DEMINING NATIONAL STANDARD 07.10

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Guide for the management of demining operations in Mozambique

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Contents

Introduction

The general principles and requirements for the effective management of mine action programmes internationally will be covered in IMAS 02.10 and NS 02.10 will describe how mine action will be managed in Mozambique. This Guide focuses on the management requirements for demining operations in Mozambique.

Demining, as a generic term, is carried out by many different types of organisations, such as NGOs, commercial companies, national mine action teams or military units (when carrying out humanitarian demining). The demining may be emergency, community-based or developmental. Despite differences in approach, and possibly even different objectives, common core activities exist, which carry common responsibilities, and it is these that are explored in this NS.

Demining involves the clearance of contaminated land by the detection, removal or destruction of all mine and UXO hazards. The effective management of demining operations aims to clear 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 UXO threat, by applying safe and effective operational procedures, and by using appropriate and efficient equipment. But management is not just about planning and supervising current tasks. It is about reviewing current practices and procedures to improve safety, effectiveness and efficiency.

The process and procedures, which aim to achieve this continuous improvement to an organisation's management system and operational practices, are commonly referred to as quality management. One method of demonstrating quality management for an organisation is to become ISO 9000 compliant. There is a great deal of general information and training material available for national mine action centres and demining organisations that may chose to adopt the ISO 9000 approach.

This NS examines the demining process and recommends a management system needed to ensure the safe, effective and efficient conduct of demining in Mozambique. In IMAS 07.10 the relevance of ISO 9000 is examined, and its suitability as a framework to promote good management practices is proposed, this NS explains how these principles are applied in Mozambique.

Guide for the management of demining operations

1. Scope

This National Standard (NS) establishes principles and provides guidance for the effective management of demining operations in Mozambique.

Although this NS focuses on demining, the principles should be applied to other components of mine action, including general and impact surveys, mine awareness projects and to some extent victim support and stockpile destruction.

2. References

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

3. Terms and definitions

A list of terms and definitions used in this standard is given in Annex B. The terms and definitions in this NS are in compliance with IMAS 04.10 (Glossary of mine action terms and abbreviations) and all terms that have been developed locally have been captured in NS 04.10 (Glossary of mine action terms and abbreviations in Mozambique).

The term 'national mine action authority or authorities' which usually refers to the government department(s), organisation(s) or institution(s) in each mine-affected country charged with the regulation, management and co-ordination of mine action is used, in Mozambique IND has been designated to fulfil these responsibilities with regard to the supervision and implementation of demining operations. IND acts on behalf of the Mozambique Government under a government decree 38/99 and 39/99 in the field of mine action in Mozambique, and therefore has the authority to manage the national mine action program.

The term 'demining agency' refers to any organisation (government, NGO or commercial entity) responsible for implementing demining projects or tasks. Demining organisations include headquarters and support elements, and comprise one or more sub-units. Demining organisations in the NS refer to those organisations that are whom carry out demining activities in Mozambique, irrespective of the individual organisation relationship to the IND.

4. Demining process

The demining management process is shown in outline in Annex C. In practice, the process may not be linear and the activities may not always be consecutive. Nevertheless the process indicates the general sequence and logical progression from defining the problem to handing over cleared land to its intended beneficiaries. The four stages of the demining management process (planning, preparation, clearance and post-clearance activities) are addressed below.

4.1. Planning

Planning is the collection, assessment and processing of information, selection of an appropriate way to proceed, and subsequent formulation of the detailed method by which a task is to be carried out.

Planning for mine action requires accurate and timely information on the form, scale and impact of the threat posed by mines, UXO and other explosive hazards. Such information will come from assessment missions and surveys, from ongoing local mine action (including mine risk education or mine awareness) projects and tasks, and from local knowledge.

The IND mine action programme information is collected through surveys, and from agencies and organisations familiar with local situation.

General Survey and Impact Survey have been completed with Technical Survey to commence in 2002. The General and Impact survey information has updated the database information. The aim of these two national surveys was twofold:

- to survey Mozambique to establish the general locations, quantities and types of explosive hazards, to collect information on the terrain, vegetation and climate, to identify local services and infrastructure needed to support future demining projects, and to establish an inventory of such information (the 'general survey'); and

- to assess the scale and impact of the landmine problem on the individual, the community and country (the 'impact survey').

The information gathering process also involves IND liaison with other government departments to obtain their development plans at national and provincial level. This information is then interfaced with the mine action information, to provide an indication of the size and scope of the problem, establish the priority of tasks, the resources needed to meet it, the national capabilities and potential to address the problem, and the need for external assistance including financial, human skills, specialist equipment and information. The process commenced late 2001 and the 2002 work plans were presented to the demining agencies. IND will further develop its capacity to conduct detailed analysis. This will lead to a more interactive participation from all the parties to the mine problem in Mozambique.

