**SUDAN NATIONAL MINE ACTION CENTER (NMAC)**

# Land Release Policy

## Introduction

This policy aims to improve the quality and efficiency of the land release operations, activities and services in Sudan. In reference to the Sudan National Mine Action Standards (SNMAS) and International Mine Action Standards (IMAS), this policy also aims to ensure safety and effectiveness in land release operations and to build the confidence of beneficiaries, affected communities, stakeholders and interested parties about the land release services, outputs and outcomes.

The references for this policy are IMAS 07.11 and SNMAS 05.01 and the programme commitment to continual improvement of the quality, safety, efficiency and effectiveness of the land release process including survey (non-technical survey and technical survey) and clearance activities in Sudan.

## Purpose

To provide guidance and direction to the mine action organizations working in Sudan to ensure that all mine and or ERW hazardous areas are properly surveyed, reported and recorded in IMSMA database.

To avoid recording of unnecessary claimed hazardous areas into IMSMA.

To ensure that all the presence and or suspicion of explosive ordnance contamination are removed through applying all reasonable effort, and the safe land is handed over to the beneficiaries and communities for their intended use.

## Rational

Sudan is the state party to the Anti-Personnel Mine Ban Convention (APMBC) that is signed and ratified by the Republic of the Sudan. Under its approved extension request by the state parties, the government is committed to achieve the deadline of Sudan free from the known Explosive Ordnance (EO) by 2023. However, the main challenge that NMAC as national mine action authority, and the mine action programme are faced with; is the limited information about the actual scope of EO problem in Sudan. To overcome this challenge, it is crucial to make all unknowns known through undertaking comprehensive survey throughout the country that will improve the information and knowledge about the scope of the EO problem. Survey and proper management of information can facilitate appropriate management of land release operations in terms of planning, resource mobilization, implementation, regular monitoring and evaluation and reporting to the state parties and mine action stakeholders.

It is, therefore, important to provide policy guidance and direction to the mine action organizations enabling them to accurately determine the scope of EO problem, properly plan and undertake land release operations; apply all reasonable effort, using the most appropriate procedures, tools and assets; to remove immediate threat of EO, support humanitarian assistance, improve the livelihood of affected communities, facilitate development and make efforts to achieve the APMBC obligation of the government of Sudan.

**All Reasonable Effort**

Reference the requirements of SNMAS 05 series and IMAS 07.11; all reasonable effort in the context of Sudan shall at minimum include, but not limited to the following:

1) Undertake communities survey, gathering of information from the communities and wider source of information about the possible EO contamination.
2) Information gathering shall take place throughout the land release process including NTS, TS and clearance.
3) In addition to other possible informants, affected communities shall form the main source of information during NTS, TS and clearance operations.
4) Information and evidence collected shall be analyzed, reported and recorded in IMSMA database.
5) The ultimate decision about reported hazardous areas shall be based on evidence including direct and indirect evidence and "no evidence of" EO hazards; that should result in Confirmed Hazardous Area (CHA), or Suspected Hazardous Area (SHA) and or Cancellation.
6) All CHAs and SHAs shall be subject to TS as targeted investigation and systematic investigation respectively. The information and evidence collected during TS, shall form the bases for decision-making about the succeeding clearance activities.
7) The procedure, methodology, type of tools and assets shall be based upon the information and evidence collected during NTS and TS activities. The most suitable and effective available tools and assets and related procedures shall be applied to release the land from the presence and or suspicion of EO.
8) Proper information management system shall be ensured by NMAC to record the outputs of each activity including NTS, TS and Clearance undertaken as part of the Land Release process.
9) Proper Quality Management System shall be established to ensure the quality of land release activities, services, outputs, outcomes and information management.

**Requirements**

Achieving APMBC deadline is only possible and feasible when the quality, reliability and efficiency of survey and land release operations are improved, ensured and the confidence of beneficiaries, impacted communities and stakeholders is built. To achieve this, the following important provisions of this land release policy shall be followed by NMAC with technical support of UNMAS and mine action organizations working in Sudan:

1) NMAC as a regulatory and coordination body for mine action in Sudan, is responsible to accredit mine action organizations including the management and implementation aspects of land release including survey and clearance in Sudan.

2) NMAC shall ensure the quality of land release operations including non-technical and technical survey and clearance activities and their outputs. The assessment of land release outcome and impact is also essential for the continual improvement and the beneficiaries focused land release operations, this will help to ensure that the released land is used productively by the beneficiaries that contributes to their livelihood. Ensuring the quality of land release process shall be started from very beginning through proper prioritization, planning, accreditation, monitoring of activities,

monitoring of outputs, completion QA and Post Land Release Impact Assessment and Landmine and Livelihood Evaluation.

3) The management and operational capacity of all mine action organizations accredited in survey and clearance operations in Sudan, shall be regularly reviewed and improved by NMAC with technical support of UNMAS, considering the requirements outlined in updated editions of SNMAS and IMAS.

4) All mine action organizations accredited to plan, manage and undertake survey and clearance operations as part of the land release process in Sudan, are responsible to establish, develop and maintain their capacity including procedures and personnel.

5) All mine action organizations accredited in management and implementation of land release operations in Sudan, shall consider applying all reasonable effort outlined in this policy and be responsible for the quality of their land release operations.

6) All previously recorded hazardous areas shall be resurveyed to understand the real and current scope of the EO problems in Sudan and update IMSMA with fresh and up to date information.

7) All Anti-Personal Mine contaminated areas shall be considered as the main challenge to be managed first due to their impact on the safety of affected communities and also as the main obligation of Sudan as part of APMBC.

8) All newly reported and requested EO areas shall be subject to NTS as a first step of land release process.

9) The findings of NTS activity regarding the new and previously recorded hazardous areas, shall be used as basis for informed decision-making that is leading to taking the most suitable, appropriate and effective succeeding actions. Such action may include TS and or Clearance, or area cancellation, if “no evidence of” EO is confirmed.

10) All clearance teams working in the field, shall conduct situation analysis around their ongoing tasks and notify NMAC about the presences of any possible EO contamination that affect the people and local communities.

11) Each hazardous area that is issued to the teams for land release operations, shall be subject to a fresh NTS.

12) NTS should be considered as a dynamic activity throughout the land release process; any new information and evidence identified shall be recorded, analyzed and immediately reported to related organization and NMAC for authorizing required actions to be taken.

13) Presence of direct evidence in some parts of a big area, shall not be used as a strong justification to record and report the entire area as a CHA, rather those parts with direct evidence shall be recorded as CHA and the rest of the area with indirect evidence to be recorded as a separate SHA.

14) The survey and clearance teams shall liaise with affected communities throughout the survey and land release operations. Their needs and requirements should be considered as important aspects in land release planning, prioritization and operations.

15) NMAC shall manage and maintain information management system (IMSMA) for survey and clearance activities; capable of proper and timely entry and recording of data and information, facilitate regular analysis, and ensure timely reporting and communication of programme achievements and progress with mine action stakeholders and interested parties.

16) All mine action organization accredited in survey and clearance shall develop land release training management packages and train their teams in land release process at least once a year.

17) All area reduction through technical survey and cancellation through non-technical survey shall be based on evidence and “no evidence of” EO.

**Sudan National Mine Action Centre (NMAC)**

## Mine Action Environmental Management Policy

Sudan Mine Action Programme under the leadership and coordination of National Mine Action Centre (NMAC), is an environmentally conscious programme and acknowledges that the mine action especially the land release operations may potentially have adverse impact on the environment. NMAC as regulatory and coordination body for mine action in Sudan is charged with responsibility to develop, administer and enforce mine action strategies, policies, standards, procedures and best practices and to ensure that the programme achieves its strategic goals and operational objectives in a safe, effective and efficient way and delivers high quality services with maximum benefits and without adverse effects on the natural environment of Sudan territory.

It is the policy of NMAC to ensure protection of natural environment from the adverse effects of mine action operations, and to determine compliance obligations and ensure that mine action operations in Sudan are carried out in consideration of National Environmental Protection Legislation and in accordance with the requirements of International Mine Action Standards (IMAS 07.13) and Sudan National Mine Action Standards (SNMAS 07.04); which are in compliance with ISO 14001:2015.

NMAC is committed to continually improve programme's environmental performance through incorporating environmental protection responsibilities to the programme structure, integrating EMS requirements into the management system, standards, processes and operational procedures throughout the programme and undertake regular audits, management review meetings (MRM) and improvement actions. NMAC is specifically committed to:

a) Integrate EMS requirements in accreditation of mine action organizations and operations.

b) Include EMS requirements in external monitoring and sampling processes of the mine action projects operations, activities and services.

c) Evaluate fulfilment of the environmental compliance obligations, implement and maintain an environmental management system that is following National and International EMS standards and national legislation on Environmental Protection.

d) Ensure taking immediate corrective actions on environmental noncompliance as soon as identified through environmental monitoring during the design, implementation and completion of mine action projects and activities.

e) Allocate suitable resources to enable the programme to achieve its environmental management objectives.

f) Prevent pollution, reduce waste and ensure that the measures are implemented to protect and preserve natural habitats, flora and fauna through implementing a systematic waste minimization process to reduce and manage waste and eliminate their negative impact on the Environment.

g) Eliminate the adverse environmental impact of mine action operations on the local communities and infrastructure pursuing continual improvement in environmental performance where

reasonably practicable, by setting objectives, especially in addressing the areas of resource use, by reducing energy and water consumption.

h) Promote environmental awareness of the staff, within working structures including the field offices and mine action teams, being committed to maintaining effective communication channels on environmental issues through training and proper awareness programs.

i) Conduct internal and external audits and reviews and maintain continual improvement as a permanent objective of the programme and ensure that the mine action senior managers are fully engaged in the management of environmental protection.

j) Promote and ensure working in partnership with affected communities by performing in a considerate and socially responsible manner.

k) Ensure effective and expedient incident control, rapid response, investigation, reporting and improvements.

All the mine action staffs in Sudan have the responsibility regarding this policy implementation by participation and contribution to its success through their actions and suggestions. This policy and environmental objectives are subject to regular review on annual basis. NMAC leadership has the overall authority and responsibility with regard to the management of mine action EMS in Sudan.

Approved by:

## Sudan National Mine Action Centre (NMAC)

# Mine Action Gender, Diversity and PSEA Policy

### 1. Vision

To develop gender and diversity sensitive capacity within the Sudan Mine Action Programme for the management and implementation of a more diverse Mine Action sector, mainstreaming gender and diversity throughout its activities. A mine action programme that delivers programming responsive to the needs of women, girls, boys, men and diverse groups of people and beneficiaries, in line with UNMAS UNOPS PSC Portfolio "Gender and Diversity Strategy".

This policy applies to NMAC and all mine action organizations and stakeholders internal to the Sudan Mine Action Programme.

### 2. Definitions

1) Gender:

Socially constructed roles for women, girls, boys and men. Gender is an acquired identity that is learned, changes over time and varies widely within and across cultures. Gender equality does not mean that women and men will become the same but that women's and men's rights, responsibilities and opportunities will not depend on whether they are born male or female. Women, girls, boys and men have equal rights and opportunities.

2) Diversity:

A range of attributes including age, sex, gender, language, values, attitudes, cultural perspectives, beliefs, ethnic background, abilities, impairments, skills, knowledge, level of education and life experience that are found in a group of people. These characteristics can vary from person to person and context to context, but need to be recognized, understood and considered by the mine action sector; to ensure that all gender and diversity groups benefit equally from the mine action and its services and that their priorities, involovement and presence are valued and considered.

### 3. Rationale

The Sudan Mine Action Programme's National Mine Action Strategic Plan (2019-2023) envisions a country free from known landmines and explosive remnants of war (ERW) where people and communities live in a safe environment conductive to national development and where landmine and ERW survivors are fully integrated into society and thus have their rights and needs recognized and fulfilled. In Sudan National Mine Action Strategic Framework (NMASF), a specific goal (5) on Gender and Diversity Mainstreaming has been developed so that all gender and diversity groups can participate in, and benefit from the work of the programme, and that the programme benefits from the insight and participation of gender and diversity groups in all aspects of its work. Gender & Diversity aspects have been also integrated in some other specific goals of the NMASF. The gender and diversity policy will guide programme's stakeholders in their decision-making processes to fulfil the objectives outlined in Goal 5 and work towards the overall vision of the National Mine Action Strategic Framework.

In order to provide more inclusive, effective, and efficient programming, the mine action sector must consider the needs and get inputs from gender and diverse groups. The gender and diversity policy is a mechanism to ensure that the perspectives and input from these groups are taken into account.

A lack of gender and diversity awareness and capacity across the sector can compromise service delivery. The gender and diversity policy can help guide SMAP stakeholders in their decision-making processes and programme development so that the unique needs of gender and diverse groups are considered. This includes considering the priorities and needs of women, girls, boys, and men, their mobility patterns, different roles, responsibilities, capacities and needs.

## 4. Core Values

### 4.1. Commitment to Gender and Diversity Equality

This is the programme policy to work towards gender and diversity equality by including gender and diversity dimensions in both internal and external processes and activities where appropriate. This includes supporting improved internal gender and diversity-capacity and representation as well as gender and diversity-sensitive/responsive mine action programming. Mine action stakeholders also promote and advocate for gender and diversity equality through the application of their own gender and diversity-policy as a guide during their decision-making processes.

NMAC leadership and senior management will support commitment by ensuring that there are required resources allocated to gender and diversity aspects including, but not limited to, human resources, financial resources, and employment opportunities for persons of all genders and diversity groups. NMAC leadership will support continued capacity building of gender and diversity sections[1] and assist them in their tasks. Mine action organisations are strongly encouraged to provide capacity building opportunities especially for women and Persons with Disability.

### 4.2. Inclusive Mine Action

It is the programme policy to deliver inclusive mine action activities so that individuals from all groups and gender that are impacted by landmines and ERW can fully benefit from mine action and have their rights and needs recognized and fulfilled. This means that mine action activities do not cause any forms of marginalization, vulnerability, or exclusion that may be experienced by individuals from the mine/ERW affected communities.

### 4.3. Engagement and Advocacy

It is the programme policy to raise awareness about the mine action sector as well as advocate for gender and diversity-responsive mine action operations including survey, Information Management, Land Release, Risk Education and Victim Assistance. This includes developing tailored messaging to engage a wide range of diverse groups and gender on mine action and to deliver these messages through appropriate channels and formats depending on the needs and priorities of these groups including community liaison, MRE messages, publications and workshops. But could also consist in implementing survey and clearance, and Victim Assistance activities and projects, promoting participation and decision making of men and women and diverse beneficiary groups of the communities. In doing this, the Programme stakeholders will contribute towards a mine action sector

[1] NMAC and Mine Action organization need to establish Gender and Diversity sections or focal points within their structures.
See sub-number 4 in item 5 the “requirements” of this policy.

responsive to gender and diversity as well as promoting gender equality and inclusion more generally in the society.

Sudan mine action programme should conduct gender and diversity specific events including conferences, seminars, and workshops with a broader range of stakeholders including people from affected communities, relevant ministries in affected states, and other related organizations. Moreover, the programme should actively engage with community leaders (Umda), religious leaders (Imams of Masjid), and men on such issues to increase overall awareness and support towards and to promote dialogue on gender and diversity equality throughout the cycle of mine action projects and activities. Proper and culturally well-accepted messages, communication and implementing modalities, will actively promote gender and diversity-sensitive mine action and focus on the achievement of the objectives outlined in Goal 5 of the National Mine Action Strategic Framework.

During engagement with donors, the NMAC and UNMAS will advocate for donors' commitments on gender and diversity importance and adoption for gender and diversity specific project requirements in their Call for Proposal (CFPs) or Request for Proposal (RFPs).

### 4.4. No Discrimination and Harassment

It is the policy of Sudan mine action programme to ensure that both external and internal activities and workplaces are free from discrimination and harassment and Prevent Sexual Exploitation and Abuse (PSEA). This involves all inappropriate conduct that contradicts gender and diversity equality and includes both direct and indirect discrimination/unethical behaviours/misconducts throughout all levels of the programme. The NMAC will not tolerate any inappropriate conduct by any individual, regardless of their gender or diversity group and position in the organization.

### 4.5. Sustainability

This policy guides all staff working in Sudan mine action programme on gender and diversity requirements. However, all the staff must recognize that a sustainable contribution to gender and diversity equality in the Sudan context requires action to be taken at the root causes of inequality. Gender and diversity-sensitive/responsive mine action service delivery can serve as a mechanism to improve equality. All staff members should attempt to identify and remedy the root causes of these inequalities where possible through the support of broader coordination mechanisms such as the Protection Cluster as well as support from Governmental partners. UNMAS Sudan programme Gender Focal Points are available to support/advice and contribute in implementing such approach and UNMAS UNOPS PSC Global Gender & Diversity Advisor (giorgiad@unops.org) is also available for any request of support in relation to gender & diversity aspects in the Programme.

