise separated from a dispenser and has failed to explode as intended. (CCM)

#### **3.296. Unexploded Ordnance (UXO)**

EO that has been primed, fuzed, armed or otherwise prepared for use or used. It may have been fired, dropped, launched or projected yet remains unexploded either through malfunction or design or for any other reason.

### MINE ACTION TERMS, DEFINITIONS AND ABBREVIATIONS

#### **3.297. unexploded submunition (2009)**

an explosive submunition that has been dispersed or released by, or otherwise separated from, a cluster munition and has failed to explode as intended. (CCM)

#### **3.298. unit rate (2004)**

the rates agreed and accepted for specific priced activity items and quantities stated in a contract.

#### **3.299. United Nations Mine Action Service (UNMAS) (2004)**

the focal point within the UN system for all mine-related activities.

**Note:** UNMAS is the office within the UN Secretariat responsible to the international community for the development and maintenance of IMAS.

**Note:** UNICEF is the focal point for MRE, within the guidelines of UNMAS overall coordination.

#### **3.300. user (2009)**

a man or a woman or an organisation that will operate the equipment.

**Note:** For the purpose of mine action, the user could also be defined as 'a composite body of informed and authoritative opinions on the needs of national commercial and NGO users, today and in the future'.

#### **3.301. validation**

the act of ratification that takes place after a process of verification.

#### **3.302. vector data**

the use of X, Y coordinates to locate three basic types of landscape features; point, line and areas.

**Note:** Points (towns, incident locations etc) are represented by a single pair of X, Y coordinates. Lines (roads, rivers etc) are represented by a series of X, Y coordinate points connected in order. Areas or polygons (lakes, boundaries etc) are represented by a set of X, Y coordinates closing on itself and implying its interior.

#### **3.303. verification**

confirmation, through the provision of objective evidence that specified requirements have been fulfilled. [ISO 9000:2000]

#### **3.304. victim (2009)**

a man, or a woman or a child who has suffered harm as a result of a mine, ERW or cluster munition accident.

**Note:** In the context of victim assistance, the term victim may include dependants or other persons in the immediate environment of a mine/ERW casualty, hence having a broader meaning than survivor.

#### **3.305. victim assistance (2004) / survivor assistance**

refers to all aid, relief, comfort and support provided to victims (including survivors) with the purpose of reducing the immediate and long-term medical and psychological implications of their trauma.

#### **3.306. visitor (2004)**

for the purposes of IMAS, a person who is neither a member of the demining organisation, nor a demining worker accredited by the NMAA.

**Note:** In circumstances where the NMAA does not have an accreditation system the demining organisation should determine the status of non-employees.

#### **3.307. White Phosphorous (WP) (2004)**

a chemical smoke screening agent which burns in contact with air, (with serious anti-personnel affect if the phosphorous comes in direct contact with people).

#### **3.308. workplace**

all places where employees need to be or to go by reason of their work and which are under the direct or indirect control of the employer. (ILO R164)



### ABOUT CEN WORKSHOP AGREEMENTS

The Centre European Normalisation (CEN) is the European standards body that operates in parallel to International Standards Organisation (ISO). In January 2001, the CEN has created a specific BT Working Group 126 (BT/WG 126), reporting to the CEN Technical Board (BT). CEN WG 126 has established a number of CEN Workshop Agreements for humanitarian mine action.

A CEN Workshop Agreement (CWA) is an agreement developed by the CEN in an open workshop, which reflects the consensus of identified individuals and organisations responsible for its contents.

The CEN involvement in humanitarian mine action through CWA aims at bridging the gap between the manufacturers and the operators of demining equipment. CWAs are not duplicated efforts to produce standards for mine action as perceived by some, but they are agreements produced in support of IMAS as normative references. The CEN management in collaboration with UNMAS and GICHD, through open workshops, has attempted to provide guidance to the manufacturers of the demining equipment as test and evaluation protocols which have not been addressed in the IMAS; for example, test and evaluation of metal detectors or test and evaluation of personal protective equipment (PPE). In some IMAS normative reference has been given to the related CWA which simply approves the role of CWA in mine action. For instance; IMAS 09.50 on mechanical demining has a normative reference to CWA 15044.

The GICHD has chaired three of these CEN Workshops; CWA 26 Personal Protective Equipment- Test and Evaluation, CEN Workshop 28 Post Mechanical Clearance requirements and CEN Workshop 29 Evaluation methods for Quality Control (sampling) after Mechanical Demining.

### ABOUT CEN WORKSHOP AGREEMENTS

Seven CWA have been published in relation to humanitarian mine action. These are:

- > **CEN Workshop 7 Part 1 | Test and Evaluation | Metal Detectors**  
This Workshop started in December 2001 and has produced the CWA 14747 - 1:2003

Metal detectors are an essential part of manual demining operations. Users may wish to conduct a trial of various detectors to identify which best suits their requirements. This CWA provides guidelines and procedures for testing and evaluating metal detectors. The Agreement is intended for 'commercial off-the-shelf' detectors, but many of the tests specified could also be applied to instruments under development.