The outcome of the planning process should be the planning process that delivers the stated national objective; to reduce the impact of landmines to an acceptable level by 2009. The output of this planning at national level is the first five-year plan and at provincial level regional annual work plans that the demining agencies adhere to. The responsibilities in the planning cycle are:

<u>IND</u>

- Conducting detailed analysis of the information provided by all parties
- Establishing, and adjusting as necessary, the weighting factors to prioritise MF tasks
- Liaison with national government for input of national priorities to the prioritisation process
- Liaison with provincial government for input of provincial priorities to the prioritisation process
- Liaison with demining agencies for their advice to the prioritisation process
- Capacity building the respective provincial government representatives in mine action planning methodology
- Adjusting the MF priorities as required
- Compiling Annual Work Plans for demining agencies
- Interfacing the commercial work done in Mozambique to align it to the developmental priorities
- Analysis of Technical survey reports to readjust as required the MF priority in each province

<u>Provincial Government</u>

- Provide dedicated representative to participate in the planning process with IND
- Apply planning methodology to prioritisation process

<u>Demining Agencies</u>

- Provide advice to IND and Provincial governments as required

- Identify to IND any tasks that based on the agencies professional opinion do not fall into a suitable priority category. This is to avoid wasted effort in clearance of unsuitable land.

NS 08.10 describes the impact survey process and NS 08.20 explains the guidelines to be followed for general surveys.

4.2. Funding and preparation

The funding of demining programmes comes from many sources. Funding for the current programme is provided through donor and commercial sources. IND has been established to plan, coordinate, and implement the mine action programme on the behalf of the Mozambique government. Preparation includes all enabling activities, which help clarify the clearance requirement, and which develop the capacity of a demining organisation and its sub-units to carry out a clearance task.

4.2.1. Technical Survey

Technical survey is the detailed topographical and technical investigation of known or Suspected Mine Area (SMA) identified during the planning phase. These areas have identified during general surveys or have been otherwise reported. The primary aim of a technical survey is to collect sufficient information to enable the clearance requirement to be more closely defined, including the area(s) to be cleared, the depth of clearance, the local soil characteristics, resources required, estimated clearance time frame, and other topographical and technical information. The output of technical survey is to determine if the SMA is either a confirmed mined area or minefield (MF) or the area is no longer mined and is then no longer a SMA.

Technical survey provides a scope of work for the task to either be issued to a NGO or form the basis of a commercial clearance contract. Technical survey and Clearance tasks/contracts shall be separate activities. The reasons for this is that analysis has to be conducted on the information gained from the technical survey in order to establish if the area still prevents further development; and if this remains so the area is then accorded an adjusted priority and is tasked accordingly. Technical survey can be conducted by both NGO and commercial agencies.

Examples scenarios of technical survey output are:

Scenario One

Technical survey confirms the SMA to be a MF and the boundaries are confirmed. The area still lies within the development plan and requires resources applied to it according to the priority applied to the site. A Clearance task/contract is issued and the whole area is then cleared and land handed over.

Scenario Two

Technical survey confirms the SMA to be a MF and the boundaries are confirmed. Some area reduction was applied, as it was difficult to determine one boundary of the mined area. The boundary was then confirmed as a result of the area reduction. The area still lies within the development plan and requires resources applied to it according to the priority. A Clearance task/contract is issued and the whole area is then cleared and land handed over.

Scenario Three

Technical survey confirms the SMA to be a MF and the boundaries are confirmed. The boundary has been determined. The technical survey recommends part of the land not to be cleared, as the potential land uses does not warrant application of resources. The remaining area still lies within the development plan and requires resources applied only to part of the area leaving a portion of mined area to remain. A Clearance task/contract is issued requiring a portion of the area to be demarcated, and the remaining portion is cleared, and the land is handed over. Mine Risk Education (MRE) or mine awareness is routinely conducted in the area, reducing the potential for mine accidents.

Scenario Four

Technical survey collects sufficient information to determine that the original general survey/impact survey information regarding contamination no longer exists and there remains insufficient evidence to consider the area to be contaminated. The technical survey report recommends the land be considered free from contamination based on the physical work conducted in the technical survey. The demining agency completes a SMA Cancellation Report and the land is handed over.

Guidance on the requirements of technical surveys is given in NS 08.30.

4.2.2. Area reduction

Area reduction is one process through which the initial SMA is reduced to determine the boundary of the actual mined area or MF. Area reduction is normally done with Mechanically Assisted Mine Clearance ((MAMC)) and or Mine Detection Dogs (MDD) with manual deminers in support. The use of (MAMC) and MDD is more efficient and faster than using manual deminers in areas that have low or no mine contamination. Area reduction may be incorporated in technical survey in specific circumstances if the information is considered unreliable to determine the boundary of a MF.