## 5. Requirements

1) *Increase employment of women, people with disabilities, and other diversity groups in different roles and levels of the programme, where appropriate and suitably qualified to manage related roles properly:*

It is the policy of Sudan mine action programme to improve gender and diversity representation within the workplace. This involves provision and adoption of gender and diversity-sensitive

guidelines and appropriate directives to human resource departments on equitable, non-biased hiring practices and ensuring that the recruitment processes are sensitive to the needs of different gender and diversity groups. Efforts should be made to reach out and engage with them during the recruitment process to improve the gender and diversity representation.

The programme leadership commits to improve gender and diversity in decision making spheres and making special efforts to include the participation of women and diversity groups within recruitment processes. Ultimately the leadership will facilitate training and capacity building opportunities for the gender and diversity groups where skill gaps have been identified (i.e.in technical jobs), proper and suitable actions are taken to ensure their representation, participation and involvement.

NMAC leadership will support the implementation of relevant best practices, regulations, and policies that support increased employment and retention in the workforce of women and diversity groups including the United Nations Gender Guidelines for Mine Action Programmes.

2) *Gender and diversity sensitive project management (identification, design, implementation and impact evaluation):*

It is the programme policy to conduct comprehensive gender and diversity sensitive/responsive project management throughout all stages of the project life cycle, UNMAS will pay attention to inclusion of gender and diversity requirements in CFPs and RFPs as required by UN guidelines. Adherents of this policy agree to mainstream gender and diversity within the project cycle management including the use of gender and diversity analysis during the initial stages. This implies a gender & diversity analysis in Mine Action and a gender (&diversity, where applicable) sensitive data collection and management. Project monitoring and evaluation mechanisms will reflect gender and diversity dimensions that are unified across the programme. Adherents to this policy will systematically apply ISAC gender markers 2a or 2b[2] as minimum criteria in the evaluation of proposals and implementation of projects in the field and are encouraged to identify additional gender and diversity-sensitive indicators in consultation with gender and diversity section and intended gender working group.

Staff who design proposals will receive training and capacity building on gender and diversity responsive project design, the project managers will receive training on gender and diversity as well as specific support from their gender and diversity sections.

Where possible, project teams will include members from different gender and diverse groups and at minimum will seek the input and perspectives of these groups throughout the project life cycle. UNMAS Programme Gender Focal Points and UNMAS Global Gender & Diversity Advisor are available to provide support on this.

3) *Consider gender and diversity in coordination mechanisms:*

[2] **2a:** The project's needs assessment identifies the different needs of men compared to women (girls compared to boys). These are articulated in **Needs** which lead logically to responsive **Activities** and related **Outcomes**.
**2b:** As a result of the gender analysis in the needs assessment, the project targets a particular group – girls, boys, women, or men – who are disadvantaged because of their sex or their gender roles. **Needs**, **Activities** and **Outcomes** focus on this specific disadvantage.

It is the programme policy to systematically consider gender and diversity in coordination mechanisms where possible through monitoring and evaluation process including Post Demining Impact Assessment and Landmine and Livelihood Survey (LLS). Staff conducting assessments should receive required training on gender and diversity-sensitive impact assessment, specifically concentrating on results-based-management RBM techniques. All operations and standard reporting forms should be mainstreamed to consider gender and diversity dimensions and to be reflected in monitoring and evaluation processes.

In order to ensure that mine action is responding to the needs of all diverse groups and genders in communities; the programme must ensure that relevant gender and diversity groups are systematically consulted during the interview, assessment, clearance, handover, LLS and PDIA processes. Depending on the context, this may involve reaching certain groups through different means of communications including at community events, through proxy's, and indirect communication methods. Mine action staff are encouraged to seek guidance from gender sections and the gender working group (ie. also the UN gender Working group), and key civil society actors, on how to appropriately consult these individuals.

4) *Establish gender and diversity sections or assign a focal point in each organization of the mine action programme:*

It is the policy of Sudan mine action programme to demonstrate their commitment to advancing gender and diversity equality within the mine action sector through sustainable support to gender and diversity sections or focal points. The sections should report directly to senior management, and the staff structure should be composed of diverse groups including men, women and people with disability/other diversity dimensions. At an overall level, the focal points or sections will engage and coordinate their actions within their organizations, with the programme as a whole and with relevant governmental bodies and United Nations agencies, under the guidance of NMAC leadership.

Gender and diversity sections or focal points are strongly encouraged to develop action plans that align with the National Mine Action Strategic Framework and design and develop monitoring and evaluation processes that measure plan achievements and take responsibility to achieve and adhere to the action plans as part of the goal 5 of the NMASF.

**6. Review Mechanisms and Consequences of Breach of Policy**

1) Regular and Scheduled Review of the Policy:

Sudan mine action programme under the leadership of NMAC top management and technical support of UNMAS agrees to review the policy on yearly basis and to adjust the contents as appropriate. The success of the policy should be measured against the implementation of the National Mine Action Strategic Framework (2019-2023) and tailored to ensure that sufficient guidance is provided so that the programme stakeholders can fulfil all the objectives outlined in Goal 5 of NMASF.

2) Evaluation of Implementation:

The Sudan mine action programme should evaluate (on a quarterly basis) the feasibility of elements within the policy as well as strategic plan activities through consultation with stakeholders and adjust guidance as needed.

3) Involvement of Related Sections and Focal Points:

The gender and diversity sections or focal points must be involved in reviews and evaluation of the implementation of this policy under the leadership of NMAC and technical support of UNMAS.

4) Reference Strategic Document:

This policy should be read in conjunction with the Sudan National Mine Action Strategic Framework (2019-2023) and UN guidelines on gender and diversity.

5) Consequences for Breach of the Policy:

Adherence to gender policy is the responsibility of NMAC and each mine action organization working under the regulation and coordination of NMAC. Breach of this policy will consequence in management actions by NMAC and will cause immediate actions as part of the contractual obligations by UNMAS and UNOPS.

**PROGRAMME POLICY ON PREVENTION OF SEXUAL EXPLITATION AND ABUSE (PSEA)**

Sexual Exploitation and Abuse and Sexual Harassment are unacceptable and shall not be tolerated within the mine action programme including NMAC and the mine action organization working in the Sudan. Prevention of Sexual Exploitation and Abuse (PSEA) is the responsibility of all staff and employees, contractors and sub-contractors working in Sudan mine action programme.

It is the responsibility of NMAC and its sub offices and mine action organizations' and their field offices and staff to ensure that the mine action beneficiaries are prevented from any types of SEA attempts by the mine action personnel and their sub-contractors throughout the mine action interventions including, survey, clearance, community liaison, explosive ordnance risk education (EORE) and victim assistance (VA).

Sexual exploitation and abuse are counted as serious criminal offenses, and NMAC as the coordination and regulating body for mine action in Sudan is committed to Zero-Tolerance in any case of SEA and sexual harassment.

Any single SEA report regardless of being suspected or confirmed shall be thoroughly investigated and appropriate disciplinary action taken by NMAC and related mine action organization against the individual committed SEA and harassment. NMAC is committed to creating and sustaining an environment free from SEA and sexual harassment that the individuals can work with peace of mind and free from any SEA and sexual harassment concerns.

**1. Core Principles**

NMAC enforces adherence to the following 6 core principles relating SEA throughout the mine action programme:

1) "Sexual exploitation and abuse by humanitarian mine action workers constitute acts of gross misconduct and are, therefore, grounds for termination of employment.

2) Sexual activity with children (persons under the age of 18) is strictly prohibited.

3) Exchange of money, employment, goods, or services for sex, including sexual favors or other forms of humiliating, degrading or exploitative behavior is prohibited. This includes exchange of assistance that is due to beneficiaries.

4) Any sexual relationship between humanitarian mine action staff and the mine action beneficiaries that involves improper use of rank or position is prohibited. Such relationships undermine the credibility and integrity of humanitarian mine action programme and the mine action services.

5) Where a humanitarian mine action employee develops concerns or suspicions regarding sexual abuse or exploitation by a fellow worker or staff, whether in the same agency or not, he or she must report such concerns via NMAC hotline process and reporting mechanism.

6) Humanitarian mine action workers are obliged to create and maintain an environment which prevents sexual exploitation and abuse and promotes the implementation of their code of conduct. Managers at all levels have particular responsibilities to support and develop systems which maintain this environment."

## 2. Zero-Tolerance Approach

NMAC is committed to apply the Zero-Tolerance Approach and to take seriously and investigate any allegation of sexual exploitation and abuse (SEA) reported. NMAC obliges humanitarian mine action workers to report any concern or suspicion of sexual exploitation and abuse. Zero-tolerance is NMAC's institutional approach by which evidence of SEA is considered gross misconduct and therefore, results in immediate dismissal. NMAC's Zero-Tolerance approach contain the following:

### 2.1. The Scope of Application of the Approach

The zero-tolerance approach applies to all staff of the mine action programme including NMAC's and the staff of mine action organizations working in Sudan. It applies to all staff at all times, including outside working hours, both inside and outside the workplace.

### 2.2. The Prohibition of Sexual Exploitation and Abuse and its Different Forms

All staff in all levels have a duty of care towards beneficiaries and communities where the mine action activities are undertaken. Mine action staff are strictly prohibited from committing any form of SEA, which constitute acts of serious misconduct. Sexual activity with children is also strongly prohibited and will not be tolerated.

Exchange of money or services, including exchange of assistance, for sex is also considered SEA and will not be tolerated.

Sexual relationships between staff and beneficiaries are strongly prohibited as they are based on unequal power dynamics or situations of inequality and dependency.

### 2.3. The Duties of Mine Action Staff

All mine action staff and contractors shall participate in the creation, establishing and maintenance of a safe environment that contributes to prevent SEA. Managers have a specific duty to ensure that the zero-tolerance approach and the PSEA policy are implemented and enforced. All mine action staff and personnel have an obligation to report any concern or suspicion regarding SEA through the NMAC hotline number and reporting mechanism.

### 2.4. The Duties of NMAC

NMAC is committed to protecting the confidentiality of staff and personnel reporting concerns or suspicions of SEA. NMAC commits to taking seriously and investigating any allegation reported to PSEA and Hotline focal point. Evidence that acts of SEA took place will result in disciplinary actions, including immediate dismissal. Perpetrators within the mine action programme will be held accountable for their actions, including a potential referral to local authorities and court.

### 3. Reporting SEA Incidents

All mine action staff and employees are strongly encouraged to report concerns about SEA. A mine action employee or staff member reporting a concern of SEA "in good faith and with no ulterior motive" will never be retaliated against, regardless of whether the claim is found to be true or not.

All claims reported by staff will be treated with the utmost confidentiality to protect complainants, witnesses and subjects of complaint and hinder the spurring of rumors that could endanger the safety or reputation of staff. NMAC will take appropriate actions to further protect complainants, witnesses and subjects of complaint from retaliation, with the free and informed consent of the complainants to ensure the safety and well-being of reporting staff.

### 4. Communication, Review and Updating PSEA Policy

The PSEA policy shall be communicated through dedicated training sessions to all NMAC HQ and sub offices including newly hired staff. The signature of the staff members shall be obtained and recorded after being trained.

The policy should be reviewed once a year and, if necessary, updated. As soon as the policy is updated, it shall be again communicated to all staff through training sessions and re-signed by all staff members.

### 5. Sexual Exploitation and Abuse (SEA) Glossary

**Accountability:** A situation in which people who are affected by decisions (staff or people of concern) are able to influence the decisions and decision-makers through questions and complaints. Accountability implies one person's right to 'have a say' and another person's duty to consider and respond.

**Allegation:** The formal complaint regarding a possible breach in the organization's Code of Conduct by a member of staff.

**Beneficiary:** A person who receives support and assistance as part of either emergency relief or development aid through assistance programmes. In terms of humanitarian mine action, a person who receives mine action services including land release, EORE, Victim Assistance and community liaisons.

**Child:** Any individual under the age of 18.

**Code of Conduct:** A set of standards about behavior that staff of an organization are obliged to adhere to.

**Complainant:** The person making the complaint, including the alleged survivor of the SEA or another person who becomes aware of the wrongdoing and reports/brings forward the allegation.

**Complaint Mechanism or Procedure:** Processes that allow individuals to report concerns such as breaches of organizational policies or codes of conduct. Examples of mechanisms include suggestion boxes, whistleblowing policies and designated focal points.

**Evidence:** Information gathered during the investigation that proves or disproves an allegation.

**Focal Point:** A person designated to receive complaints of cases of SEA.

**Risk:** The possibility of loss or harm and/or the probability of an adverse occurrence.

**Sexual Abuse:** An actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions.

**Sexual Abuse of Children:** The involvement of a child in sexual activity that s/he does not fully comprehend, give informed consent to, or for which s/he is not developmentally prepared and cannot give consent, or that violates the laws or social taboos of society.

**Sexual Exploitation:** Any actual or attempted abuse of a position of vulnerability, differential power or trust for sexual purposes, including, but not limited to, profiting monetarily, socially or politically from the sexual exploitation of another.5

**Staff Member:** A person who works for or represents an organization, whether or not s/he is compensated monetarily for such work or representation.

**Subject of the Complaint (SOC**): The person alleged to have sexually exploited or abused the victim. complaint.

**Victim:** The person who is, or has been, sexually exploited or abused. This term implies strength, resilience and the capacity to survive.

**Whistleblowing Policy:** An organizational policy which encourages staff members to report concerns or suspicions of misconduct by colleagues. The reports may concern people at other organizations and people at other levels in the organization's hierarchy.

**Witness:** Any person who gives testimony or evidence in the investigation, including the survivor, the complainant, a person of concern, a staff member of a partner agency, the subject of the complaint or another staff member.

**SUDAN NATIONAL MINE ACTION CENTRE (NMAC)**

# QUALITY POLICY

Sudan National Mine Action Centre (NMAC) supported by UNMAS is committed to ensure and continually improve the quality of mine action services so that the confidence of beneficiaries, customers, stakeholders and the Government of the Republic of the Sudan is built, their requirements have been met and exceeded, and they continually receive high quality mine action services. It is our policy to consistently promote and support the safety and security in relation to the risk and threat of Explosive Ordnance (EO) including Landmine and Explosive Remnants of War (ERW) to individuals, communities, humanitarian assistance and development stakeholders within Sudan territory which comply with the specifications laid down by mine action beneficiaries, stakeholders and interested parties according to their needs, and the requirements of Sudan National Mine Action Standards (SNMAS) and International Mine Action Standards (IMAS).

NMAC is committed to the continual improvement of its Quality Management System and all the Processes, Procedures, Policies and Standards relating to mine action services to meet the goals of the Republic of the Sudan as outlined in Ottawa Treaty that is signed and ratified by the Government.

NMAC is responsible and committed to ensure that the followings have been met:

1) All the Explosive Ordnance (EO) contaminated areas are surveyed and recorded in IMSMA.
2) Safe and clear land is handed over to the end users, beneficiaries and stakeholders.
3) Safe behavior is promoted among the people including men, women, boys and girls living within and in the vicinity of EO affected areas and communities and EO incidents are reduced throughout Sudan territory.
4) There are no post land release incidents of EO.
5) The humanitarian assistance and development interventions are supported, facilitated and safely implemented.
6) EO victims and survivors including men, women, boys and girls have access to victim assistance services enabling them to become active members of the society and benefited from the needed and comprehensive assistance including education and employment opportunities.
7) All mine action resources are managed and used effectively and efficiently and a transparent system of accountability in terms of utilization resources and donors' money is maintained.
8) Provide appropriate response to residual risk after the country and or parts of it have been announced free from known EO hazards.

The quality objectives of NMAC, as part of this policy are determined by Senior Management Team and are continually reviewed at the management review meetings on six-monthly basis. This quality policy will be reviewed annually in order to ensure its continuing suitability to NMAC functions.

Approved by:

Brigadier. Khalid Hamdan Adam Date:

## Preface to Sudan National Mine Action Standards (SNMAS)

Reference: International Mine Action Standards – website: https://www.mineactionstandards.org/

Sudan National Mine Action Standards (SNMAS) are developed based on the latest and up to date edition of the International Mine Action Standards (IMAS) and in consultation with mine action organizations accredited and working in Sudan to include Sudan mine action context specific requirements and best practices and lessons learned. SNMAS for humanitarian mine action in Sudan are essential to provide reference and the requirements to the mine action programme organizations and operators and to enable the National Mine Action Center (NMAC) to coordinate, regulate, oversee and manage mine action programme.

SNMAS cover requirements, methods or specifications mainly in three following ways:

1) The requirements, methods or specifications that are to be applied in order to conform to the standards, indicated with the term “shall”.

2) The preferred requirements, methods or specifications that are preferred to be applied and indicated with the term “should”.

3) The possible method or course of action indicated with the term “may”.

Terms and Definitions covered in SNMAS:

A complete glossary of all mine action terms and definitions is given in IMAS 04.10, which should be referred to; IMAS 04.10 is inclusive and broader in principle, covering all mine action terms and definition that are used globally including in Sudan. However, each SNMAS covers the terms and definitions used in.