- > **CEN Workshop 7 Part 2 | Test and Evaluation | Metal Detectors - Soil Characterisation for Metal Detector and Ground Penetrating Radar Performance**

This Workshop started in November 2006 and by December 2008 produced the CWA 17474 - 2:2008

Different soils have different effects on the performance of metal detectors and dual sensors. Ground penetrating radar performance is affected by soil characteristics in different ways from metal detectors. This CWA complements the first part on test and evaluation of metal detectors – by providing mine action programmes and demining organisations with the guidelines to assess the effects of soils on performance of metal detectors and dual sensors, recognise soils that may create difficulties, and describes how to characterise soils when testing and evaluating metal detectors and dual sensors.

- > **CEN Workshop 12 | Test and Evaluation | Demining Machines**  
This Workshop started in June 2003 and by mid 2004 has produced CWA 15044:2004

Demining machines are used in a variety of roles in clearance operations. They are either used to detect, remove or destroy landmines, or to prepare the ground in support of demining operations by reducing or removing obstacles. To evaluate demining machines or simply accredit them, users require standards or guidance. This CWA provides standardised methodology for testing and evaluation of demining machines.

### ABOUT CEN WORKSHOP AGREEMENTS

> **CEN Workshop 13 | EOD Competency Standards.**

This Workshop started in November 2003 and by mid 2005 produced CWA 15464:2005

No mine action programme would be effective without an internal EOD capacity. To achieve this capacity, mine action programmes require tools for planning and assessing EOD competencies. This CWA, by design, covers the conventional munitions disposal part of EOD in mine action which enhances the planning and evaluating staff development and capacity building. It improves the Quality management process by providing a means to assess the training and competency of the staff involved in mine clearance and EOD work.

> **CEN Workshop 26 | Test and Evaluation | Personal Protective Equipment** This workshop started in September 2006 and by October 2007 produced CWA 15756:2007 This CWA has been withdrawn by CEN. For further information contact GICHD or UNMAS

PPE is issued to provide minimum protection against critical, life-threatening and vision-affecting injuries. To confirm whether PPE is capable of achieving a minimum acceptable level of protection, users and manufacturers require a baseline and a clearly defined set of agreed test and evaluation methodologies. This CWA specifies methods for testing, evaluation, and the acceptance of PPE against anti-personnel blast mines.

> **CEN Workshop 28 | Follow-on Processes After the Use of Demining Machines** This workshop started in November 2006 and by April 2008 produced CWA 15832:2008

Demining machines are essentially used for two functions – ground preparation and ground processing. To operate effectively in either role the machine should be fit for purpose. This agreement makes a general statement about follow-on processes after the use of a demining machine in the ground preparation and ground processing roles.

### ABOUT CEN WORKSHOP AGREEMENTS

- > **CEN Workshop 29 | Quality Management (QA and QC) for Mechanical Demining** This workshop started in November 2006 and by April 2008 produced CWA 15833:2008

Demining machines are not usually used in isolation, but in support of other assets. Other assets are also used in support of the machines. This CWA considers quality management in humanitarian demining in general as well as in demining machines. It focuses on specific actions for quality assurance (QA) and quality control (QC) in the use of demining machines at hazardous sites.

All the previous CWA can be viewed or download from the IMAS website at [www.mineactionstandards.org](http://www.mineactionstandards.org), and or the IMAS CD ROM 2009.

**Note:** CEN will cease to manage CWA, and the exploitation right for these CWA will be handed over to the UNMAS/GICHD on behalf of the mine action community by the end of 2009. They will then be reviewed and updated as part of the IMAS review process.

### ABOUT NATIONAL MINE ACTION STANDARDS

National mine action standards (NMAS) are standards issued by a National Mine Action Authority (NMAA) to guide the management and implementation of mine action projects in that country, in a safe, coordinated and efficient manner. NMAS are not International Mine Action Standards with the acronyms changed from International to National. Effective NMAS will reflect the situation of the national landmine and ERW hazards, the national response to those hazards, the situation of landmine survivors/victims and the long-term legislation enacted or planned to support a strategic response to the hazards.

Effective NMAS, whilst reflecting the local procedures within the mine action programme, should ensure that they adhere to the main guiding principles of IMAS and other national or international norms and standards and be in compliance with the international conventions related to landmines and ERW. They should reflect national ownership, protect those most at risk, build national capacity and maintain and apply appropriate and consistent standards for mine action.

Although, NMAS will be largely based on IMAS they may be different in terms of chapters and contents. In addition, the NMAS of one mine-affected country may be different from another country as they reflect local realities. Like IMAS, the NMAS should be developed in consultation with a broad cross section of mine action stakeholders, including the government (NMAA and MAC), UN, donors, implementing partners (operators) and representatives from the legal authority. They need to be reviewed periodically to ensure that they are up-to-date and in compliance with IMAS and relevant national regulations.