4.2.3. Clearance requirement.

The target of demining is the identification and removal or destruction of all mine and UXO hazards in a specified area to a specified depth. The area to be cleared and the depth of clearance should be specified by IND, and agreed with the demining organisation. The clearance requirements should be achievable and affordable, and should be consistent with the clearance requirements being applied to similar categories and uses of land. In the event of no confirmed evidence as to the depth of the mine threat from technical survey then the default of 13cm shall be applied. Exceptions to this are where end land use requires a deeper clearance depth, in which case the depth should be specified in any contractual document and or agency works plan.

Clearance requirements are defined in NS 09.10.

4.2.4. Clearance certification/declarations and land handover

A demining organisation can only declare and certify land clear and 'free' of contamination once they have physically applied an IMAS process, to a specified depth based on the equipment technology limitation, and methods used by the agency. In Mozambique historically external organisations, both donor and commercial developers have demanded of demining agencies certification of large areas of land to be declared free. An example in case; a demining agency was requested to declare a large portion of road, free of mine contamination, for several hundred kilometres. Only small portions of the actual road were SMA based on the results of general surveys. Because the agency did not apply a recognised process (now IMAS) it could not declare the entire road 'free' of contamination as it had not applied clearance to the entire road. The reason being is that the whole road was never mined in the first place, only a few SMA that overlapped sections of the road. This was indicative of the funding agency poor understanding of the landmine clearance process that placed undue pressure on the agency making the declaration. It also greatly compounded by poor clearance reporting by the agency distorting the clearance figures in the IND database.

The result was valuable funding and resources were wasted. All organisations, donors, commercial developers, Mozambique national and provincial government, NGO's and commercial agencies have a responsibility to the people of Mozambique to maximise the efficiency of the limited funding available in order to achieve the national objective of reducing the impact of landmines in Mozambique by 2009 to a level where development is not impacted. Landmine clearance is often only the first stage of the development process.

International Mine Action Standards (IMAS) were established to provide the industry with proven and reliable methodology to conduct land mine clearance to specific minimum standards. This process determines areas into two categories; those that are Suspected Mine Area (SMA) and those that are considered not suspect. Much general survey work has been done in Mozambique in collating such information. Once an area is considered a SMA, the coordinates are recorded on the IND database. The next process applied to the area is called technical survey. As stated above the outcome of technical survey determines if the area is suspected or not. If it is determined that an area is suspected of containing mine contamination, further resources can be applied to the area concerned based on national and provincial developmental priorities. Even if the area has been determined as a result of technical survey to be a mined area, the solution may well be not to clear the area but rather demarcate. Land mine clearance resources are limited and should be used as efficiently as possible.

4.2.5. Contract preparation

The definition of the work to be undertaken should ideally be in the form of a contract or other such formal agreement. Mine action organisations are at the moment either tasked and or contracted by IND to carry out demining, mine awareness and victim support activities.

Guidance on clearance contracts will be provided in IMAS 07.20 when it has been produced.

4.2.6. Training

Demining programmes require well-qualified managers and well-trained deminers. The mine action programme provides its own demining training courses. Training in other areas of the programme are either provided on an informal, on the job basis, or by being out-sourced to local institutions.

NS 06.10 describes the training needs and requirements of the programme.

4.2.7. Information

The effective management of demining programmes requires accurate, appropriate and timely information. There are many sources of information – at local, national and international level, which have an application to the needs of programme planners, managers and the donor community.

IND has implemented the LMIS database system in the head office in Maputo and have two regional offices in Beira and Nampula. Monthly reports from all demining organisations shall be submitted to IND. This information provides the basis for future planning and further task prioritisation. Regular reporting on task progression enables IND to adjust the database information and priorities as necessary, reallocate priorities if required. Agencies have a responsibility to submit monthly reports in a punctual manner. This process enables IND to monitor the yearly work plan in order to manage the overall strategic plan, and report to Government on the progress. The information flow is a two-way system providing national and provincial government organisations, NGO and Commercial organisations valuable information on location of mine threat.

NS 05.10 will describe how information will be managed in the mine action programme.

4.2.8. Equipment and tools

In Mozambique manual methods (using mine detectors and hand tools) were used extensively in the earlier phases of the program and were the most appropriate and effective means of detecting, removing or destroying mines and UXO. However, greater use of MDD and mechanical equipment enables agencies to conduct clearance more safely, effectively and cost efficiently.