The term ‘mine action’ refers to those activities which, together, aim to reduce the social, economic and environmental impact of EO including landmine, ERW and unexploded sub-munitions contamination. Mine action activities comprised of EO Risk Education, Survey and Clearance, Victim Assistance, Advocacy to stigmatize the use of landmines, and support of a total ban on Anti-Personnel Mines, and Stockpile Destruction. However, mine action and its constituent activities cannot be addressed in isolation as there is significant overlap with complementary humanitarian and developmental programmes, and in some cases with peacekeeping and peace support operations.

For better understanding and easy reference to the SNMAS, they are classified as below:

1) Planning and Prioritization.

2) Management of Mine Action Training.

3) Land Release Including Survey and clearance.

4) Quality Management System.

5) Occupational Health Safety.

6) Victim Assistance and Explosive Ordnance Risk Education.

7) Mine Action Information Management.

**Sudan National Mine Action Standards (SNMAS)**

The main purpose of SNMAS is to provide mine action organizations with references for the planning, managing and operationally conducting and reporting of mine action activities in Sudan. SNMAS have been developed using up to date IMAS, experiences gained nationally, and incorporate lessons and best practices learned from the mine action sector globally that are applicable in Sudan.

SNMAS are NOT intended to replace Standard Operating Procedures (SOPs) nor does it absolve mine action organizations from the responsibility to develop their own SOPs. SNMAS are covering requirements, methods and specifications, the SOPs should detail the procedure on how to meet these requirements, methods and specification to ensure implementing safe, effective and efficient mine action activities in Sudan.

Variations in procedures and methods of operation can be expected amongst the different mine action organizations, but all the procedures shall in compliance with SNMAS. All mine action organization working in Sudan shall be accredited and the SOPs of already accredited organizations shall be reviewed to ensure their compliance with SNMAS and the to be accredited and approved by NMAC. Organizations that do not conform to the SNMAS shall not be accredited to work in Sudan. Additionally, accredited mine action organizations that do not continue to comply with the requirements of SNMAS, their accreditation should be suspended or removed.

SNMAS are “living” document and shall be reviewed and updated annually, based on the latest changes in IMAS and new development in mine action sector. A dedicated review board is assigned by NMAC to manage and maintain SNMAS up to date with IMAS and to ensure they are maintained relevant to the current EO challenges and keep up with advances in technology.

Authorized by: Brigadier Khalid Hamdan Adam

General Director of National Mine Action Center (NMAC)

## Introduction to Sudan National Mine Action Standards (SNMAS)

### Background

The Republic of the Sudan has been affected by series of armed conflicts in the past decades which left the country widely contaminated with Explosive Ordnance (EO) including landmines and Explosive Remnants of War (ERW). United Nations Mine Action Office was established in 2002 as an integral part of UNMIS with regional offices in the North, South and Darfur areas of Sudan. With the expiration of the UNMIS mandate in July 2011, the mine action programme in Sudan has been transitioned to the national ownership under the lead role of the National Mine Action Centre (NMAC). UNMAS re-started its intervention in mine action in 2015 upon invitation of the Government of Sudan.

The Government of Sudan (GoS) ratified and become a state party to the Anti-Personnel Mine Ban Convention (also known as "Ottawa Treaty") in April 2004 and has been committed to meet its requirements. After Sudan met its obligation under Article 4 of the treaty in March 2008, by completing the destruction of all AP stockpiles, the country is left with the Article 5 obligations of removing all the anti-personnel mines in its territory. The deadline for achieving the obligation was extended until 01 April 2019; however, due to several challenges such as resumed armed conflicts and limited resources, the Government of Sudan submitted the third extension request to the State Parties, extending the deadline until April 2023, which is approved by the state parties.

To ensure that the mine action programme is capable to achieve Sudan's obligation under the APMBC and is able to effectively respond to the urgent and consistent needs of the EO affected communities, mine action beneficiaries and stakeholders, development and maintenance of National Mine Action Standards is key to successful planning, management and implementation of mine action activities in Sudan. National Mine Action Standards are also crucial for ensuring the quality of mine action services and provide framework for safety, effectiveness and operational efficiency. SNMAS also constitutes a firm base for continual improvement of the mine action procedures, methodologies, and keeping up with evolving mine action technologies.

UNMAS Sudan continues to support NMAC, providing technical advice, consultation and developing Sudan National Mine Action Standards (SNMAS) and active participation in the review board meetings.

### The Structure of SNMAS

SNMAS are comprised of the following standards:

1) SNMAS 03.01 Planning and Prioritization.
2) SNMAS 04.01 Management of Training.
3) SNMAS 05.01 to 05.04 Land Release, NTS, TS and Marking.
4) SNMAS 06.01 to 06.05 Land Release, Clearance Requirements, BAC, EOD, MDD and Mechanical.
5) SNMAS 07.01 to 07.04 Quality Management System, Accreditation, Monitoring and Environmental Management System.
6) SNMAS 08.01 to 08.05 Occupational Health and Safety Standards.
7) SNMAS 09.01 to 09.02 EORE and Victim Assistance.

8) SNMAS 10.01 Information Management System in Mine Action.

All these national standards have been developed based on the last edition of IMAS, relevant TNMAS and IATGs; in consultation with accredited mine action organizations within the Sudan Mine Action Programme. The SNMAS cover the minimum requirements for the planning, management, implementation and information management of mine action activities. SNMAS also cover requirements for Occupational Health and Safety, Quality and Environmental Management Systems.

The safety of mine action personnel and the beneficiaries is the higher priority in mine action and shall be adhered to throughout the course of mine action activities.

All the accredited mine action organizations working in Sudan shall develop their SOPs, Training Management Packages (TMPs) and policies in accordance with the requirements of SNMAS and submitted to NMAC for review and approval before being implemented as part of the mine action activities in the field. Any new tools, equipment and technology shall also be communicated in written with NMAC, including their detailed specifications, purpose of use, related procedures and TMPs, for a comprehensive review, approval and accreditation prior to their application and use.

**General Requirements**

1) The SNMAS shall be adhered to and followed by all mine action organizations working and intending to work in Sudan.

2) The SNMAS provide requirements on “what to be done”, the SOPs shall detail “how to achieve the requirements”.

3) All mine action organizations shall provide NMAC with a complete set of their SOPs in soft and hard copies written in English and translated to Arabic covering all those activities they are intending to implement, after being approved and accredited.

4) In circumstances where a mine action organization intends to use specific procedures which are not covered in SNMAS or IMAS, the organization shall submit details of the procedure to NMAC for authorizing to undertake review, test, trial and accreditation of the procedures. The specific requirement can then be added to related SNMAS and an amendment record maintained.

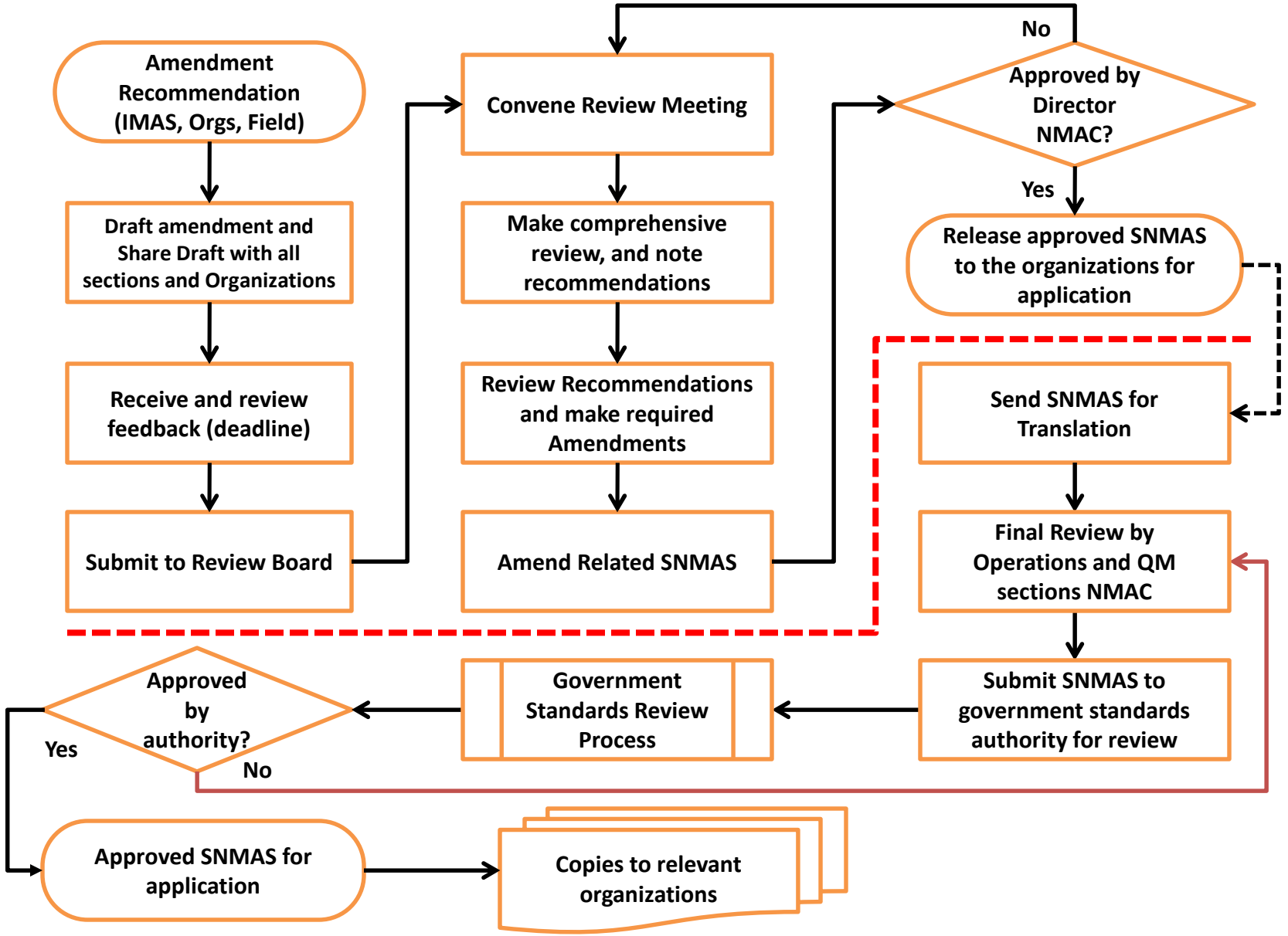
5) All mine action organizations shall establish their internal quality management system in accordance with the requirements of SNMAS 07.01.

6) NMAC shall ensure reviewing and updating SNMAS on yearly basis through the review board, however, any applicable changes or amendments in IMAS should be considered immediately after the release of amended IMAS.

7) Any amendments to the SNMAS shall be approved by the general director of NMAC and be recorded properly in the amendment record document and to be reflected in related SNMAS.

S.P/R-01/Date: Feb 2019

# Management and Maintenance of SNMAS



S.P/R-01/Date: Feb 2019

# Key Performance Indicators

- Consistency of mine action operations is maintained;
- Quality of mine action services is improved;
- Clarity in mine action activities is maintained;
- Continual improvement is ensured;
- Confidence of mine action customers and stakeholders is built.

## Sudan National Mine Action Standards (SNMAS)

### Management of SNMAS Amendment

The Sudan National Mine Action Standards are living documents and subject to a regular review and possible updating and amendment on yearly basis, however, certain SNMAS will be reviewed and updated as per the amendment of certain IMAS and any new development or request for amendments, especially for reasons of safety and operational efficiency purposes.

As amendments are made to any SNMAS, the number of SNMAS, the number of amendments, the date, details and reason for amending related SNMAS will be included in below table. The amendment number and date will also be reflected on the cover page of related SNMAS by the inclusion under the edition date of the phrase "incorporating amendment numbers 1, 2…" and will replace the previous version of the SNMAS in NMAC website www.su-mac.org.

Below table shall be used for the amendment record and be updated immediately after the amendments are made and approved by NMAC General Director or an Officer in Charge on behalf of the General Director.

As the formal reviews of SNMAS are completed new editions may be produced and issued. Amendments up to the date of the new edition will be incorporated into the new edition and the amendment number phrase on the cover page will be cleared, however, the amendment record shall be maintained.

It is expected and trusted that the members of RB will not only represent their own organization but professionally and constructively conduct the review on behalf of the mine action programme of Sudan.

**SNMAS Amendment Record Form:**

| SNMAS # | Amendment # | Amendment details, section and page. | Amendment date: |
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## Management and Maintenance of Sudan National Mine Action Standards (SNMAS)

### Background

Sudan National Mine Action Standards (SNMAS) are considered living documents, subject to changes and updating through a formal and timely review and amendment process; based on the new developments in mine action sector including changes in International Mine Action Standards (IMAS), development in mine action technology, and Sudan specific mine action requirements. It is therefore, decided by the Director of Sudan National Mine Action Centre (NMAC) to establish a formal Review Board (RB) in order to regularly review, revise and update the SNMAS to meet the requirements of mine action customers, beneficiaries, stakeholder and the Government of Republic of Sudan to meet its obligations of the International Convention of Ottawa; called Anti-Personnel Mine Ban Convention (APMBC).

The RB is mandated to officially review and recommend revision to SNMAS on a regular basis but the working period for representation on the RB is set to be for two years. It is, therefore, important and crucial for NMAC to present the structure of SNMAS RB.

It is expected and trusted that the members of RB will not only represent their own organization but professionally and constructively conduct the review on behalf of the mine action programme of Sudan.

### Introduction

The first version of the SNMAS (so called NTSGs) was finalized in 2007 with joint efforts of United Nations Mine Action Office for Sudan National and International experts, national and International Mine Action Organizations in Sudan, in accordance with International Mine Action Standards (IMAS).

Since 2007 SNMAS are further reviewed and updated, the last edition has been produced in 2011 after a review process by a committee consisting of mine action experts from NMAC, UNMAS and mine action organizations, and 26 chapters have been finalized and released to mine action organizations in Sudan for application. A comprehensive review and updating of SNMAS taken place in 2018 and 2019 and a formal RB is established by NMAC director to review and update the last changes and amendments to SNMAS in line with IMAS and Sudan specific requirements.

### Review Board Nomination Process

Initially all the Mine Action Organizations working in Sudan will be asked to nominate their representative, the list of nominees will then be circulated to them.

Each mine action organization is required to ensure a substitute is made available to attend RB meetings in the event that the initial representative is unable to fulfill his/her responsibilities for a short period of time. When this absence is for longer than two months then the organization should introduce a new representative with the same qualification and experience.

Members of the RB can make suggestions for new or additional members and can request a vote to terminate or extend a member's representation for valid reasons. Suggestion and

requests should be sent to the Chair through the secretary, by email or during the RB meeting. Additional or new members, extensions or end of membership, if not voluntary, will be put to all members of the RB by email and agreed upon by a general vote.

**SNMAS Review Board General Conditions**

The SNMAS review board (RB) is considered the highest level at which technical inputs to SNMAS are debated and agreed before being forwarded to the NMAC Director for his final endorsement. In the case where members of the RB do not reach a common agreement for a recommended amendment, then the issue should also be forwarded to the NMAC Director for his final decision in consultation with UNMAS Programme Manager.

**NTSGs Review Board Representatives**

The SNMAS review board is to be composed of the following representatives:

| | | |
|---|---|---|
| 1) | Chairman (NMAC Chief of Operations) | Insert the name |
| 2) | Member UNMAS Technical Advisor | Insert the name |
| 3) | Member UNMAS Operations Associate | Insert the name |
| 4) | 2 x members from the National Mine Action Organization GAH | Insert the name |
| 5) | 2 x member from the National Mine Action Organization JASMAR | Insert the name |
| 6) | 2 x member from the National Mine Action Organization NUMAD | Insert the name |
| 7) | Member from International Mine Action Organizations | (If available) |
| 8) | Member from the Government National Standards Authority | (tentative) |
| 9) | Secretary NMAC Head of QM Department | Insert the name |

Mine Action specialists will be consulted when dealing with the technical fields, including Mine Detection Animals, Mechanical Demining, Medical Support, EO RE and VA related standards.

**Description of Appointments**

Chairman: NMAC as national mine action authority in Sudan, in consultation with UNMAS is mandated to develop and manage SNMAS. The positions of Chair and secretary are therefore, reserved for NMAC. In absence of chair, the secretary of RB should chair the RB meetings and is authorized to nominate a person from NMAC to carry on as secretary for a temporary period.

Members: RB members, while selected as a representative of mine action organizations are expected to provide professional and productive views, opinion and recommendations as members of the SNMAS RB considering the scope of mine and ERW problems in Sudan and new changes and development in mine action sector internationally, that affect the mine action sector in Sudan.

Secretary: A secretary will also be appointed by NMAC and will be a technical and administrative member of the SNMA RB. If the secretary is absent, the RB Chair is to appoint a person among the RB members to handle secretary works for a limited period of time. If the non-attendance of the secretary goes longer than two months, the chair is to refer to the NMAC director and ask for a new secretary.

