

DEMINING NATIONAL STANDARD 10.30

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Personal protective equipment - Mozambique

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Introduction

The needs to reduce risk and to provide a safe working environment are fundamental principles of mine action management (see IMAS 10.10). 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 (PPE) and clothing.

As a minimum, all employees involved in demining should be provided with comfortable and serviceable clothing and footwear appropriate to the task and local conditions

PPE should be regarded as a 'last resort' to protect against the effects of mine and UXO hazards. It should be the final protective measure after all planning, training and procedural efforts to reduce risk have been taken. There are a number of reasons for this approach. First, PPE protects only the person wearing it, whereas measures controlling the risk at source can protect everyone at the demining workplace. Second, theoretical maximum levels of protection are seldom achieved with PPE in practice, and the actual level of protection is difficult to assess; effective protection is only achieved by suitable PPE, correctly fitted, and properly maintained and used. And third, PPE may restrict the wearer to some extent by limiting mobility or visibility, or by requiring additional weight to be carried.

The risk to deminers comes principally from anti personnel (AP) blast mines, AP fragmentation mines, anti tank (AT) mines and unexploded ordnance (UXO). AP blast mines are the most abundant mines encountered in humanitarian demining and cause the greatest number of injuries. At close quarters, AP fragmentation mines and AT mines overmatch PPE currently available. Due to the area effect of such mines they also have the potential to cause 'secondary victims'. In general, when UXO munitions are encountered in humanitarian demining, they have already malfunctioned. They are usually high in metal content, on or near the surface, and constitute less of a hazard than mines. The varied nature of UXO means that the hazard is best dealt with procedurally rather than relying on PPE designed primarily for humanitarian demining.

Personal Protective Equipment

1 Scope

The Mozambique National Standard (NS) provides specifications and guidance to national and international demining agencies on the minimum requirements of personal protective equipment (PPE), including protective clothing, for use in Mozambique.

2 References

A list of normative references is given in Annex A. Normative references are important documents to which reference is made in this standard and which form part of the provisions of this standard.

3 PPE requirements

3.1 General

All personnel directly involved in mine, UXO, and Battle Area (BA) clearance operations shall wear PPE that conforms fully with IMAS 10.30 specifications. Demining organizations shall ensure that PPE are worn in conformance with manufacturers specifications and their demining agency SOP.

Traumatic injury to a deminer often means that for the deminers' extended family the major income earner will no longer be able to provide future income support. Whilst accident insurance will provide some financial relief, experience shows that the family in a very short time spends this financial compensation. The deminers' life and that of the family will normally irrevocably change.

Blast mines in comparison to fragmentation mines and UXO cause most demining injuries. Experience shows that deminers suffer traumatic injuries mostly to the hands and eyes and legs/feet. A traumatic injury therefore should be minimised and as much protection as possible provided in the PPE worn and the hand tools used. In Mozambique the rehabilitation of a deminer into the workforce after a traumatic injury is more likely if the deminer has retained his sight and use of the hands. In essence eyesight and hand mobility is essential for employment.

The loss of a foot or leg reduces mobility but can generally to varying degrees be overcome with prosthetics. Replacing the function and capacity of fingers is a lot more difficult to achieve with prosthetics. Soft tissue damage to the eyes is normally permanent. This greatly impacts on future employment options and a deminer whom has lost a hand and or eyesight will find future employment very difficult, if not impossible.

Employers have a responsibility in applying sound occupational and health safety principles when selecting PPE and hand tools for deminers. It is the responsibility of the employer to provide the deminer with equipment that offers adequate protection from the threat the deminer faces. Hand tools can be easily modified/manufactured to provide adequate hand protection and provides a cost effective solution.

The minimal level of protection determined in IMAS 10.30 Section 4, this also includes hand protection when using hand tools. The underlying principle is that if the risk increases so should the quality and degree of protective equipment used. The working position or stance of the deminer should also be considered when establishing the numerous drills, i.e. what is the risk reduction factor if the deminer conducts a drill lying as opposed to kneeling and how will this reduce potential injury?

If personnel are involved in additional duties over an above normal lane clearance drills e.g. render safe procedures (RSP) then the level of protection should increase as the risk increases to the deminer. Protective equipment shall be provided in accordance with the risk and or threat.

Training shall be provided on the proper use, maintenance and storage of PPE. Facilities should be provided for its proper storage and carriage. Equipment should be examined on a regular basis to ensure that it is suitable for use, and if the equipment is in need of repair that it shall be withdrawn from use until the repair is completed.