Demining technologies can be grouped in three general categories according to their technical maturity and availability: equipment which has been fully developed, Tested and Evaluated (T&E), and can be introduced into demining programmes without any major modification or changes; those technologies which have been proved to work but require further development and formal T&E; and those technologies which may have an application to demining, but have yet to mature and have not yet been formally demonstrated.

Demining organisations should focus their equipment procurement on the first category, but whenever possible should assist in the development and fielding of those technologies in the second category. Some new technologies have the potential to generate major improvements in safety and cost-effectiveness; donors should provide assistance and encouragement to those demining organisations fielding new technologies, and their T&E.

Guidance on the application of equipment to demining is given in IMAS 03.10.

4.2.9. Accreditation and licensing

Accreditation is the procedure by which a demining organisation earns formal recognition as being competent and able to plan and manage effectively and efficiently. Licensing is the procedure by which a demining organisation earns formal recognition as being competent and able to carry out demining activities. Accreditation will be awarded to the headquarters of an organisation (the in-country office) for a finite duration, normally for a period of up to three years. Licenses apply to the capabilities needed to carry out a particular demining activity such as survey, manual clearance, QA, or the use of mine detection dogs.

Guidance for the accreditation and licensing of demining organisations is given in NS 09.10.

4.3. Clearance

Clearance is the location, removal or destruction of mines and UXO, and for EOD may also involve access, diagnosis, render safe, final disposal and (where appropriate) protective works. The aim of clearance is to remove, or at least reduce, the risk from land contaminated by mines and UXO to an agreed and tolerable level commensurate with its intended use.

4.3.1. Clearance procedures

The need for effective and safe operational procedures is essential. Some operational procedures are based on international norms and 'best-practice', such as the destruction of mines in-situ, safety distances and the handling of explosives. Some are based on the local mine and UXO threat and ground conditions. Some reflect equipment characteristics and performance. And some reflect local preferences, such as the position adopted for prodding and excavation.

Standing operating procedures (SOP) shall be prepared for all operational procedures, practices and drills. SOP are instructions, which define the preferred method of conducting an operational task or activity. Their purpose is to establish recognisable and measurable degrees of uniformity, consistency and commonality within an organisation, with the aim of improving operational effectiveness and safety. SOP shall reflect local requirements and circumstances.

4.3.2. EOD

Unexploded ordnance (UXO) has many definitions, but for the purposes of IMAS the term applies to all munitions other than landmines, which present a significant risk to human life. UXO may be cleared as part of a demining contract, or they may be cleared under separate arrangements by a contractor specialising in explosive ordnance disposal (EOD), or both situations may occur in parallel. For the purposes of IMAS, both activities are defined as EOD operations.

The majority of UXO found during demining are small items of ordnance such as sub-munitions, grenades and mortar ammunition. But UXO also includes larger items such as artillery ammunition, guided missiles, air-dropped bombs and cluster munitions. The wide variety of size and complexity of UXO requires special attention to be given to the management of EOD.

Guidance for the management of EOD as part of demining programme is given in NS 09.30. It covers general principles and management responsibilities. It does not provide specific technical guidance for the disposal of particular explosive ordnance.

4.3.3. Specialist capabilities

4.3.3.1. Use of dogs.

The use of dogs to detect the vapour from buried mines and munitions has become increasingly common in recent years, and some programmes now use a large number of dogs. Dogs are commonly used areas of low contamination and the Quality Assurance role. Agencies use dogs in combinations of primary search role and or secondary search role.

NS 09.40 has been formulated to provide guidance for the accreditation, testing and use of dogs.

4.3.3.2. Use of Mechanically Assisted Mine Clearance (MAMC).

An increasing number of mechanical devices have been produced, which aim either to detonate, destroy or isolate mines. At present, where such machines are used, their operation is usually confined to the reduction of risk by the removal of vegetation and trip-wire operated mines, and some mine destruction.

Procedures for introducing new and untried mechanical systems were developed in 1998 at the Karlsruhe International Conference on Mine Action Technology. The Conference recommended that all mechanical systems should be formally evaluated to confirm that they are safe, effective and reliable. This recommendation was subsequently accepted by the United Nations for all UN-supported mine action programmes.

All agencies that have machines in Mozambique require accreditation. Each machine requires a current license before it can be operated. If the machine does not have a proven performance from previous trials, either in Mozambique or internationally, then a trial shall be performed before the machine is awarded a license to operate.

4.3.4. Quality assurance

The definition of 'clearance' involves the establishment and monitoring of management processes and operational procedures before and during the clearance process. Internal Quality Assurance (QA) will be conducted by demining organisations themselves, but external inspections by an external monitoring body shall be conducted.

The purpose of QA is to confirm that management practices and operational procedures for demining are appropriate, and will achieve the stated requirement in a safe, effective and efficient manner, and the agency is applying its procedures uniformly and correctly. Monitoring should involve structured discussions with management and deminers, and formal inspections of SOP, reports and records.