Specialist: Specialist, representing specific areas of interest within humanitarian mine action, will be considered on as required basis for a specific period. They will be invited with assisted attendance to the RB meetings. Specialists are not considered as permanent members of the SNMAS RB but can take part in the decision-making process on the specific period of time they are present in the RB meetings.

**Tenure**

All members, including the representatives of the organizations on the RB, are expected to respond the requests for comment from the Chair or Secretary and to attend RB meeting regularly. The chair reserves the right to request a member to leave the RB if there is frequent lack of response to requests for comments. If this is contested the issue will be forwarded to the NMAC director to take final decision upon.

**Working Procedures**

Normal routine RB works involve responding to requests for comments from the chair or secretary of the RB. These requests will be sent to the members through email or members are called for a meeting. If the requests for comments approach the members through email, they are expected to respond the request for comment in the same way, within a specific time frame preferably by submitting constructive comment (which can be either agreement or disagreement) and preferably, by providing alternative suggestions to the text as required. After one month, no comment will be assumed to be in agreement, but RB members can request an extension if required.

The secretary of the RB will compile and coordinate the responses and, if two thirds of the members agree or disagree, having consulted the chair, will either incorporate the changes, additional to the SNMAS or reject them. If the accepts and rejects responds are found not to complete the two thirds of the members, the secretary will call the members for a face-to-face discussion. If the face-to-face discussions also do not reach to a common conclusion and the votes will do not complete the two thirds of the quorum, then the matter(s) is referring to the NMAC director for final decisions.

**Voting/Decision making**

The decision taken at RB meeting should be based on the two thirds agreement/disagreement of all the RB members (quorum); all the attendances must vote (showing their views either in agreement or disagreement) on a subject, the votes should be counted, and the decisions should be upon the two thirds of all votes.

**Terms of Reference**

Terms of Reference for Review Board-Chairman

**Selection**

The Chairperson for the SNMAS review board is appointed by the NMAC Director in consultation with UNMAS Programme Manager.

**Responsibilities**

a. To chair the SNMAS RB meetings.

b. To report to and present RB taken decision to the NMAC Director.

c. To propose new, additional members or substitutes to the members of SNMAS RB.

d. To make sure the amendments and agreed changes are well recorded and timely communicated to all mine action organizations and NMAC regional offices.

e. To provide guidance and advice as necessary to the secretary.

f. To ensure the SNMAS, from a technical point of view, meet the requirements of Mine Action in Sudan; s/he should continually consult with the NMAC Director and UNMAS Programme Manager, brief them on the updates and if deemed necessary, propose inclusion of new issues that so far have not covered in the SNMAS .

g. To ensure that the mine action organizations continually keep their SOPs updated based on SNMAS changes and new requirements.

h. To ensure the agreed changes to SNMAS are translated to Arabic language.

Terms of Reference for Review Board-Secretary

**Selection**

The secretary for SNMAS RB is appointed by NMAC Director.

**Responsibilities**

a. To take part in SNMAS RB meetings.

b. To take minutes during SNMAS RB meetings.

c. To keep the records of RB related correspondences and submit the records of taken decision to Chairperson.

d. To amend SNMAS as per the directions of Chairperson.

e. To distribute RB related emails to all members and/or call them for a meeting if required.

f. To arrange RB meeting as per the direction of Chairperson.

g. To keep the SNMAS updated.

h. To contribute in standard formatting of SNMAS.

i. To provide technical contribution during the RB meetings.

j. To make sure the amendments and agreed changes are well recorded and timely communicated to all mine action organizations and NMAC regional offices.

k. To ensure uploading SNMAS to NMAC website.

Terms of Reference for Review Board-member

**Selection**

All the members of SNMAS review board are selected on voluntarily basis.

**Responsibilities**

a. To participate in SNMAS RB meetings.

b. To contribute technical inputs to SNMAS via email and/or in related meetings in order to meet the requirement of Mine Action in Sudan.

c. To contribute technical inputs to IMAS new chapters when requested.

d. To propose and submit constructive comments to Chairperson through secretary in order to enrich SNMAS.

e. To respond the request for comments in the same way (as requested by email or called for a meeting) within the deadline identified by secretary.

f. To submit a formal letter to Chairperson or secretary if want to resign from being member of SNMAS RB.

**Annex A to SNMAS 03.01 Planning and Prioritization**
**Hazardous Areas Impact Indicators and Scoring**

**Hazardous Areas Impact Indicators and Scoring**

The impact scoring shall be determined based on certain impact criteria and hazard blockages such as detailed and listed in below table. Other important factor to be considered is; the size of mine/ERW hazardous areas and their distance from the communities, IDP camps and health centres.

Small hazardous areas and spot ERW should also be considered as a factor in selection of impact indicator, removal of such hazards require less resource and effort, but will have higher impact including quicker removal of blockages, quicker release of communities from known mine and ERW, tangible outputs and achievements for communication and reduction in number of hazardous areas from IMSMA database. Types of devices are also impact indicator with certain scores. For each type of blockages, based on its value and importance, a specific scoring weight should be assigned. The impact indicators shall be reviewed on annual basis to ensure their continual suitability within the mine action context in Sudan. Table below shows the impact indicators and scorings:

| S-No. | Impact Indicators | Scores | Descriptions |
|---|---|---|---|
| 1 | Hazardous area with known victims in recent two years. | 3 | Any mine/ERW detonation within a known hazard which resulted in human loss or casualty |
| 2 | Water blockage. | 3 | Drinking water, irrigation systems |
| 3 | Critical infrastructure blockage. | 3 | Religious, education, cultural and health facilities, houses and markets. |
| 4 | Request from humanitarian, development sectors, approved by government, and agreed by communities. | 3 | The requested area assessed and confirmed by NMAC sub- office. |
| 5 | Agriculture blockage | 3 | Crop land, fruit farms and forest |
| 6 | Routes and roads blocking access of humanitarian aid and development interventions. | 3 | Routes, roads and, Bridges |
| 7 | Small hazards | 2 | Quick release of communities, localities and states from hazards; changes in contamination map, important for communicating achievement and progress in line with APMBC extension request, resource mobilization. |
| 8 | Community Centre | 2 | Hazard located in one km from the centre of the nearest community, cause high levels of psychological stress to the people and increase the likelihood of incidents happening. |
| 9 | AP mine and ERW affecting high number of | 2 | The possibility and likelihood of accidents become high, when the area is going to be used by high |

| | | | |
|---|---|---|---|
| | people, including IDPs, returnees, nomads and refugees. | | number of people. |
| 10 | IDPs, returnees and refugees near to hazardous Areas | 2 | If IDPs, returnees and refugees are settled within 2 km distance from the hazards, the likelihood of incidents increases. |
| 11 | Known victims beyond two years. | 1 | Any mine/ERW detonation within a known hazard area which resulted in human loss or casualty. |
| 12 | Non-agriculture blockage. | 3 | Grazing/pastureland. |
| 13 | Size of contaminated area located near to community; 50,000 Sqm and above. | 1 | May increases the likelihood of incidents. |
| 14 | Distance from health centre | 2 | Hazards located in more than 10 km distance from the health centres, can complicate the status of casualty during evacuation. |

**Annex B to SNMAS 03.01 Planning and Prioritization**
**Hazardous Areas Impact Classification**

**Hazardous Areas Impact classification based on total scores:**

The impact of mine and ERW hazardous areas shall be classified based on the total scores allocated to each hazard, as detailed in Annex A to SNMAS 03.01. The scores of assigned criteria are summed up making a total score of each mine and or ERW contaminated area. Then the total scores should be considered for classification of hazardous area to high, medium and low impact. Hazards with 10 and above scores should be classified as high impact, 5 to 9 as medium and 1 to 4 as low impact. The table below describes impact classification of mine and or ERW hazardous areas in Sudan context:

| Impact Classification | Total Score | Sudan extension request (APMBT) work plan should be updated based on impact classification. Planned For: |
|---|---|---|
| High Impact | 10 and above | Year 1 and 2 |
| Medium Impact | 5 to 9 | Year 3 and 4 |
| Low Impact | 1 to 4 | Year 5 |

**Annex C to SNMAS 03.01 Planning and Prioritization**
**Communities Impact Indicators and Scoring for EORE**

**Communities Impact Indicators and Scoring for EORE**

| S No. | Impact Indicators | Score | Descriptions |
|---|---|---|---|
| 1 | Mine and or ERW impacted communities with civilian incidents during recent two successive years. | 3 | Any community with an accident that occurred within the last two years is classified as a highly impacted. |
| 2 | Impacted community with recorded confirmed mine and or ERW hazardous areas. | 2 | Communities with known mines and or ERW hazards increase the chance of accidents. |
| 3 | Impacted Community with IDP settlement and refugees. | 3 | As IDPs apparently are not well familiar with the hazardous areas located near to the community, therefore, they will be posed to a greater threat, especially their children. |
| 4 | Community with recent armed conflicts. | 3 | Armed conflicts usually leave behind ERW; communities with recent armed conflicts are faced with threat of ERW. |
| 5 | Community with casualties aged 18 or younger. | 3 | Communities with casualties under 18 are given special priority due to the vulnerability of children. |
| 8 | Community with casualties during travelling. | 2 | Communities where accidents have occurred during travelling also need to be considered in RE prioritization. The hazardous area may not be in proximity of community, but people can again travel using the same way. The score is per casualty, not per accident. |

**Annex D to SNMAS 03.01 Planning and Prioritization**
**Communities Impact Classification for EORE**

**Communities Impact Classification for EORE**

The impact scores from the assigned criteria are summedup making a total score for weighing the level of impact.

The total scores given to an Impacted Community or population group are classified into high, medium and low impacts. Communities gaining a total score of 9 and above are classified as high impact, communities with scores from 5 to 8 classified as medium and 1 to 4 are classified as low impact.

Note: This impact classification is not applicable for Mine /ERW RE in schools and through mass media.

| Impact Classification | Total Score | Ranking |
|---|---|---|
| High Impact | 9 and above | All such communities are high priority for RE and should be planned immediately. |
| Medium Impact | 5 to 8 | All such communities are the second priority for RE and should be planned after the high priority. |
| Low Impact | 2 to 4 | All such communities are third priority for RE and should be planned after the medium priority. |

# Sudan National Mine Action Standards - SNMAS 03.01

First Edition: September 2018
Version 01

# Mine Action Planning and Prioritization

Sudan National Mine Action Centre (NMAC)
Block 21, Building 241, Mekka Street, Riyadh, Khartoum – Sudan
Website: www.su-mac.org

Contents

## 1. Introduction

Planning and prioritization are crucial aspects of mine action, effective planning and prioritization can support and lead the programme to achieve the desired and expected results and ensure that mine action activities are undertaken in compliance with National Mine Action Strategic Plan, Anti-Personnel Mine Ban Convention that is signed and ratified by the Government of Sudan (GoS), and the needs and requirements of affected communities and stakeholders. Effective planning and prioritization are based on collection, processing and analysis of reliable data and information.

Planning and prioritization in mine action require accurate and timely data and information about the type, scale and impact of mine and Explosive Remnants of War (ERW) hazards, and the importance and urgency needed in provision of adequate and appropriate responses. The source of information for mine action planning and prioritization is IMSMA which records data from non-technical survey, technical surveys, clearance, mine/ERW incidents and civilian casualties. The data from ongoing mine action activities also provides valuable inputs to IMSMA which facilitates timely analysis for upcoming planning and prioritization of mine action interventions. The planning and prioritization process effectively starts with analysis of up to date information recorded in IMSMA.

Planning includes identification and selection of the most suitable course of actions to proceed with, and formulating the detailed methodology through which mine action activities need to be carried out and appropriate response to be provided.

## 2. Scope

This SNMAS covers the requirements and guidelines for planning and prioritization of mine action activities in Sudan, in accordance with National Strategic Mine Action Plan, Anti-Personnel Mine Ban Convention (APMBC) Work-plan and obligations.

## 3. Sudan APMBC Extension Request Work-plan

Sudan ratified APMBC in October 2003, obliged to clear all known AP contaminated areas in ten years. But multiple factors have impeded compliance with the treaty and the requirement of complete removal of all known AP landmines within given period from ratification. These factors including but not limited to; under funding, insecurity and ongoing conflicts, Anti-Vehicle landmines and ERW contaminated areas with high priority for clearance, limited technology, and lack of records and maps of contaminated areas. In addition, there is possibility of new contamination due to several years of armed conflicts. In order to remove remaining mine and ERW contamination and comply with state parties approved extension request; a multi-year work-plan is mandatory. The work-plan shall be developed and properly tracked, and the progress is regularly reported to the stakeholders and APMBC state parties.

### 3.1. Management of APMBC Work-plan

Management of APMBC Work-plan shall include, but not limited to:

1) Covering the entire period of the extension request, in the work-plan.
2) Including and arranging all recorded hazardous areas, based on their impact, priority and accessibility.
3) Regular review and updating based on new information, including land release progress and new survey data.

4) Providing stakeholders and state parties with up-to-date information, about:
    a) The progress and achievements.
    b) New hazardous areas as a result of ongoing survey activities.
    c) The main challenges that the SMAP is facing with, and their possible solutions.
    d) Analysis of resources available and resources needed.
    e) Identification of required technical supports including equipment.
5) Maintain IMSMA up to date to ensure provision of timely information to the stakeholders.

The progress of land release and annual achievements shall be communicated with all stakeholders including state parties, UNMAS, donors and the government of Sudan.

Certain impact indicators are set out for the mine/ERW hazardous areas. Each indicator is scored based on the level of its impact. The allocated scores shall be summed up and the ultimate level of impact of the individual hazardous area identified as high, medium and low. Refer to Annex A of this SNMAS for further details.

To ensure proper tracking, reporting and communicating the progress and achievements; the annual operational plans shall be developed based on the APMBC work-plan.

NMAC should undertake and convene regular biannual reviews of the work-plan and annual operational plan and analyse the progress to ensure that the programme is on track of achieving APMBC deadline. The review should include but not limited to:

1) Analysis of progress and achievements.
2) Adding newly surveyed and approved mine and ERW hazardous areas to the work-plan.
3) Removing closed and cancelled hazardous areas from the work-plan.
4) Updating the issues of access and security situation concerning each hazardous area.
5) Available resources and resources needed.
6) Challenges including access, security, technical and seasonal effects.
7) Action plan to overcome challenges.
8) Outlining the aspects where international support is needed including financial resources.

The findings of reviews and planned actions should be documented, shared with all stakeholders including state parties, recorded and followed up by NMAC with technical support of UNMAS.

IMSMA plays crucial role in provision of timely information with all stakeholders. IMSMA shall be well managed and maintained up to date with mine action data and records. All the cleared, released and cancelled mine and or ERW hazardous areas shall be closed in IMSMA and removed immediately from the work-plan. New data about the hazardous areas shall also be updated in IMSMA and updated in work-plan.

### 3.2. Changes in Impact Scoring of Recorded Mine/ERW Hazardous Areas

The APMBT work-plan shall be maintained flexible to adopt necessary changes based on new information and priorities; the new NTS information, donors and stakeholders' requirements shall be considered. Impact scores should be updated when an impact indicator requires to be changed, new scores should be applied, and the impact level of related hazardous area shall be updated. The following factors should be considered:

a) Accident: Mine or ERW recent accident within recorded mine/ERW hazards and/or because of the recorded hazards, regardless of accident on human, animal or involved damage to vehicle or

property. Such accident reports should be verified and confirmed by NMAC Sub Office through all possible means and should acquire three additional scores for each accident.

b) Requests for hazardous area clearance: Community or humanitarian aid organization or local authority submits request for removal of mine and or ERW hazards. Such requests and related hazards should be verified and confirmed by NMAC SO; should acquire two additional scores.

c) IDPs Movement and Camping: Location of IDPs camps and also their movement within 1 km zone of the mine and or ERW hazards pose a direct risk to them, therefore, such hazards should be given two additional scores. Information about IDPs camps may be received from UNHCR and related ministry and councils in related state. NMAC IMSMA and Information Management section should assess the location of IDPs and their proximity to hazards.

d) Health Centre: Health Centres provide immediate first aid assistance and casualty stabilization services to the mine/ERW victims, therefore, their availability close to mine/ERW hazards reduces and prevents the complication of accidents on casualties. Inverse, far away location of health centres or absence and lack of health centres can result in increasing the risk of more complications and threat to the life of victims. Based on this fact, a distance of 20 km is accepted the maximum. Hazards with more than 20 km distance from the health facility should get additional one score. Update information about the location and capacity of health centres should be obtained from the Ministry of Health on yearly basis by NMAC Sub Offices.

e) Resurvey: The recorded hazards are subject to resurvey to update their status, in case of any changes in terms of blockage, population and or other factors that affect the level of impact; the hazards should be updated and scored in accordance with new changes.

### 3.3. Hazardous Areas Impact Classification

The impact scores from the assigned criteria are summed up making a total score for each hazardous area. Based on the total scores, each hazardous area should be classified either high, medium or low impact. See Annex B to this SNMAS for further details.