The development of NMAS is one of the key elements of national ownership and demonstrates a national capacity in the mine action community. In recognition of this and to help share information and knowledge within the wider mine action community, the NMAS of a number of mine-affected countries are available as examples of current national standards on the IMAS website at [www.mineactionstandards.org](http://www.mineactionstandards.org).

### ABOUT NATIONAL MINE ACTION STANDARDS

If you wish to post your national standards on the IMAS Website, please send an electronic copy of your NMAS to the GICHD (see contact information below).

The GICHD welcome any questions, suggestions, or comments that you may have on standards or their contribution to the mine action community. Specialists are available to assist you to understand the principle of IMAS and NMAS, to help build a structure for NMAS, to help develop specific standards and to review your national standards and provide useful feedback if required. If you think you need help, please contact GICHD and they will be glad to provide you with appropriate advice.

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### IMAS TRAINING SERVICES

Training for employees of organisations involved in humanitarian demining can be provided on request. Training covers all aspects relating to the understanding and application of IMAS and National Mine Action Standards (NMAS). Training can range from one-day introductory courses to understand the contents, principles, and application of the IMAS, to week-long workshops for those responsible for the development of NMAS. These courses are normally provided by the Geneva International Centre for Humanitarian Demining (GICHD).

### INTRODUCTION TO INTERNATIONAL MINE ACTION STANDARDS

“Introduction to International Mine Action Standards” is a one-day course intended to provide an overview of the content and application of the IMAS. It is an introductory course ideal for personnel involved in managing or supporting mine action programmes at a senior level. Senior managers’ involvement and understanding of IMAS, and quality management, is extremely important for effective compliance and management of mine action projects or programmes. The participants should already have a basic knowledge of mine action.

#### Training Content

- > the need for IMAS
- > the principle and scope of IMAS
- > the application of IMAS

#### Associated Reading

- > A Guide to Mine Action and Explosive Remnants of War
- > A Guide to the International Mine Action Standards

Reading is available on the GICHD website:  
[www.gichd.org](http://www.gichd.org) - go to Publications.

### IMAS TRAINING SERVICES

#### APPLICATION OF INTERNATIONAL MINE ACTION STANDARDS

“Application of International Mine Action Standards” is a three-day intensive course which provides a rapid review of the content of IMAS and focuses on the application and inter-relationship of the standards. The course is intended for international technical advisors supporting mine action programmes, senior national staff and military personnel deployed in humanitarian demining and peace keeping operations. It aims to provide a ‘what you need to know’ guide to IMAS and an overview of how the standards can be applied at national level.

##### Training Content

- > a background to the process of IMAS
- > a review of IMAS content
- > the application of IMAS
- > IMAS development, a sector responsibility

##### Associated Reading

- > A Guide to the International Mine Action Standards
- > The International Mine Action Standards

Reading is available on the IMAS website: Related Documents and Guides.



### IMAS TRAINING SERVICES

#### DEVELOPMENT OF NATIONAL MINE ACTION STANDARDS

“Development of National Mine Action Standards” is a technical and training support package and assists in the review, development and drafting of national mine action standards based on IMAS. Training services are tailored to the needs of individual programmes and targeted at senior national programme staff of a NMAA or Mine Action Centre. The duration of the support will vary depending on individual needs and can include the attachment of personnel to a national programme for a specified period. The support builds on a review of a comprehensive national standards template document and its adaptation to meet specific national requirements.

##### Training Content

- > comprehensive review of IMAS
- > comprehensive review of National Mine Action Standards requirements
- > design and drafting mechanisms
- > communication and cooperation
- > stakeholder involvement
- > National Mine Action Standards management

##### Associated Reading

- > A Guide to the International Mine Action Standards
- > The International Mine Action Standards
- > Examples of National Mine Action Standards

Reading is available on the IMAS website.

For further details and information on all the above courses contact:

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The GICHD offers a vital source of specialist knowledge to the mine action community. The Centre constantly seeks to transfer this knowledge to those who work within mine action through a range of publications, encompassing the most up-to-date technical and conceptual solutions, best practices and lessons-learned generated by field research, socio-economic studies and evaluations.

To find an updated full list of these publications, please visit the GICHD website [www.gichd.org](http://www.gichd.org). All publications can be accessed free of charge, by either ordering a paper copy or a CD or by downloading a PDF. Please see the publications web pages for details.

GICHD publications are always prepared in English and translations into other languages are offered whenever possible. The topics covered in the full range of GICHD publications include:

- > International Humanitarian Law
- > Animal Detection
- > Land Release
- > Manual Clearance
- > Mine Risk Education
- > Study Methodology
- > Technology, Machines and Demining Equipment
- > Evaluations
- > General Mine Action
- > Information Management / IMSMA
- > Insurance
- > Linking Mine Action and Development
- > Socio-economic Aspects of Mine Action
- > Standards / Quality Management
- > Victim Assistance





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