IND may appoint an agent to carry out the monitoring and inspections of the demining organisation and its sub-units under its authority and responsibility, exercised under conditions agreed in the contract or formal agreement such as an annual works plan. Any QA agency appointed by IND shall be accredited and have the required to have all the facilities, qualified staff, management systems and SOP necessary for adequate monitoring and or sampling. Accreditation of QA agencies will be the same process as that of other demining agencies.

NS 07.40 provides guidance on the monitoring requirements and detailed responsibilities.

4.3.5. Safety and occupational health

Managers of demining programmes are required to achieve a safe working environment by providing effective management and supervision, by developing work practices that contribute to risk reduction, by selecting equipment with inherently safe design, by providing appropriate training, and by making available effective personal protective equipment (PPE). Given the wide range of operational settings and demining activities, it is not possible to provide a precise and complete set of specifications that apply to all situations. Thus demining organisations should develop and maintain management procedures and processes that will enable safety and occupational health (S&OH) risks to be identified, evaluated and reduced in a systematic and timely manner for each demining task and for each demining worksite.

Guidance for the development and implementation of S&OH management systems for use in demining operations is given in NS 10.10. Guidance on demining worksite safety is given in NS 10.20. Guidance on PPE is given in NS 10.30. Guidance on medical support to demining operations is given in NS 10.40. Guidance on the storage, transportation and handling of explosives is given in NS 10.50. And guidance on the reporting and investigation of demining incidents is given in NS 10.60.

4.4. 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. NS 09.20 provides guidance on the implementation of a management system for inspecting the quality of land by sampling. An important aspect of this procedure is to clarify the ownership of any residual risk, and the legal responsibilities and accountability of the donor, IND and demining organisation(s) following handover.

Prior to the hand-over of cleared land, the area should be surveyed and marked, and all necessary land handover documentation should be compiled. NS 08.40 provides guidance on post-clearance handover requirements, timelines, and management responsibilities. The contractor, until hand-over, shall consider security of all cleared land.

IND should conduct random formal post project reviews (PPR) to identify lessons-learned during the planning, preparation and clearance phases of the operation. The PPR should include a report on the suitability of the equipment, procedures, training and support. Issues of concern should be identified and prioritised, and solutions proposed. The requirement for PPRs should be included in clearance contracts by donors and national authorities. PPRs should be distributed to national mine action authorities, to the United Nations (UNMAS, UNDP and IND), and to donors or sponsors. Where PPRs highlight shortcomings in established equipment or procedures, particularly issues involving safety, they should be more widely distributed.

5. Quality management

The effective management of demining operations aims to clear 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 UXO threat, by applying safe and effective operational procedures, and by using appropriate and efficient equipment. But management is not just about planning and supervising current tasks. It is about reviewing current practices and procedures to improve safety, effectiveness and efficiency.

The process and procedures which aim to achieve this continuous improvement to an organisation's management system and operational practices is commonly referred to as quality management. One method of demonstrating quality management for an organisation is to become ISO 9000 compliant. There is much general information and training materials available for national mine action centres and demining organisations that chose to adopt the ISO 9000 approach.

A summary of the ISO 9000 approach is given in Annex D. In essence, ISO 9000 is a series of international standards for quality systems. They specify requirements and recommendations for the development of a management system, the purpose of which is to ensure that the 'products' or 'services' delivered meet the agreed needs. In the case of demining, the product is cleared land, which is safe for its intended use.

Managers of demining organisations are encouraged to examine how to apply the principles of quality management to mine action. In doing so they should take particular note of two issues. First, how special processes (such as demining) should be planned, implemented, monitored and reviewed. And second, they should note the responsibilities of all managers and deminers to identify and take advantage of opportunities for improvement to the process.

6. Areas of Responsibility

6.1. United Nations

The United Nations has a general responsibility for ensuring the establishment of a regime conducive to the effective management of mine action programmes by continuously refining IMAS to reflect developing mine action norms and practices, and incorporating changes to international regulations and requirements such as those produced by the International Organisation for Standardisation and the International Labour Organisation. UNMAS is the office within the United Nations Secretariat responsible to the international community for the development and maintenance of IMAS, including this Guide.

The United Nations is also responsible for establishing internationally accepted criteria for the accreditation and licensing of demining organisations, and for maintaining a registry of accredited demining organisations, and of accredited monitoring and inspection bodies.

6.2. IND the national mine action authority

IND is the national mine action authority appointed by the Mozambique government to be the national mine action authority. The national mine action authority is responsible for the management of the landmine clearance within Mozambique national boundaries, including defining the clearance requirement, the accreditation and licensing of demining agencies/organisations, the monitoring of demining agencies/organisations during clearance, and post-clearance inspections prior to accepting handover documentation and facilitating land handover.