### 3.4. Prioritization of Hazardous Areas within APMBC Work-Plan

All the hazardous areas should be prioritized and arranged in a logical sequence within the work-plan and the priority system should be based on the level of impact of hazardous areas. The following should be applied:

1) Mine/ERW hazardous areas should be arranged based on their impact scores from high to medium and low. All the hazardous areas with high impact should be ranked in priority one, the hazardous areas with medium impact as priority tow and those with lower impact as priority three.
2) Donor preference should also be considered as a factor in prioritization of the hazardous areas in related states and localities; this will help NMAC to comprehend funding opportunities. Such hazardous areas should be prioritized and planned for the year that donor confirmed to provide funds.
3) All hazardous areas located in accessible and secure areas should be sorted out based on their importance, in the early years.
4) Those located in inaccessible and insecure areas should be sorted out based on their importance, in later years of the work-plan.

#### 3.4.1 Mine/ERW Hazards Prioritization in the Field

Mine action organizations shall consider the priority of communities when prioritizing land release operations in a community, NMAC Sub Office shall also be consulted about the priorities of the communities. There may be situation where communities require certain hazardous areas to be replaced with already planned ones. In this case, the mine action organization shall communicate the issue with NMAC Planning department and Sub Office, once all agreed, the "Requirements of Hazards Amendment" as describe in section below shall be applied and priority hazards included in the task order.

### 3.5. Requirements of Hazards Amendment

There may be situation where new priorities are emerged or the ongoing operations need to be suspended, in such a case, mine action organization shall inform NMAC sub office, request changing the task/hazard or suspension of the ongoing task. As soon as agreed, and approved by NMAC, the organization/team shall complete related documentation and submit them to the NMAC Sub Office and IMSMA. NMAC Operations should immediately manage and issue new and amended task order to related organization in order to avoid any delay in land release operations. The amended and up to date hazards list should be issued to related organization for better planning of land release operations.

## 4. Planning and Prioritization of Mine/ERW Risk Education and Victim Assistance

### 4.1. Mine and ERW Risk Education

Planning and prioritization of M/ERW RE education require assessing the most suitable approaches that will be needed. RE delivery shall be assessed to ensure that the most at-risk group of the people and then the entire population within impacted communities including men, women and children are covered. The RE approaches could be through delivering RE sessions to the at-risk group within communities, refugees' camps and IDP settlements. Involvement of government related Ministries including ministry of education, ministry of health, ministry of social welfare, needs to be assessed in delivery of RE. RE through mass media, demining personnel and other humanitarian entities could also be effective options to be assessed for planning purpose.

RE through direct sessions shall be prioritized based on the level of impact of mine and ERW hazards on the communities on a logical sequence. NMAC MRE department shall obtain mine and ERW impact data from IMSMA database, followed by a prioritization and planning exercise in consultative process with NMAC planning section and MRE organization. The following sequence should be considered as minimum requirements of RE prioritization:

a) Communities with high impact, with no RE record;
b) Communities with high impact and less than 50% of population received RE;
c) Communities with medium impact, with no RE record;
d) Communities with medium impact and less than 30% of population received RE;
e) Communities with low impact, with no RE record; and
f) Communities with low impact with RE record.

Mine/ERW RE through IDPs and refugees should be prioritized in consultation with related government ministries and UNHCR and RE organizations. For effective planning and prioritization, the following criteria and scoring process should be applied:

1) Mine/ERW impacted communities with civilian incidents during recent two successive years should get 3 scores.

2) Impacted communities where 75% of accidents cause by ERW should get 3 scores.

3) Communities with IDP settlement should get 3 scores.

4) Communities with recent conflicts seem to be contaminated with ERW and should get 3 scores.

5) Communities with recorded landmine hazards should get 2 scores.

6) Communities with past casualties of age under 18 should get 2 scores due to the vulnerability of children.

7) If the distance of hazardous area from the community is around 1 km, such communities should get 1 score.

8) The score 9 and above, should be considered as high impacted communities, 5 to 8 medium and 1 to 4 as low impacted communities for the prioritization of RE activities.

NMAC Planning department in consultation with M/ERW RE department and technical support of UNMAS shall arrange the list of high priority mine/ERW impacted communities for RE activities. See section 5 for annual operational planning.

RE organizations may need to replace certain planned communities with unplanned ones where urgent need of RE is deemed necessary. The proposed changes shall be shared with NMAC Sub Office and MRE department for approval. NMAC M/ERW RE department should consult planning, program and UNMAS program section and then to endorse or deny stated changes, communicate the final decision to related organization.

### 4.2. Planning and Prioritization of Victim Assistance (VA) Activities

Planning and prioritization of Victim Assistance activities shall be started at minimum 3 months in advance to next operational year. This process should be started by NMAC Victim Assistance department through analysis of IMSMA VA data; assessing the needs of mine/ERW victims. This process shall take place in consultation with NMAC planning and program departments, VA organization, UNMAS and related government institutions.

## 5. Development of Annual Operational Plan

As per the completion of updating the APMBC work-plan; the annual operational planning process shall be started, at least three months in advance to the coming operational year. NMAC planning department in consultation with operations and technical support of UNMAS shall review the up to date hazard list of the APMBC work-plan and select the high impacted hazards for annual land release operational plan.

Planning department shall also consult MRE and VA departments for related priorities and come up with comprehensive lists of VA and MRE priorities separately. The priority lists should then be shared with NMAC Sub Offices, mine action organizations and related stakeholders for their review and feedback. The priority aspects for each mine action intervention shall be considered in annual operational plan.

The annual operational plan shall at minimum be comprised of below aspects:

a) Introduction and background information about mine and ERW problem in Sudan;

b) The purpose and objectives of the operational plan;
c) The current scope and impact of mine and ERW problem;
d) Planned activities for the operational year, including survey, land release, MRE and VA;
e) Quality management of mine action services, capacity development, improvement, advocacy efforts, meetings and workshops.
f) Funding status, available and required;
g) Challenges, risks and risk management strategy as part of the operational plan; and
h) Related annexes.

The annual operational plan should then be shared with all stakeholders for their review and feedback. The finalized and approved annual operational plan should be uploaded to NMAC website and shared with mine action organizations for implementation. The plan can provide valuable inputs and be used as reference for annual report. NMAC operations department shall track the progress of operational plan through planning department and Sub Offices.

**Annex A to SNMAS 04.01 Training and Sessions Objectives**

## Mine Action Training and Sessions Objectives

**Training Objective:**

1. ABC…….

**Session Objectives:**

1.1. Abc……..
1.2. Def……
1.3. Ghi……
1.4. Klm…….

**Training Objective:**

2. ABC…….

**Session Objectives:**

2.1. Abc……..
2.2. Def……
2.3. Ghi……
2.4. Klm…….

**Training Objective:**

3. ABC…….

**Session Objectives:**

3.1. Abc……..
3.2. Def……
3.3. Ghi……
3.4. Klm…….

**Annex B to SNMAS 04.01 Training Sessions Plan**

## Mine Action Training Sessions Plan

**Training:**

**Objective:**

**Training session:**

**Date of session:**

**Time for session:**

**Location:**

**Number of trainees:**

| Time | Method of Lesson | Contents and Activity of Lesson | Teaching Points | Equipment/Support | Reference |
|---|---|---|---|---|---|
| | | | | | |

**Annex C to SNMAS 04.01 Training Testing Plan**

## Mine Action Training Testing Plan

**Training:**

**Objective:**

**Date of Test:**

**Time for Testing Session:**

**Location:**

**Number of Trainees:**

| Time for Testing | Conditions for Testing | Result Statement | Remarks |
|---|---|---|---|
| | | | |

# Minimum Requirements of Formal Mine Action Training Courses

## 1. Mine Action Training Management Package (TMP)

A TMP is a set of documents that provide all the information necessary to run formal training. At minimum, the following aspects shall be considered as part of mine action TMPs:

1) The name and title of the training;
2) Training, session and lesson objectives;
3) Set of session plans and schedule;
4) Description of activities and practical exercises;
5) Practical exercises duration;
6) Training testing tool, pass and fail criteria;
7) Power point presentations and handouts;
8) List of training equipment;
9) List of training aids and facilities;
10) Reference materials; and
11) Training administrative procedures.

A comprehensive TMP should permit a trainer to efficiently and effectively plan and deliver formal training and at the same time provide a concise overview of the entire training program.

## 2. Contents of Formal Mine Action Training Courses

The minimum subjects to be covered as part of formal mine action training courses shall include, but not limited to the following:

### 2.1. Non-Technical Survey training:

1) NTS background in Sudan.
2) Importance and purpose of NTS.
3) Terms, definitions relating to NTS.
4) SHA and CHA criteria, including direct and indirect evidence.
5) Evidence-based decision making.
6) NTS outputs.
7) Cancellation procedure and reporting.
8) Non-technical survey methodology.
9) Initial screening of information.
10) NTS planning.
11) Sources of information.
12) Assessment and classification of sources of information
13) Dividing hazardous areas to manageable tasks.
14) NTS tools including GPS, compass, range finder, stationery and marking materials.
15) Measurement and mapping in NTS.
16) NTS documentation and reporting.
17) Quality assurance in NTS.
18) Community liaison.

19) Interview techniques.
20) NTS marking.
21) IMSMA hazard form and reporting.

### 2.2. Technical Survey Training:

1) What is technical survey.
2) Purpose of technical survey.
3) Technical survey terms and definitions.
4) Technical survey requirements.
5) Principles of technical survey.
6) Conduct of technical survey.
7) Technical survey information and recommendation.
8) Role of technical survey in land release.
9) Technical survey methodology.
10) Technical survey assets.
11) Targeted investigation.
12) Systematic investigation.
13) Fade out technical survey.
14) Outside in technical survey.
15) Full coverage technical survey.
16) Technical survey outputs.
17) Area reduction by technical survey.
18) Technical survey documentation.
19) Technical survey mapping.
20) Area calculation.
21) Technical survey requirements.
22) Technical survey forms and reporting.

### 2.3. Basic Demining Course

1) The history of mine and Explosive Remnants of War (ERW) in Sudan.
2) Recognition and understanding mines, including AP blast mines, AP fragmentation mines, AT mines and directional mine that are used in Sudan.
3) Recognition and understanding of fuses;
4) Recognition and understanding of ERW;
5) General information about Booby Traps;
6) Recognition and understanding of mined areas and areas contaminated with ERW.
7) Importance of Mine and ERW clearance.
8) Detector used in demining operations in Sudan, including those used for mine clearance and those used in BAC operations.
9) How to use detectors both in theory, practical for preparing a detector and practical use of detector;
10) Identifying signals, in theory and practical;
11) Prodding and excavation to investigate detected signals;
12) Marking of clearance lanes;

13) Minefield and battlefields marking system, including control markers, boundary marking, clearance lane marking and clearance marking;
14) Methods of manual clearance, including use of tripwire feeler, detector sweep, pinpointing and investigation;
15) Vegetation removal and burning vegetation;
16) Protective Equipment and their use in demining operations;
17) Demolition including single item demolition;
18) Electrical and nonelectrical demolition;
19) Demolition protective work, protective trench and sandbags wall;
20) Deminers tools and equipment.
21) Site setting out and safety, including admin area, parking area, explosive storage area, metal pits and control points;
22) Medical support and first aid;
23) Demining worksite communication;
24) Explosive management;
25) Camping.

### 2.4. Demining Leadership Training

1) Duties and responsibilities of a demining and survey team;
2) Duties and responsibilities of team command and control group;
3) Mine action organization administrative forms;
4) NMAC approved IMSMA forms;
5) Minefield and battlefield measurement and mapping;
6) Use of GPS and recording coordinates;
7) Establishing a demining worksite, control markers and marking system;
8) Establishing baseline and identification of high and low threat areas;
9) Deployment of the team to the task;
10) Control point and supervision;
11) Elements of command and control at the worksite;
12) Safety and discipline in a demining worksite;
13) Medical support and positioning medic and first aid kit;
14) Importance and use of safety equipment including PPE;
15) Maintaining and essential of communications;
16) Leadership skills, control and managing demining operations;
17) Supervision and monitoring of deminers during operations;
18) Routine quality control;
19) Maintaining records including team member attendance, daily progress, quality control, explosives, faults and shortfalls, correction and on the spot remedial;
20) Demolition and its safety aspects, establishing local CDS;
21) Identification of Safe-to-Move and Unsafe-to-Move ERW;
22) Explosive management in worksite and basecamp;
23) Task dossier and its contents;
24) Community liaison and its importance;
25) Camping and maintenance of health and hygiene;
26) Environmental protection;
27) Maintaining quality of demining and survey operations;

28) Reporting, completion and handing over.

### 2.5. Explosive Ordnance Disposal Level 1

1) Introduction to Mine Action
2) Introduction to EOD operations
3) Introduction to UXO, AXO and ERW
4) Explosive Theory and Safe Handling of Explosive Ordnance
5) Safety Precautions
6) Fuse Arming Forces
7) Land service ammunition and fuses
8) Landmines used in Sudan
9) Booby traps
10) Sub-munitions or cluster munitions
11) Air dropped weapons - bombs
12) General transportation, storage, and safety of explosives
13) Medical support and first aid
14) Methods of Disposal single item disposal
15) Introduction to demolition material
16) Dispose of explosive ordnance – Charge placement
17) Search and EOD Equipment and Demonstration
18) Battle Area Clearance – Methodology
19) Protective Works
20) Explosive Ordnance Identification
21) BAC task planning
22) Basic Demolitions – Initiating Sets, Priming and Firing Systems
23) EOD Task management and final disposal – inert ordnance
24) EOD Task management and final disposal – live ordnance

### 2.6. Explosive Ordnance Disposal Level 2

In addition to the topics covered under the EOD Level 1, the EOD Level 2 shall including below subjects:

1) Introduction to Mine Action
2) Introduction to EOD operations
3) Explosive Theory and Safe Handling of Explosive Ordnance
4) Booby traps and improvised ammunition
5) Sub-munitions or cluster munitions and cluster munitions site management;
6) Guided Weapons
7) EOD Reconnaissance
8) Identification and safe transportation of Safe-to-Move ERW
9) ORDATA – Collaborative ordnance data repository
10) Medical support and first aid and CASEVAC
11) Methods of Disposal of EO
12) Multiple items disposal
13) Management of CDS
14) Post demolition procedures
15) Electric and non-electric charges and charge placement

16) Details about demolition material
17) Initiating Sets, Priming and Firing Systems
18) Management - risk analysis and mitigation
19) Movement of explosive ordnance
20) Battle Area Clearance and worksite preparations and management
21) Implement Protective Measures
22) Protective Works in EOD operations and demolitions
23) Explosive Ordnance Identification and classification
24) EOD Reconnaissance in destroyed ammunitions depots
25) BAC task planning and operations
26) EOD and BAC task completion and reporting

### 2.7. Explosive Ordnance Disposal Level 3

In addition to the topic covered in EOD Level 1 and Level 2, EOD Level 3 shall cover below subjects:

1) Maritime EO - generic
2) Liquid propellant fueled EO - generic
3) Chemical EO – generic
4) Biological EO – generic
5) Fuel Air Explosive (FAE) systems
6) Disposal by Burning
7) HME handling protective measures
8) Management of mixed item logistic demolitions
9) Understand generic management requirements of Level 3+ EOD operations
10) Employing Electronic Counter Measures (ECM);
11) Safety implications of using ECM.
12) Safely use ECM
13) Hazards associated with guided weapons
14) Hazards associated with HME
15) Potential risks during EOD operations;
16) Acceptable levels of risk;
17) Methods for minimizing risks;
18) Planning and management of EOD operations;
19) Different methods of confirming correct locations;
20) Collection and analysis of information including feedback and progress reports;
21) Render safe' or 'final disposal' procedures.

### 2.8. First Aid Training Course

1) What is first aid, what are the responsibilities of the first aid provider, communicating with a casualty, reassurance techniques, calling for help Minimum Time Period of first aid response.
2) Principles of First Aid.
3) Immediate Control of Life Threats: Danger, Response, Airway, Breathing and Circulation.
4) Basic Airway Maintenance and Respiration.
5) Management of A Choking Patient.

6) Signs and Symptoms of choking, airway clearance techniques using finger sweeps, back slaps.
7) Techniques for single and two responders for CPR as a minimum
8) Emergency CASEVAC
9) Hyperthermia, Hypothermia prevention use of blankets.
10) Mine or ERW blast injury and bleeding control.
11) Management of Bites and Stings.
12) Health and Safety.
13) Safe Lifting, prevention of Back injury, Safe Lifting techniques.
14) Health and Hygiene.
15) First aid to a choking patient
16) Bleeding Control, using pressure point, pressure dressings.
17) CPR Practical, single responder and two responder CPR techniques using the DRABC approach.
18) Safe lifting techniques.
19) Safe ambulance and (where appropriate) helicopter approach, loading and transport of a casualty.
20) Assisting the Medic.
21) Practical CASEVAC exercise conducted in training area.