Full-face visors can affect the clarity of voice MDD dog handler commands. At the time of writing this national standard, IMAS 10.30 Section 4, does not provide a solution to this problem. IND recommends full-face visors are used and alternate solutions in methods of delivery of dog commands are identified. In the interim until IMAS and the demining industry provides a solution, MDD dog handlers should use as a minimum a half face visor of the thickness specification described in IMAS 10.30. Note: IND is not responsible for any injury and or death resulting from the use of a visor facial protection that is less than the specification determined in IMAS 10.30.

4. Responsibilities

4.1 General requirements

IND is responsible for ensuring that during accreditation and any subsequent evaluation and or inspection that demining agencies conform to the standards outlined in this NS. It is the responsibility of the demining agency to procure the correct standard of PPE as determined by this NS and IMAS.

4.2 Responsibilities

IND shall:

in conjunction with the contracted demining agencies, establish and maintain specific standards for Mozambique to be applied for PPE;

monitor the international trends in the development of PPE to advise and apply these new standards in the mine action programme;

undertake periodic reviews of the NS and equipment specifications for PPE and the technologies available to reduce risks; and

4.3 Demining agency responsibilities

Demining agencies shall:

assist IND in the determination of applicable standards and preparation of equipment specifications;

provide training and supervision in the correct and appropriate use and maintenance of PPE used by contractor staff ;

fully inspect PPE for serviceability immediately prior to use at all times;

establish and maintain SOP that specify care and maintenance requirements;

provide suitable facilities for the storage, maintenance and carriage of PPE;

establish and maintain documented SOP to undertake periodic reviews of PPE, and

inform IND of any deficiencies or non-compliance with IMAS or NS.

4.4 Employees' obligations

Demining agencies are to ensure that their employees:

use PPE in accordance with the requirements specified by their employers and the manufacturer's specification for the PPE, including the use of facilities provided for storage and carriage of PPE;

maintain the PPE in accordance with the demining agencies SOP and/or the manufacture's specifications or guidelines; and

report to the employer, problems with the equipment or suggested improvements to SOP, which may reduce the requirement for PPE, or improvements in the design or application of PPE.

Annex A (Normative) References

The following documents, when referred to in the text of this standard, form part of the provisions of this standard:

- a) ISO Guide 51 Safety aspects – Guidelines for their inclusion in standards.
- b) ISO/DIS 14876-1:1999 (E) Protective clothing – Body armor – Part 1: General requirements.
- c) IMAS 10.10 S&OH - General requirements.
- d) STANAG 2920.

The latest version/edition of these references should be used. IND, Maputo holds copies of all IMAS references used in this NS. A register of the latest version/edition of the NS and references is maintained by IND, Maputo, and can be found at the Operations. Demining agencies should obtain copies before commencing demining activities in Mozambique.

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Annex B **(Informative)** **Terms and definitions**

1.1. accident

an undesired event which results in harm

Note: modified from definition in OHSAS 18001:1999,

1.2. demining accident

an accident at a demining workplace involving a mine or UXO hazard (c.f. mine accident)

1.3. demining incident

an incident at a demining workplace involving a mine or UXO hazard (c.f. mine incident)

1.4. demining worker

all employees, including public servants, qualified and employed to undertake demining activities or work at a demining workplace.

1.5. demining workplace

workplace where demining activities are undertaken

Note: Includes sites where survey, clearance and EOD activities are undertaken including centralised disposal sites used for the destruction of mines and UXO identified and removed during clearance operations.

1.6. ensemble

the group of protective clothing designed to be worn as a protective measure.

1.7. incident

an event that gives rise to an accident or has the potential to lead to an accident

1.8. mine accident

an accident away from the demining workplace involving a mine or UXO hazard

1.9. mine incident

an incident away from the demining workplace involving a mine or UXO hazard

1.10. personal protective equipment (PPE)

all equipment and clothing designed to provide protection, which is intended to be worn or held by a employee at work and which protects him/her against one or more risks to his/her safety or health

1.11. protective measure

means used to reduce risk [ISO Guide 51:1999(E)]

1.12. risk

combination of the probability of occurrence of harm and the severity of that harm [ISO Guide 51:1999(E)]

1.13. workplace

all places where workers need to be or to go to by reason of their work and which are under the direct or indirect control of the employer.