The IND mine action programme is responsible for establishing and maintaining national regulations and procedures for the management of demining operations. These procedures are consistent with IMAS, other relevant national and international standards, regulations and requirements.

6.3. Donors

Donor agencies are part of the management process, and as such are responsible for ensuring that the projects/programs they are funding are managed effectively, and the demining agency that the donor is financing has the capacity to perform to the standards outlined in International Mine Action Standards (IMAS) and Mozambique National Standards (NS). The donor shall provide and or source on an as required basis consultancy advisory and auditing expertise to provide external validation to the donor regular comment on the managerial, technical, logistic, financial, and administrative systems of the demining agency; to ensure the agency has the capacity to deliver the agreed work and perfumes to stated work plans/contracts. This auditing/advisory may be sourced on a temporary or permanent basis. In terms of reporting to IND the donor shall report to IND on a quarterly basis technical and productivity audits only. The reason for this support is to prevent mismanagement and or failure of demining projects that has happened too frequently with donor-funded projects.

6.4. Demining agency (organisation)

Ultimately, it is the demining agency, either NGO or Commercial, which is required to establish an appropriate and effective management system and demonstrate to IND, the consistent application throughout the demining project/program. Additionally demonstrate and deliver outputs in accordance with International Mine Action Standards (IMAS), Mozambique National Standards, and the demining agency's Management Policy's and Standing Operating Procedures (SOP).

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) NS 02.10 Management of mine action

b) NS 03.10 Equipment requirements

c) NS 04.10 Glossary of mine action terms and definitions

d) NS 05.10 Information systems and communications

e) NS 06.10 Training needs analysis

f) NS 06.20 Training of senior level national managers

g) NS 06.30 Training of middle level national managers

h) NS 06.40 Training of technical managers

i) NS 07.20 Guide for drafting demining contracts

j) NS 07.30 Accreditation of demining operations

k) NS 07.40 Monitoring of demining organisations

l) NS 08.10 Impact survey

m) NS 08.20 General survey

n) NS 08.30 Technical survey

o) NS 08.40 Completion survey

p) NS 08.50 Marking of hazards

q) NS 09.10 Clearance requirement

r) NS 09.20 Post-clearance inspections and sampling

s) NS 09.30 EOD

t) NS 09.40 Use of dogs

u) NS 09.50 Mechanically-assisted clearance

v) NS 10.10 S&OH general principles

w) NS 10.20 Demining worksite safety

x) NS 10.30 PPE

y) NS 10.40 Medical requirements

z) NS 10.50 Explosives storage, transportation and handling

aa) NS 10.60 Reporting and investigation of demining incidents

The latest version/edition of these references should be used. IND, Maputo holds copies of all 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 Department in the headquarters. Demining organisations should obtain copies before commencing demining activities in Mozambique.

Annex B
(Informative)
Terms and Definitions

1.1. beneficiary
the recipient of benefits from mine action interventions.

1.2. demining agency
the demining organisation that conduct landmine clearance.

1.3. process
set of inter-related resources and activities which transforms inputs to outputs

1.4. procedure
specified way to perform an activity

1.5. SOP
a set of instructions which define the preferred method of conducting an operational task or activity. Their purpose is to establish recognisable and measurable degrees of uniformity, consistency and commonality within an organisation, with the aim of improving operational effectiveness and safety. SOP should reflect local requirements and circumstances.

1.6. quality
totality of characteristics of an entity that bear on its ability to satisfy stated or implied needs