### 2.9. Paramedic Refresher Training Course

1) Background and nature of demining operations.
2) Demining worksite and paramedic locations.
3) Medical kit and first aid kit.
4) Roles and responsibilities of paramedic in a demining team.
5) Demining team's medical support.
6) Communications requirements.
7) Ambulance, CASEVAC and MEDEVAC.
8) Minimum Time Period for provision of response.
9) Principles of First Aid and casualty stabilization.
10) What is first aid and casualty stabilization, what are the responsibilities of medic, communicating with a casualty, reassurance techniques, calling for help.
11) Immediate Control of Life Threats: Danger, Response, Airway, Breathing and Circulation.
12) Basic Airway Maintenance and Respiration.
13) Head positioning, placing a casualty in the recovery position, jaw thrust technique for suspected spinal injury.
14) Expired air resuscitation, Bag Mask Ventilation.
15) Management of A Choking Patient.
16) Signs and Symptoms of choking, airway clearance techniques using finger sweeps, back slaps.
17) Cardiopulmonary Resuscitation Theory.
18) Techniques for single and two responders for CPR as a minimum
19) Emergency CASEVAC
20) Heat Disorders
21) Hyperthermia, Hypothermia prevention use of blankets.
22) Mine or ERW blast injury and bleeding control.

23) Burn injury, first aid and dressing.
24) Management of Bites and Stings.
25) Health and Safety.
26) Safe Lifting, prevention of Back injury, Safe Lifting techniques.
27) Health and Hygiene, disease prevention measures.
28) Helicopter safety and HLS requirements
29) Airway Management, placing a casualty in lateral position, jaw thrust, chin lift, first aid to a choking patient.
30) Ventilation Practical, expired Air Ventilation and Bag Mask ventilation.
31) Bleeding Control, using pressure point, pressure dressings.
32) CPR Practical, single responder and two responder CPR techniques using the DRABC approach.
33) Fracture and dislocation first aid, using splints, slings.
34) In line spinal immobilization, use of head block.
35) Safe lifting techniques.
36) Safe ambulance and (where appropriate) helicopter approach, loading and transport of a casualty.
37) Medic assisting process by deminers and team members.
38) Practical CASEVAC exercise conducted in training area.

# Sudan National Mine Action Standards – SNMAS 04.01

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## Management of Training

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Contents

## 1. Introduction

Training is one of the important requirements in mine action sector that enables employees to undertake and perform their assigned activities and tasks effectively, and to achieve organizational goals and objectives. Training plays a crucial role in building and development of the capacities that are essential for successful organizations and the programme. Provision of mine action trainings to the employees and staff with higher optimum standards can result in delivery of high quality mine action services, outputs and products, achieving expected results, and building the confidence and satisfaction of customers and stakeholders.

Training can be carried out in two ways, the formal and informal or on-the-job training (OJT). All the training programs require to be managed and provided based on the need assessment, both organizations and programme needs and the staff and individual needs.

On the job training is normally carried out with small numbers of staff or on a one-to-one basis. It tends to be on-going and provided on an 'as required' basis by the senior staff. Formal training is normally delivered to a group of trainees over a finite period of time. Formal training should be directly conducted by mine action organizations based on specific Training Management Packages (TMP) that are approved or developed by NMAC.

Training should mainly be undertaken and delivered based on confirmed needs, the training needs can be confirmed through an assessment as part of the capacity building plan of a mine action organization and or based on organizational needs to hire and train certain people to undertake and perform certain tasks, activitiesand jobs. A Mine action organization may need to expand its demining capacity and hire more people for a demining job,and properly train them before their deployment; which is organizational need, however, the training programs for capacity building of the current staff should be based on individuals' needs that are assessed objectively in accordance with their current and possible future roles and responsibilities and as part of the continual improvement within the organization.

Once the training needs are assessed, the trainings shall be planned properly and delivered by qualified trainers that are certified,and the Training Management Packages are approved by NMAC Sudan. When conducting trainings, the specific needs of students including gender and diversity issues should be fully considered by Sudan Mine Action Programme (SMAP).

## 2. Scope

This SNMAS provides standard guidelines for the managementof mine action trainings; including training need assessment, planning, convening, monitoring and evaluation of the mine action training programs in Sudan. The mine action training programs include Basic Demining and Explosive Ordnance Disposal (EOD), Land Release (Non-Technical Survey and Technical Survey, Marking and Clearance), mine and ERW Risk Education (MRE) and Quality Management in Mine Action trainings.

## 3. References

The main reference for this SNMAS is the IMAS 06.10for the Management of Training.

## 4. Terms and Definitions

For details on mine action related terms and definitions, refer to IMAS 04.10 and SNMAS 07.01.

## 5. General Requirements

To ensure the quality of,and the expected results and outcomes from mine action training programs, the following requirements shall be considered within Sudan Mine Action Programme (SMAP):

1) All mine action training courses shall be based on a Training Needs Assessment (TNA);
2) The training sessions shall be delivered by suitably qualified trainers that their capacity have been verified by NMAC;
3) All the training courses shall be properly designed and developed, and guided by comprehensive Training Management Packages (TMP), the training administration procedure shall be part of the TMPs;
4) All the necessary training coursesshould be included in annual planning as part of the capacity building/development interventions;
5) All the training aid materials and facilities shall be available before starting any mine action training courses;
6) All mine action organizations shall submit their TMPs to the NMACQuality Management (QM)department for review and approval prior to any training taking place;
7) All the training courses especially the ones that are delivered as part of the accreditation process to be monitored by NMAC; and
8) The evaluation results of the mine action trainings course shall be made available to NMAC QM department.

## 6. Training Needs Assessment (TNA)

The main purpose and objective undertaking training for mine action staff is to acquire basic and enhance existing knowledge, skills, and competencies to properly fulfill the duties and responsibilities assigned to them. All mine action organizations working in Sudan shall know the need for training they undertake. However, there may be situations that new funding opportunities come across and mine action organizations need to expandtheir current capacity; hire more people and convene training that were not originally planned.

When the training need is not known at the beginning of operational year; mine action organizations shall carry out a TNA prior to planning, developing and conducting any mine action training courses. The TNA will help the organizations to:

1) Confirm whether training is needed;
2) Determine content and scope of the training;
3) Plan and deliver training courses more objectively;
4) Determine desired training outcomes;
5) Establish a basis for measuring success in performance;
6) Determine causes of poor performance in the organization; and
7) Gain management support.

The TNA can be undertaken through different methods including:

a) Questionnaires that are designed in a consultative way;
b) Focus group discussions considering the TORs and division of responsibilities;
c) Interviews with staff members;
d) Analysis of individuals' performance evaluation.

The need for training shall be based on the actual requirements of the trainees in the training, and on the organizational context in which they are to apply what they have learned.

Actual requirements' refers to the Knowledge, Skills and Attitudes (KSA) required to perform the job properly and with achieving optimum and desired results.

TNA helps the organizations to analyze which performance issues are caused by a lack of KSA on the part of a staff member, and which are due to constraints in the organizational context.

Those caused by a lack of appropriate KSA on the part of staff members can be addressed through training (Individual Capacity Building/Development), whereas those caused by constraints in the organizational context shall be addressed through "Institutional Capacity Development" which include but are not limited to:

1) Developing division of responsibilities within organizations; this will help different departments to understand their role in achieving organizational goals and objectives and their interaction and working interlinks with other departments and functions;
2) Developing and improving individuals' Terms of Reference (TOR) or Job Description;
3) Developing and establishing working processes and their interactions and key performance indicators;
4) Developing working procedures and instructions;
5) Developing policy and strategy; and
6) Properly communicating them to all staff members.

A TNA should follow the following steps:

1) Organizational Analysis

This analysis should consider the major organizational performance issues and the expected contribution the training is to make. From this analysis it should be clear which issues can be dealt with through training, and which require a change in the functioning of the organization, such as a change in strategy, staffing or management system and processes and procedures. If the TNA indicates that performance is being limited by issues within the organization, the organization shall initiate a plan for addressing these issues and bring required changes.

If the TNA indicates that training can contribute to increasing organizational performance, the organizational analysis shall indicate individuals and their positions.

2) Task Analysis

This step is about identifying performance discrepancies and audits individual position's skills, and should involve the following:

a) A detailed review of the TORs, duties and responsibilities of each position;
b) Determination of the separate tasks to fulfill the duties, and responsibilities;
c) Determination of the knowledge, skills and attitudes (KSA) required for each of the tasks;
d) Determination of the current level of KSA of each staff member in positions for which performance needs to be enhanced.

The result of the task analysis shall be a summary of tasks and related KSA required for a staff member to satisfactorily fulfill the duties and responsibilities.

3) Identify Training Needs

This step involves determination of required KSA and results in a formulated TNA. The training needs should be formulated based on the difference between 'what staff is doing now' and 'what is

expected from them to be doing to properly fulfill the duties and responsibilities, considering organizational goals and objectives.

The resulting training needs shall be properly documented covering a larger and overarching training needs, such as 'How to conduct land release operations', but should also be broken down into smaller training needs; including:

a) How to undertake non-technical survey;
b) How to properly collect data from the informants;
c) How to conduct technical survey;
d) How to conduct clearance; and
e) How to operate current metal detectors safely'.

After the TNA has been completed, and if training is found to be the suitable response to the performance issues, the training shall be designed and developed as part of a comprehensive TMP and delivered.

## 7. Training Design and Preparation

### 7.1. General

To properly design and prepare the training, the following shall be met:

a) Decide what type of training will best meet training needs;
b) Establish objectives for the training, sessions and lessons;
c) Design session plans; and
d) Decide on a method of training delivery; and
e) Decide on method for evaluating the training and the training outcomes.

### 7.2. Types of Training

In the context of mine action, training may be classified as on-the-job training (OJT), formal training in the form of either basic, refresher or continuation training.

#### 7.2.1 On the Job Training

OJT is normally ongoing and facilitated while the staff member is carrying out duties and responsibilities appropriate with their current level of KSA. OJT does not require the complete range of training design, however, training objectives should be established, and a way to assess whether the objectives of the training have been achieved.

#### 7.2.2 Formal Training

Formal training within the context of mine action is normally delivered in the form of a training course, to a group of trainees, for a finite period, often in a location away from an operational worksite. Formal training should be designed and prepared according to the five tasks in Clause 7.1. Three levels of formal training are discussed below:

1) Basic training

Basic training aims to give a staff member the KSA required for each of his/her tasks to be satisfactorily carried out. This type of training is applicable for newly recruited staff like a basic demining course for newly recruited deminers.

2) Refresher Training

Refresher training aims to update andor maintain KSA levels over time. This training can be used on a regular basis, after periods of stand-down from a task or when there are signs that KSA levels have dropped. These signs may be identified through monitoring and inspection or as a result of an incident.

3) Continuation Training

Continuation training is training that builds on previous training and provides additional KSA. This type of training is applicable when there are changes to procedures and equipment or when staff members are being given additional skills to advance their careers. The decision to choose one level of training over the other should be informed by the training needs and by:

a) The position, tasks and related KSA;
b) The number of trainees involved; and
c) The availability of trainers, training equipment and facilities, and financial resources necessary to design, prepare and deliver the training.

### 7.3. 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. They serve to guide the design of the training content and methods and provide a means against which the results of the training can be compared. Training objectives should be based on the training needs established by the TNA, and describe the KSA a trainee should gain as a result of training.

Each training objective should be then 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. For example: for the training objective, 'facilitate mine/ERW community mapping with affected communities', three session objectives can be formulated; one related to knowledge, second related to skills and the third relating to attitudes.

Attitude objectives should be used where there is a need for trainees to conform to certain standards of behavior, such as for example safety. Attitude objectives cannot be tested, they can only be assessed. For a training subject such as safety there should be two complementary enabling objectives. The first would involve an understanding of safety requirements, which can be tested but the second, the attitude objective, would involve 'demonstrating' an attitude towards safety. There could be some specific indicators provided for 'safe' and 'unsafe' behavior and criteria for passing and failing, but the assessment would involve observing trainees throughout training to ensure that they do demonstrate safe behavior. See Annex A for an example of tasks, training and session objectives for a basic demining training course.

In addition to designing training and session objectives, individual lesson objectives that focus specifically on one or the other KSA should be developed. These objectives should be equally specific and measurable and their design should adhere to the same rules as training and session objectives.

Objectives should be numbered in a logical sequence taking into account which objective is a prerequisite for another. See Annex A as an example of a logical numbering system.

### 7.4. Session Plan

Training should be broken down into a number of sessions, and the sessions should be developed with clear session plans arranged in the order in which they should be delivered. Sequencing should be logical to ensure that any sessions that are a prerequisite for next ones, are arranged appropriately.

Session plans provide much of the detail required to run the training and permit trainers to prepare and satisfactorily deliver each session. See Annex B to this SNMAS for a session plan.

### 7.5. Training Test

The last step in preparing for the training should be the development of training test. The training test should be applied at the end of the training. For practical tests or on-the-job assessments, the conditions should be safe and as close to the conditions a trainee could expect on the job as possible.

The final part in the development of training objectives is the determination of results statements, which describe how a trainee can demonstrate that, the training andor session objective(s) has/have been achieved. A result statement may simply be a pass mark for a written test, or the successful completion of a practical test. In demining training, safety is often relevant in this test.

The conditions and results statements for the evaluation should be listed on a training test plan. Trainers can also include remarks on administrative or other details on this form. See Annex C to this SNMAS.

Details of the management of training tests and possible re-test should be included in the Training Administration Procedures. If a trainee fails an initial test, s/he should be given a short period of extra training and then be given another test to complete. The fact that a retest was required should also be included on the training report for that individual.

While testing the achievement of the training objectives at the end of the training is important, the trainer should also conduct 'confirmatory testing' throughout the training. This involves checking that the trainees have understood the lesson and are on their way to complete the objective to the standard required. This type of testing should be prepared by the trainer as part of lesson planning.

## 8. Training Management Package (TMP)

A TMP is a set of documents that provide all the information necessary to run formal training. The following shall be included in mine action TMP within SMAP:

1) The name and title of the training;
2) Training, session and lesson objectives;
3) Set of session plans and schedule;
4) Description of activities and practical exercises;
5) Practical exercises;
6) Training testing tools and pass fail criteria;
7) Power point presentations and handouts;
8) List of training equipment;
9) List of training aids and facilities;
10) Reference materials; and
11) Training administrative procedures.

A comprehensive TMP should permit a trainer to efficiently and effectively plan and deliver formal training and at the same time should provide the manager with a concise overview of the entire training.

## 9. Qualifications and Experience of Training Staff

Mine action organizations shall ensure that all trainers have the appropriate and suitable qualifications and experience necessary to provide effective and technically sound training courses. All mine action organizations shall submit trainers' Curriculum Vitae (CV) to NMAC for approval prior to training.

## 10. Monitoring of Training

### 10.1. General

All the mine action related training courses shall be monitored internally by the mine action organization and externally by the NMAC; this will help the SMAP to ensure that the training is effective and technically appropriate and being conducted in accordance with the approved TMP and achieves stated objectives. All the mine action organizations shall inform NMAC QM department of their planned training courses and shall share the training schedule to plan and conduct monitoring of training courses. Training monitoring shall be part of training administration procedures.

The followings shall be considered and reported when conducting monitoring on mine action training courses:

a) To cover whether the training does or does not meet the stated requirements and objectives;
b) Recommend what should be included or changed to improve the training course;
c) Include comments on the good points and the points require immediate corrective actions;
d) Review previous training records and the status of meeting training objectives and performance improvement;
e) Establish and schedule a follow up visit to ensure that the training organization has taken the agreed corrective action.

### 10.2. Internal monitoring

Internal monitoring of the training shouldmainly focus on and include:

a) Assessing trainees perceptions of the training through a process of trainee self-assessment and feedback during the training; and
b) Visiting the site of operations to observe the conditions under which the trainees apply acquired KSA in their work; and
c) To discuss with supervisors and co-workers how the trainees are able to fulfill the requirements of the position.

### 10.3. External monitoring

External monitoring should at minimum include the followings:

1) Training administration;
2) Training management package, schedule and plan;
3) Trainers skills, knowledge and training method of training;

4) The level of supports provided by trainers to facilitate learning;
5) The level of trainees participation and involvement;
6) Training equipment and aid materials;
7) Training facility and environment;
8) Practical training and preparations;
9) Feedback of trainees at the end of the training to discuss the completed training and assimilation of acquired KSA.

External monitoring of the mine action training course should also include periodic assessment of the training skills and methods of trainers and should assess whether TMPs are being followed, the quality of theoretical and practical aspects of the training, and whether trainees are achieving expected results in accordance with objectives or not. The NMAC external monitoring should also include visiting operational sites to observe the conditions under which the trainees apply acquired KSA in their work.

The findings of external monitoring should be formally presented to the training organizer and trainers to take necessary actions in adjusting the training if deficiencies are identified. The shortcomings and deficiencies shall be supported by objective evidence and as per the requirements of SNMAS 07.03.

External monitor shall ensure that the findings are clearly communicated and required remedial actions are agreed upon. The deadline for remedial action shall also be part of written monitoring report to facilitate follow up visits.