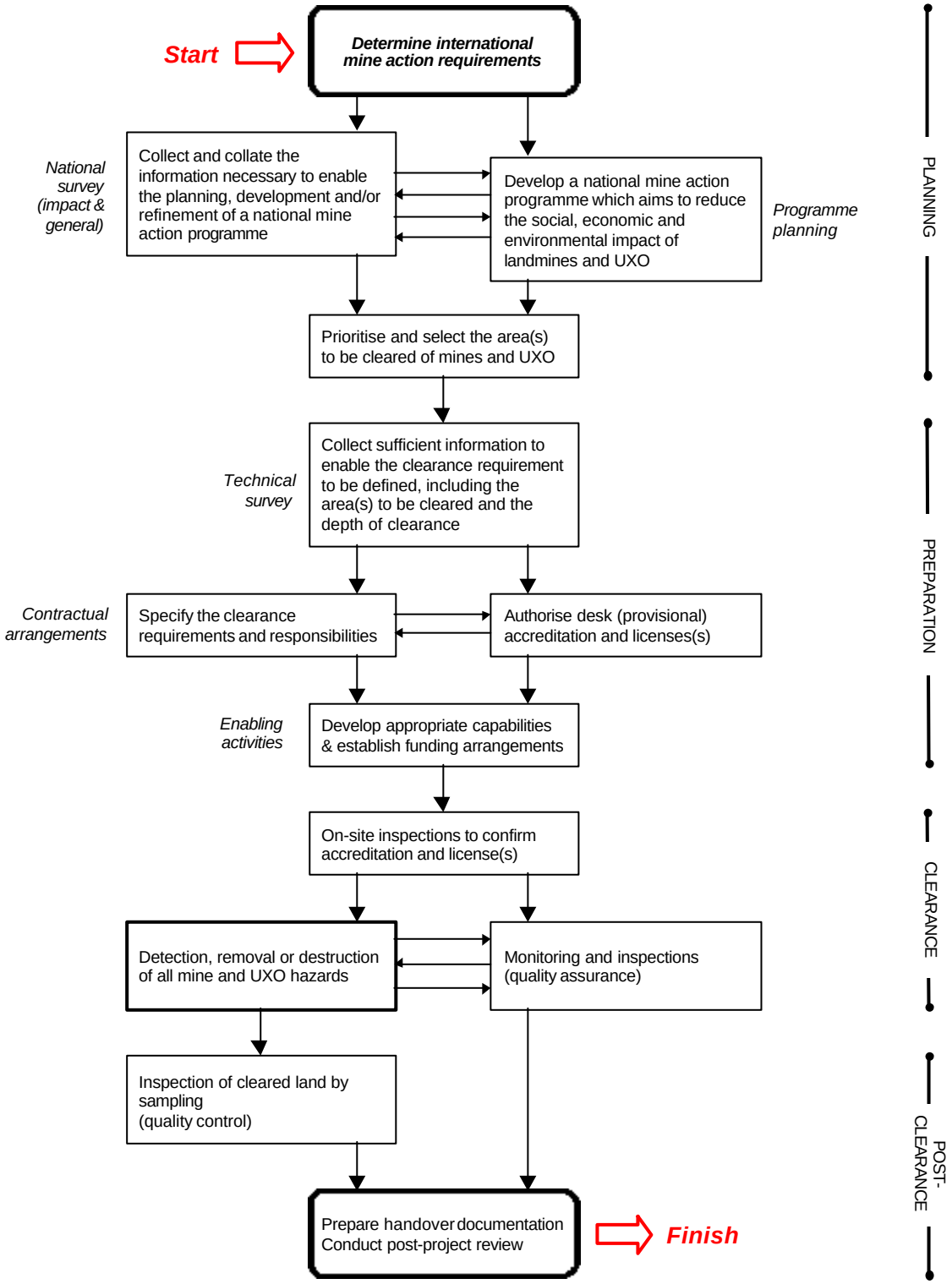
1.7. quality management
all activities of the overall management that determine the quality policy, objectives and responsibilities and implement them by means such as quality planning, quality control, quality assurance and quality improvement within the quality system

1.8. quality control
operational techniques and activities that are used to fulfil requirements for quality.

1.9. quality assurance

all activities planned and systematically implemented within the quality system, and demonstrated as needed, to provide adequate confidence that t

Annex C
(Informative)
Demining process



Annex D
(Informative)
ISO 9000 Series

This annex is an extract from a UN paper on the application of quality management systems which was prepared by UNMAS and delivered to the International Workshop on the Management of Mine Action, Ottawa, March 1998.

INTRODUCTION

A framework of international standards for humanitarian mine clearance and demining was developed and agreed at the International Conference on Mine Clearance Technology, Denmark in July 1996. Criteria were prescribed for all aspects of mine clearance, standards were recommended, and a new universal definition of clearance levels was proposed.

The conference also recommended that a co-ordinated approach to quality assurance and quality control be adopted; in particular, the relevance of quality management systems (including the application of ISO 9000) to mine action was to be examined. In his 1996 report to the General Assembly, the Secretary-General acknowledged the UN's responsibilities in taking this work forward. [A/51/540 dated 23 October 1996.] In the Fifty First session, the General Assembly encouraged Member States, intergovernmental organisations, NGOs and foundations to support this developing work on mine action standards and quality management. [A/RES/51/149 dated 4 February 1997.]

AIM AND SCOPE OF PAPER

This paper examines the relevance of quality management systems (QMS) and the application of ISO 9000 to mine clearance, and makes recommendations.

This paper focuses on the application of QMS to demining tasks and processes, although the recommendations are applicable to other facets of mine action.

QUALITY - DEFINITIONS

The word *quality* has many meanings: a degree of excellence, consistency, conformance with requirement and freedom from defects, imperfections or contamination. The official ISO definition is " .... the totality of features and characteristics of a product or service that bear on its ability to satisfy a stated or implied need."