## 11. Training Administration Procedures

### 11.1. General

Training administration procedures should be part of TMPs and include the followings:

1) Trainer requirements including specific knowledge and skills;
2) Accommodation requirements;
3) Details about the training facility and training practical areas;
4) Transport requirements including safety vehicles;
5) Medical support and communications requirements;
6) Requirements of the management of test and re-tests;
7) Requirements of pre and post training assessment;
8) Requirements of training records including records of past evaluations;
9) Internal and external monitoring requirements;
10) Equipment and Equipment Issue List.

### 11.2. Criteria for the Selection of Trainees

The mine action organization should ensure that staff members selected to attend certain training are suitable and have the prerequisite knowledge and skills necessary for them or capable to assimilate the KSA to be taught on during the training. When preparing selection criteria, the mine action organization should ensure that the criteria includes elements to encourage women trainees, and does not discriminate against people with disability who are suitable and have the prerequisite qualification. Where possible, gender balance should be ensured in selection of trainees.

### 11.3. Training Equipment and Materials

Equipment and materials used during training should be gender sensitive and should reflect the same as those used on actual operations as much as possible.

### 11.4. Training Mines and ERW

The use of training mines and ERW shall be strictly controlled to avoid any unintended accident and or incidents. The training mines and ERW shall mainly be Free from Explosives (FFE).

Training shall be conducted safely without risk of harm to the trainees, trainers and local population. The practical aspects of the demining training courses shall be conducted in areas known or proven to be safe. The newly trained deminers shall be closely supervised when started operations in a real hazardous area.

### 11.5. Management of Training Records

For each training course or period of OJT, records should be maintained by the organization that conducted the training. Training records should include details of the training received, the list of trainees and the result of training in terms of pass/fail list and the details about the trainers. The training record shall be made available to NMAC QM department.

## 12. Responsibilities

### 12.1. United Nations Mine Action Services (UNMAS)

UNMAS is mandated with provision to technical supports to Sudan National Mine Action Centre (NMAC) and mine action organizations working in Sudan.

### 12.2. Sudan National Mine Action Centre (NMAC)

The NMAC with technical supports of UNMAS shall:

1) Establish and maintain national standards, regulations and procedures for the management of training within SMAP.
2) Ensure that capacity development forms an essential part of the work of NMAC, and mine action organizations;
3) Review and approve TMPs of the mine action organizations and the CVs of trainers as part of the accreditation process;
4) Undertake regular monitoring of training courses conducted by the mine action organizations; to ensure the training is in accordance with the TMP and the national standards.

### 12.3. Mine Action Organizations

All mine action organizations accredited in Sudan and conducting mine action training shall:

1) Ensure that capacity development forms an essential part of their work;
2) Develop comprehensive TMPs;
3) Ensure that their TMPs are in complianceSudan National Mine Action Standards and their NMAC approved SOPs;
4) Ensure that training programs are based on Training Needs Assessments;

5) Ensure training activities, whether formal or on the-job, are written into the work plans of the organization;
6) Submit TMPs to the NMAC for approval prior to any training taking place, unless the training is carried out centrally by NMAC;
7) Conduct internal monitoring and evaluation as an essential part of the training;
8) Maintain records of training for the life of organization, however, if it ceases to work in a Sudan, the training records shall be transferred to the NMAC; and
9) Ensure the training is being delivered by qualified and experienced trainers and that the needs of both men and women are being addressed.

### 12.4. Donors

Donors, where relevant, should ensure that capacity development is a key activity of each organization they fund and that the organizations are conducting training courses in compliance with Sudan National Mine Action Standards requirements.

## CRITERIA FOR FORMALLY ANNOUNCING AREAS FREE FROM KNOWN EXPLOSIVE HAZARDS

To meet the main goal of Sudan free from known Explosive Ordnance (EO) and to regularly communicate land release achievements to the mine action beneficiaries and stakeholders, the programme needs to formally announce each community, township, locality and a state free from known explosive hazards after being released from known EO contamination.

To ensure that the subject locations are completely released from the known explosive hazards, in addition to all documented information of mine action efforts made there, the following CRITERA shall be met, signed, stamped and recorded as evidence to support the decision-making process in announcing those areas free from known EO contamination.

NMAC Operations and Information Management departments, UNMAS Operations and Mine Action Organizations involved in land released operations in subject areas shall review all the relevant documented information and evidence and then recommend either to announce the locations free form known EO contamination or to make further land release efforts before such a formal event.

The following CRITERIA shall be considered:

1. NMAC sub office confirmed that no more requests or reports of EO contamination are received after the entire locations are covered during the land release operations:

Name:…… Title:……Signature:……Stamp:…….Date:……..

2. Local and or state authority confirmed that no more requests or reports of the EO contamination or accident/incidents are received from the subject area since[1]: ……/……../……:

Name:…… Title:……Signature:…… Stamp:…….Date:……

3. Local or state hospital confirmed that they have not received any mine or ERW casualties from the subject areas since[2]: ……../……../……..

Name:…… Title:……..Signature:……..Stamp:…….

4. If a community or township, the community or township elders confirmed that there are no more known explosive hazards in their community or township:

Name:……Position in the community:……..Signature:……..

Contact details:……

Name:……Position in the community:……..Signature:……..

Contact details:……

[1] The last request, report and casualty date shall be confirmed to be before the completion of the land release operations.

[2] The last casualty date shall be confirmed to be before the completion of the land release operations.

5. If a locality, the elders of the communities (5 to 10%[3] of the communities in entire locality) confirmed that there are no more known explosive hazards in their communities:

| Name | Position in the community | Contact details | Signature |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

6. In case of a state[4], 20 to 30% of the localities shall be targeted and the same approach as covered in criterion 5 is applied, the communities' elders confirmed that there are no more known explosive hazards in their communities:

| Locality | Name of community elder | Contact details | Signature |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

This document shall be signed and stamped by relevant NMAC sub office and NMAC Operations department:

NMAC Sub Office ( ):

Name: ( ), Title: ( ), Signature/Stamp ( )

Date:

Verified by NMAC Operations Department:

Name: ( ), Title: ( ), Signature/Stamp ( )

Date:

[3] The communities shall be selected randomly from the different parts of the locality.

[4] If the localities within a state are already formally announced free from known hazards following the application of the same criteria, then only the last locality shall be considered as covered in Criterion 5, and then the state is formally announced free from known EO contamination.

# Sudan National Mine Action Standards – SNMAS 05.01

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Version 02

## Mine Action Land Release

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**Contents**

## 1. Introduction

Land release is the process of applying all reasonable effort to identify, define and remove all the presence and or suspicion of Explosive Ordnance (EO) including mine and Explosive Remnants of War (ERW) contamination from the land that is reported and recorded as confirmed to have EO or there is suspicion or presence of EO. Dealing with such areas with clearance effort is costly and precious. It is more appropriate for Sudan National Mine Action Centre (NMAC) and mine action organizations to do their utmost to ensure that assets are deployed to achieve as much as possible, for the minimum cost in the shortest time. Achieving such an aim of operational efficiency represents a significant challenge when dealing with the EO contamination with the scope and complexity of EO problem in Sudan. The process and practice of land release is the primary means of achieving such aims.

Application of the land release process consists of establishing and improving the definition and understanding of where EO can be found and where they will not; through the application of all reasonable effort with confidence, and justifiable data and evidence that EO are either not present in an area or, if they were, have all been detected, destroyed and removed from that area.

As part of land release process, the practical effort is normally applied through non-technical survey (NTS), technical survey (TS) and clearance. Land release is a dynamic process of collecting data and evidence through survey activities, analysis of data and evidence-based decision making. Any new information and evidence shall be taken into account to support the appropriate decision making.

Effective and successful land release process requires an effective information management system that ensures that data is collected accurately and consistently, reported in compliance with standard formats and schedules, entered into databases (Information Management System for Mine Action or IMSMA) correctly, and analyzed to provide reliable support for decision making of operations managers, mine action monitors and interested parties.

The most common source of truly ‘hard’ information is that found during technical operations; the discovery of actual hazards during technical survey or clearance activities. The value of such data cannot be overstated and organizations conducting technical survey and clearance should treat it with the greatest care and attention. In addition to collecting, reporting and recording data on ‘what was found where’, but NMAC Sub Office and mine action organization should ensure that the information is analyzed to identify the scope, patterns and other characteristics that can help them to make valid and efficient decision that increase confidence in land release process.

## 2. Scope

This SNMAS provides standard guidelines and covers minimum requirements for the management and application of land release process and Sudan national land release policy. It also outlines the responsibilities and obligations of the NMAC and mine action organizations working in Sudan.

## 3. References

IMAS 07.11 Land Release

## 4. Terms, Definitions and Abbreviations

The term "Land Release" refers to the process of applying all reasonable effort to identify, define, and remove all presence and suspicion of EO through non-technical survey, technical survey and/or clearance.

The term "Suspected Hazardous Area" refers to an area where there is reasonable suspicion of EO contamination on the basis of indirect evidence of the presence of EO.

The term "Confirmed Hazardous Area" refers to an area where the presence of EO contamination has been confirmed on the basis of direct evidence of the presence of EO.

The term "Non-technical Survey" refers to the collection and analysis of data, without the use of technical interventions, about the presence, type, distribution and surrounding environment of EO contamination, in order to define better where EO contamination is present, and where it is not, and to support land release prioritization and decision making processes through the provision of evidence.

The term "Technical Survey" refers to the collection and analysis of data, using appropriate technical interventions, about the presence, type, distribution and surrounding environment of EO contamination, in order to define better where EO contamination is present, and where it is not, and to support land release prioritization and decision making processes through the provision of evidence.

The term "Clearance" in the context of mine action, refers to tasks or actions to ensure the removal and destruction of all EO hazards from a specified area to a specified depth or other agreed parameters as stipulated by NMAC.

The term "All Reasonable Effort" describes what is considered a minimum acceptable level of effort to identify and document contaminated areas or to remove the presence or suspicion of EO. "All reasonable effort" has been applied when the commitment of additional resources is considered to be unreasonable in relation to the results expected.

Cancelled land (Sqm); a defined area concluded not to contain evidence of EO contamination following the nontechnical survey of a SHA or CHA.

Reduced Land (Sqm); a defined area concluded not to contain evidence of EO contamination following the technical survey of a SHA or CHA.

Cleared land (Sqm); a defined area cleared through the removal and destruction of all specified EO hazards to a specified depth.

## 5. Initial Information Screening

To ensure the effectiveness of land release process, there is requirement for reliable and effective information management, as such information screening plays a critical role in reliability of information and effective information management system. Removal of redundant, incorrect or duplicate hazardous areas entries in IMAMA and also clarification of ambiguous data through

screening or analysis of existing data is an important activity that supports land release process, however, it does not form part of the land release process.

## 6. The land release process

### 6.1. General

Land release is an evidence-based decision-making process that helps determine with confidence which land needs further action and which does not. It involves the identification of hazardous areas, the cancellation of land through non-technical survey, the reduction of land through technical survey and the clearance of actual contaminated land.

### 6.2. Principles

The following principles should apply when developing a national land release process.

a) Any new information relating to contamination should be assessed on the basis of evidence gathered through NTS and TS and the analysis of existing data relevant to the area.

b) New information that is not found to offer evidence of EO contamination in an area, and that does not lead to the creation of SHAs or CHAs should not result in the recording of cancellation of land.

c) Hazardous areas should be divided into suspected hazardous areas (SHA) and confirmed hazardous areas (CHA) based on the availability and reliability of information and whether evidence is indirect or direct for each hazard.

d) Inaccessible areas, or areas with limited information available, should not by default be recorded as SHA. SHAs should only be recorded in the database when there is sufficient evidence to justify it. NMAC should decide on dealing with area with limited information or no access.

e) Fear of the suspected presence of mine and or ERW contamination may lead people to avoid using a particular area; fear on its own is not legitimate evidence of contamination. Fear needs to be substantiated with other evidence before an area is defined as SHA or CHA.

f) A graduated response should be undertaken when addressing a SHA/CHA. This should normally involve the prioritization of survey activities over clearance. There may be occasions when it is appropriate to progress directly to clearance, but such a response should not be the default position.

g) Effective application of the land release process means that the area remaining for clearance should be better defined, resulting in more efficient use of clearance assets. Clearance itself is an information gathering process which leads to the contaminated area being fully defined and allowing efficient decision making about when to stop clearance.

h) Land should only be cancelled, reduced and or handed over following clearance when it is deemed confidently safe to use after a credible and well documented evidence-based process has been fully implemented.

i) Local participation as main sources of information, including both men and women, should be fully incorporated into the main stages of land release process in order to ensure that land will be used following handover. In addition, involvement of people throughout the land release process helps avoiding any harm that may cause by land release activities.

j) A SHA/CHA assessed as having a low impact on a community should not be cancelled or released, based on its lack of impact; rather it should be given a low priority.

k) Land may be released from the suspicion of mine or sub-munitions contamination while there can still be a suspicion of other ERW including deep buried bombs. Additional measures may be required to establish confidently that land is free from all hazardous contamination.

l) Explosive Ordnance negatively impact the environment and some clearance methods including mechanical demining operations, vegetation removal procedures used by mine action organizations can potentially lead to environmental degradation. Mine action organizations shall consider be conscious of the negative impact potential of their operations and adopt mitigation measures to ensure they do no harm.

### 6.3. Indirect and Direct Evidence

The following criteria for the definition of SHAs and CHAs have been established considering scope of contamination and mine and ERW problem in the context of Sudan:

1) Indirect evidence (SHA):

    a) Potentially productive land not in use due to fear of explosive hazards.
    b) Verbal reports from local population and former combatants about possible presence of hazards.
    c) Mine or ERW records, where the reliability of such records remains open to doubt or require assessment.
    d) Analysis of other known contamination areas in the same locality, tactics and historical sources.
    e) Former combatant zones.
    f) Evidence from previous surveys, not supported by direct evidence of the presence of contamination.
    g) Mine or ERW accidents or incidents where the location of the event cannot be accurately determined.

2) Direct evidence (CHA):

    a) Mine and or ERW records, where the reliability of such records has been confirmed.

b) Reliable information about the presence of mine from the sources who had been witness of the mine laying.
c) Visual observation of mine and or ERW parts, fragmentation or craters.
d) Detonations during fires or by animals.
e) Mine signs, fencing, ancillary equipment, associated with contamination.
f) Mine and or ERW accidents or incidents where the location of the event can be accurately determined.

### 6.4. Associating Hazard Types with Areas

One of the important aspects of NTS is to identify the possible hazard type associate with SHAs and CHAs. Associating specified hazard types such as AP mines, AT mines, Cluster munitions, ERW or a combination of hazard types, ensures that reporting reflects the nature of the contamination. Identifying and associating hazard types with areas is one of the important facts that shall be covered in reporting of hazardous areas through NTS, to support prioritization decisions in terms of reflecting the risks presented to the affected communities. In the event where creation of SHA can be justified, but there is insufficient evidence to determine the associated contamination type, then the hazard type should be reported and recorded as unknown and subject to further investigation through TS activity.

### 6.5. Defining Hazardous Area Boundaries

In the context of mine action in Sudan, the boundaries of CHA and SHA should be defined both during Non-Technical Survey and then during Technical Survey and Clearance operations. CHA boundaries should be defined and established based on direct evidence of presence of mine and or ERW and also their adjacent and surrounding parts in the ground where the probability of presence of mine and or ERW hazards is high, in light of the analysis of site-specific contamination characteristics. The areas that present only indirect evidence of the presence of mines and or ERW are defined as SHAs. In all cases, hazardous boundaries should be defined on the basis of evidence and information analysis in order to avoid inclusion of excessive areas.

## 7. Information Gathering Methodologies

All relevant information gathering methodologies should be used during the land release process. The principles of information gathering by NTS, TS and Clearance are described in SNMAS 05.02, SNMAS 05.03 and 06 series of SNMASs. The information gathering shall not be limited to NTS at the start of land release process, rather it should be a continual and a dynamic activity throughout the application of land release process, and whenever new information comes out, it should be subject to analysis, and shall be used for proper decision making.

The Land Release process relies upon valid and reliable information to support decision making. Information will not be reliable and useful if the data upon which it is based does not meet quality requirements. The SNMAS 05.02 and 05.03 should be used to ensure quality data has been collected, reported in the right format and recorded in IMSMA database.

## 8. Land Release Criteria

The criteria to be met before releasing land may vary depending on local circumstances, but the required level of confidence that the land is free from mine and or ERW contamination remains the same, whether cancelled, reduced, verified or cleared. The participation and agreement of mine

action stakeholders including NMAC and mine action organizations is crucial in the development of accepted and land release criteria. In general terms land release criteria will have been met when it can be shown that either:

a) In areas where "no evidence of" mine and or ERW was found, the efforts applied could reasonably have been expected to find evidence of contamination had it in fact been present; and/or

b) In areas where evidence of mine and or ERW contamination was found, the efforts applied could reasonably have been expected to find and remove all such contamination, within specified limits.

SNMAS 05.02 provides criteria for cancellation through NTS and SNMAS 05.03 provides criteria for reduction through TS activity.