The concept of *total quality management* (TQM*)* and the development of *quality management systems* (QMS) evolved in the 1980s, and was used by management to achieve levels of excellence in manufacturing. Those companies, which embraced the philosophy, to change their organisations and empower their staff achieved remarkable levels of performance and a clear competitive edge. During the 1990s this approach has been applied to the public sector and 'non-profit' organisations with similar improvements in performance.

QUALITY MANAGEMENT

The elements of QMS

QMS comprises three components: (1) standards and common procedures which define the rules, norms and required performance of an organisation; (2) an internal management system (such as ISO 9000) which encourages an organisation to achieve these standards; and (3) institutional arrangements, such as national and international professional bodies, which establish the rules,

norms and required performance, and monitor the performance of its member organisations. This section of the paper will address these three components and will discuss their relevance to mine action.

ISO 9000

ISO 9000 provides a management discipline which encourages an organisation to deliver products or services to agreed requirements. These requirements may represent the specific needs and expectations of customers for a particular product, or they may be the standards of service deemed appropriate by a professional body (such as solicitors or physicians). ISO 9000 is not a product or service standard *per se.* There are no product acceptance criteria. ISO 9000 does, however, require organisations to have the management procedures, processes and practices in place which will consistently deliver products and services to the standards required.

Three levels of ISO 9000 accreditation are available. ISO 9001 is seen as the most comprehensive quality system, although it is not appropriate or achievable by all organisations. ISO 9002 is more appropriate for organisations delivering a product or service where no conceptual design work is required. ISO 9003 provides a model quality system for use when conformance to special requirements can be assured only by final inspection and test.

Organisations which seek ISO 9000 accreditation are required to comply with an agreed set of criteria: 20 standard 'clauses' which define the agreed criteria are listed at Appendix 1 of this paper. The interpretation of the criteria depends on the role of the organisation and whether it delivers a product or service. Many professional bodies have produced guidelines which relate to their own business sectors and professions. Currently no agreed international criteria or guidelines exist for mine action.

Application of ISO 9000 to mine action

The 20 standard clauses of ISO 9000 need to be modified to reflect the role of organisations engaged in mine action. An illustrative set of clauses for demining are shown in Appendix 2 of this paper. In preparing this list, reference was made to ISO 9004 which provides guidance for establishing and implementing quality systems for service activities.

The relevance of these 20 clauses to demining can be established by mapping them onto the IMAS standards and guides, as shown in Appendix 3 of this paper. The resulting matrix provides a deeper and more comprehensive understanding of the total quality requirements of mine clearance. For example, a demining organisation seeking ISO 9000 accreditation would be expected to demonstrate (as Clause 4.13) how its internal quality assurance and quality control procedures would be used to identify critical non-conformities, an action which is currently required in many contracts. In the case of IMAS standards, a critical non-conformity is defined as a unit of land (usually 1 square meter) containing one or more mine or UXO hazards. The demining organisation's SOP would be expected to be consistent with the monitoring and post-clearance inspection requirements cited in IMAS 07.40 and 09.20.

Such an approach would provide a common framework to assess and evaluate the suitability and preparedness of contractors and sub-contractors as part of the accreditation and licensing procedures. It would generate transparency and this, in turn, would improve confidence in the product.

Professional bodies and institutes

Organisations and individuals who aspire to meet agreed professional standards usually share common values and beliefs. Professional bodies and institutes represent the interests and articulate the views of their members. They ensure conformance to the agreed standards, and encourage commitment to the shared values and beliefs. Many institutes issue detailed professional guidelines for ISO 9000 accreditation, as well as general advice on routine QMS matters.

The formation of such bodies and institutes within the mine action community would be advantageous, and should be encouraged. They would provide a particularly useful mechanism for generating a professional ethos, and for developing common mine action policy and practices. They would complement the role of UNHQ.

Initially it will be easier to create such bodies and institutes nationally and regionally, although international affiliations and partnerships should be encouraged. Currently, only one such body is known to exist: the British Institute of Mines and Munition Clearance Engineers (IMMCE) which formed in 1998.

RECOMMENDATIONS

GA Resolution 51/540 of 23 October 1996 provided the UN with an obligation and the mandate to develop effective international mine action standards and to provide guidance on the application of quality management. In order to effect this mandate the following recommendations are proposed:

- Organisations involved in mine action should be encouraged to develop strategies, establish management systems, and demonstrate procedures and practices which are consistent with the principles of total quality management.

- There is a need to establish a set of international guidelines on the application of ISO 9000 to mine action.

- The formation of professional bodies within the mine action community is to be encouraged, although their legal status, constitution and composition will need to be closely monitored.