To formally announce certain areas free from known explosive hazards as a result of land release process implemented in the entire area, the criteria covered in Annex B to this standards shall be met and documented, prior to formal announcement.

## 9. Confidence in Cancelled, Reduced and Cleared Land

### 9.1. General

Before land can be cancelled, reduced, verified or cleared, it should be established, with high level of confidence, that there is no longer any evidence that the area contains mine and or ERW contamination. This confidence can only be gained once **all reasonable efforts** have been applied to investigate whether mine and or ERW contamination is present, and when contamination is found to be present, to remove it.

### 9.2. All Reasonable Effort

The term "all reasonable effort" refers to the level of efforts required to be expended to achieve a desired level of confidence in the output of land release process. Almost all of the efforts associated with the identification of hazardous area and its subsequent cancellation, reduction and clearance activities relates to the collection, verification and quality checks, processing and analysis of information in order to support decisions about where mines and or ERW are mostly located to be found and where they are not, and where further efforts are needed to be applied.

"All reasonable effort" in land release represents the effort that it is reasonable to expect and should be applied in order to achieve the desired level of confidence that cancelled, reduced, verified and cleared land is free from mine and or ERW contamination. The effort is 'reasonable' when it can be shown, on the basis of reason and logic that the efforts applied could be expected to have discovered evidence of contamination had been present, and or could be expected to have found and removed and destroyed all contamination where it was present.

"All reasonable effort" for the cancellation, reduction, verification or release following clearance of previously recorded hazardous areas is reached at a point where sufficient and reliable information and evidence have been collected to conclude with confidence that there is **no evidence of** mine and or ERW contamination anymore. A range of information analysis based on survey and clearance findings and data are required to reach such a point.

"All reasonable effort" in the context of mine action in Sudan includes, but not limited to:

a) Identifying and accessing all relevant sources of information including men, women and children, and mine or ERW survivals as well as historical and analytical material.

b) Establishing and maintaining appropriate and effective information management system.

c) Establishing and maintaining appropriate and effective quality management system.

d) Carrying out appropriate practical activities including NTS, TS and Clearance, using competent resources (suitably qualified staff) and appropriate procedures (approved by NMAC based on the requirements of SNMASs), in order to identify, define, analyze and design and provide respond to evidence of contamination.

e) Monitoring the performance of land release process and improving it in light of the reviewing of the monitoring results.

f) Monitoring the product performance (as per the requirements of SNMAS 07.03) and the quality of cancelled, reduced and cleared land and taking action to improve the process in light of the review of the results of product monitoring; and

g) Establishing and maintaining appropriate and effective communication systems to ensure that stakeholders understand, agree with and accept the land release process.

h) Establishing regular operational review mechanism within the mine action programme of Sudan.

i) Establishing Quality Management System and Information Management System within the mine action programme of Sudan.

The following should be defined:

a) Reasonable levels of effort required to investigate, collect, report and analyze evidence of mine and or ERW contamination.

b) Objective criteria for assessing and quantifying the individual survey value of all types of non-technical survey information; and

c) Criteria for the amount and reliability of information required to make survey conclusions.

### 9.3. Quality Management

In addition to identifying and documenting the context of mine action in Sudan, establishing quality policy, quality management processes and procedures, risk management framework, quality planning and objectives and review process; the quality management in land release also includes the application of Quality Assurance (QA) and Quality Control (QC). QA involves the accreditation (SNMAS 07.02) and monitoring (SNMAS 07.03) of mine action organizations' capacity, management processes, procedures and activities including NTS, TS and Clearance, before and during the land release process.

QA should confirm that mine action organizations consist of management system, required structure, and competent personnel, employing appropriate equipment and applying approved and effective procedures, in compliance with Sudan SNMASs, Policies and agreed regulations, and with

effective internal and external oversight process to identify and correct shortcomings in the land release process and its products.

QC consists of checks and inspections to confirm that products of the land release process fulfill stated and specified requirements. Any checks of land release outputs shall be undertaken as per the requirements of SNMAS 07.03 to provide meaningful evidence in an efficient way in support of the maintenance of confidence in the quality of cancelled, reduced and cleared land. Quality management system in relation to land release should include the requirement to continually improve the process through the analysis of data relating to the performance of the process and the quality of cancelled, reduced and cleared land.

## 10. Documentation

### 10.1 General

Information management is playing a key role in land release process, proper information management procedures, including adequate decision-making mechanisms, recording, analysis, monitoring and adjustment and training are essential requirements. The records of NTS, TS and clearance implemented throughout the land release process shall be properly documented and recorded in IMSMA as per the requirements of SNMAS 10.01 of Information Management.

In order to ensure the following, quality documentation is required:

a) As evidence to form the basis for decisions to create SHAs and CHAs and to cancel, reduce and handover land.
b) As the basis for, and evidence of, internal and external quality management.
c) To form the basis for formal and comprehensive investigation; if hazards subsequently appear on cancelled, reduced or cleared land, to identify appropriate actions to correct problems and prevent their reoccurrence; and
d) As essential evidence where liability is in question.

### 10.2 Minimum Data and Information Collection Requirements

Mine and ERW contamination impacts the communities and people living there and presents a wide range of social and economic features and is reflected in important decisions about prioritization. The physical nature of mine and ERW contamination is essentially geographical, and impacts are placed in a geographical context and land release efforts include the geographical targeting of resources and activities to achieve the aim of releasing land for productive use. It is therefore important that the geographical aspects of the mine and ERW contamination and responses to it, are recorded accurately and consistently.

In addition to recording the boundaries of SHAs and CHAs, mine action organizations should collect the data and information and record the following:

a) What is found where and when.
b) What is the scope of impact?
c) What should be done; and
d) What is done where and when?

Activities associated with land release process including NTS, TS and Clearance shall be recorded in relation to the areas and locations they have taken place. The performance of survey and clearance assets against different hazard types should also be recorded and analyzed.

Geographical data and information should be collected with sufficient accuracy and detail to fulfill requirements to perform meaningful analysis in support of the land release process and to satisfy the requirements of stakeholders and NMAC information system. Data collection and information management systems should be designed and developed to disaggregate data by activity including NTS, TS and Clearance and by type of contamination.

Annex A to this SNMAS provides the standardized land release symbology representing priority land and activity attribute values. For more detail about the use of symbols in GIS (Geographic Information System) refer to TNMA 07.11/01-2016 at:

https://www.mineactionstandards.org/fileadmin/MAS/documents/technical-notes/Technical_Note_07.11-01_LR_symbology.pdf

### 10.3 Reporting

Data and information about mine and ERW contamination, defined areas, operational activity, asset performance and decisions taken during land release process should be made available to reports recipients and related stakeholders with required contents and formats that meet their requirements.

Higher level reporting including reporting to state parties of Ottawa Convention and to the government authorities, the medium, contents and format should be based upon the procedures, formats and schedules ascertained by those authorities.

## 11. Sudan National Policy on Land Release

### 11.1 Developing National Policy on Land Release

The land release policy should define the purpose and goals of the mine action programme of Sudan and articulate the standards and principles of action that govern the way in which the programme aims to achieve these goals. Land release policy guides the way in which mine action operational plans are developed, and how resources are mobilized and applied. The Sudan land release policy should be issued by the NMAC and encompass the following:

1) An overview of agreed terminology used in land release process.
2) A statement describing how land will be cancelled, reduced and cleared; through NTS, TS and Clearance.
3) A description of all reasonable effort in land release process and related activities.
4) A description of the agreed principles of the land release process.
5) A list of the agreed criteria for cancellation and reduction.
6) An overview of the land release concept and how it will be applied.
7) Direction on the development, management and maintenance of SNMASs on land release.

The land release policy should be reviewed once a year updated as necessary to maintain the effectiveness and credibility of the land release process.

## 12. Risks and Liability

Liability refers to any legal responsibility, duty or obligation that a country, organization or individual may have. Liability in relation to an adverse event in mine action, such as an accident or the discovery of a missed hazard item in an area, is normally linked to noncompliance with standards, policy or procedure.

A well-documented, transparent, evidence-based approach to land release, demonstrates the application of "all reasonable effort" and provides the primary mechanism for addressing questions of liability in such a way that mine action managers at all levels have the confidence to take efficient and appropriate decisions.

Residual risk is the risk remaining following the application of all reasonable effort to identify, define, and remove all presence and suspicion of mine and ERW through NTS, TS and Clearance. Residual risk is minimized when the land release process has been applied by competent and accredited mine action organizations that following approved procedures and processes. Residual risk may be quantified over time through the monitoring of cancelled, reduced and cleared areas to identify any incidents, accidents or evidence of missed hazard items. The results of such monitoring should be used to maintain confidence in land release process and to identify areas requiring improvement.

It is important that the NMAC, on behalf of the government of republic of Sudan, develops and maintain policy that details liability aspects, including the transfer of liability from the mine action organization to the government or the local community when certain criteria have been fulfilled. As minimum the liability policy should encompass following principles:

1) Mine and ERW contamination is primarily and ultimately a national responsibility and, as such, the Government of Sudan (GoS) has a responsibility to accept accountability and liability for victims in all areas affected by mine and ERW. This includes area known to have landmine and or ERW problem and those unknown, areas that have been cleared and handed over to the communities and areas that have been cancelled or reduced as a result of the land release process. This is the responsibility of NMAC as coordinating and regulating body to clearly define the transfer of liability in Sudan.

2) A comprehensive and endorsed land release policy implies that all stakeholders agree on the definition of "all reasonable effort". A process to identify and quantify these efforts during the design of the land release policy will help to prevent disputes related to liability issues.

3) If land release policy has been approved by NMAC, appropriate application of the principles by mine action organizations and acceptance of handover by NMAC and communities implies that the level of risk in the area after survey and or clearance is deemed tolerably low.

4) If any hazard item or contamination is found in areas that have previously been cancelled, reduced or cleared, liability disputes should in principle be settled based on how well mine action organization implemented the land release process that is normally enshrined in SNMASs.

The appearance of hazard contamination does not automatically imply that the mine action organization should be held liable.

5) The mine action organization will in principle not be liable in cases of discovered explosive hazard or accidents if a formal investigation shows that the land release policy and SNMASs have been implemented appropriately and the organization has made all reasonable effort to ensure the area was safe before cancellation, reduction and or handover following clearance.

6) A mine action organization should in principle be liable in cases of accident caused by missed explosive hazards, if investigation shows that:

   a) The accident was caused by willful or criminal misconduct, gross negligence, careless misconduct or a conscious and obvious indifference to the right and safety of the individual harmed.
   b) The organization was not accredited, licensed, certified or authorized to carry out acts leading to the inaccurate land release decision.
   c) The organization willfully overstepped prevailing national policy or standards.
   d) The organization had conducted gross procedural errors or grossly deviated from land release requirements as stated in related SNMASs.

7) Liability for dealing with items found after land release should be clarified in the national land release policy.

**13. Post Land Release Actions**

Residual risk can be mitigated to a large extent by monitoring of cancelled, reduced and cleared land and making survey and clearance resources available if mine or ERW hazard is subsequently discovered. If hazard item is discovered, a rapid response with appropriate assets and a comprehensive and transparent investigation process can reduce the loss of customers' confidence in land release process. NMAC should ensure that the following are applied:

1) Monitoring of or post land release impact assessment of cancelled, reduced and cleared areas after a maximum of one year is undertaken to confirm that local communities are using the land and that no hazards has not been discovered.

2) Investigation and reporting of explosive hazards that discovered in an area that has been cancelled, reduced or cleared.

3) Regular operational review and review of the documentation and decision-making process leading to recommendations to improve the land release process.

4) Making mine action assets available to deal with unexpected mine and or ERW contamination and to undertake additional survey.

5) Reclassification of previously cancelled area to CHA and updating IMSMA database if direct evidence of mine and or ERW contamination is found.

6) Initiating investigations into the root causes that led to the decision to release the land and, if necessary, adjusting the land release policy; and

7) Imposing restrictions, and identifying precautions, associated with land to reflect residual risk.

## 14. Responsibilities and Obligations

### 14.1 Sudan National Mine Action Centre (NMAC)

NMAC as national coordination and regulation body for mine action in Sudan shall:

1) Develop, review and maintain a national land release policy and relevant SNMAS.

2) Accredit organizations as capable and competent of undertaking non-technical survey, technical survey and clearance.

3) Develop, manage, maintain and publish SNMAS for:

   a) Monitoring of land release process and product performance to be applied to NTS, TS and Clearance, and documentation requirements as part of land release process.

4) Requirements for data collection and information management.

5) Define levels of reasonable effort to be applied in land release process.

6) Define, adopt and ensure application of criteria for the cancellation and reduction of land.

7) Develop liability in mine action policy.

8) Ensure that appropriate and effective information management system is established and maintained.

### 14.2 Mine Action Organization

All accredited mine action organizations undertaking land release operations in Sudan, shall:

1) Gain survey and clearance accreditation from NMAC, to conduct land release activities in Sudan.

2) Comply with Sudan SNMASs for survey and clearance.

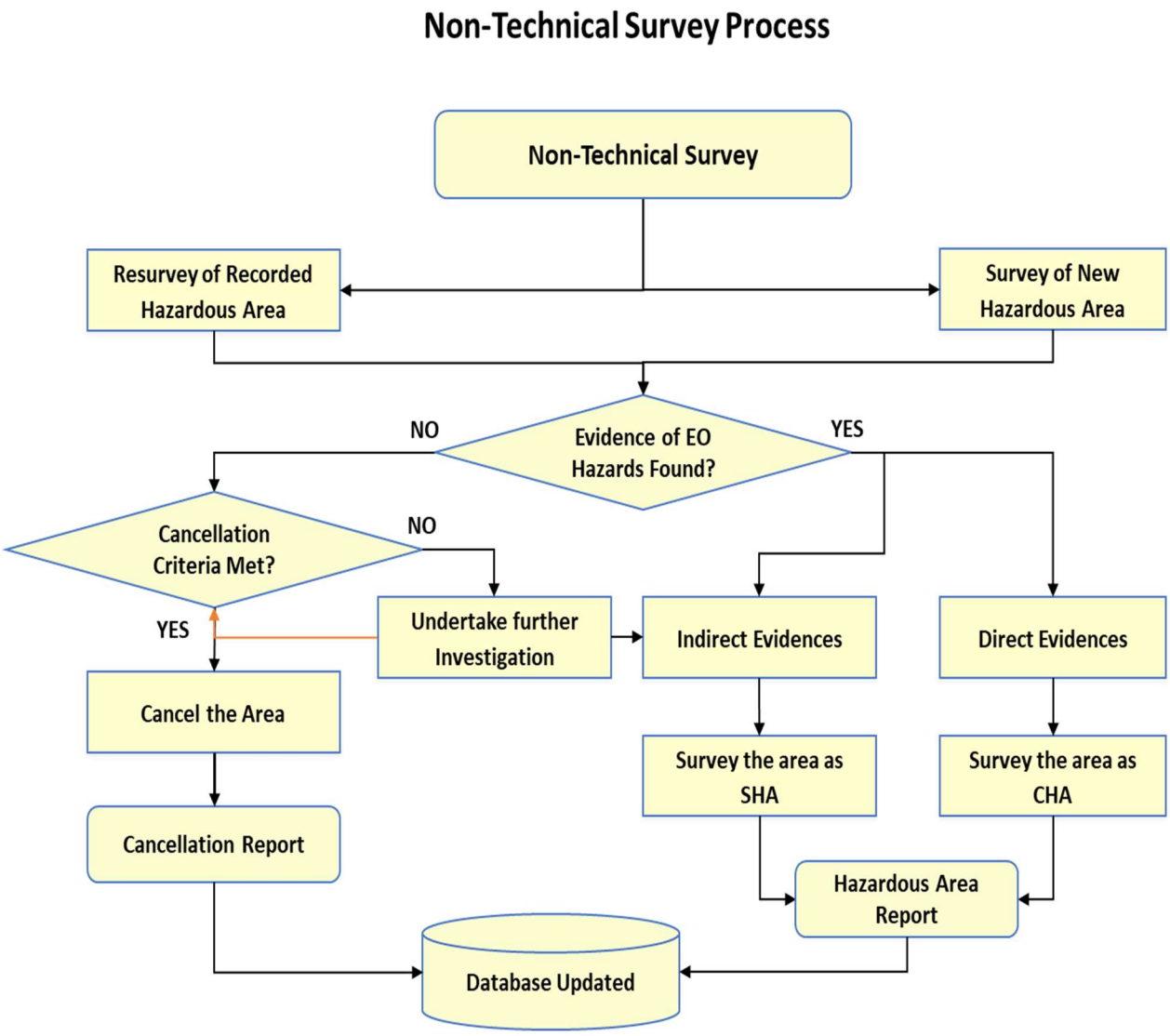
3) Collect and make available the necessary information as required by SNMAS.

4) Conduct a formal handover of sites, including all relevant information, to NMAC.

5) Maintain and make available documentation as specified by the NMAC in relation to land release process.

6) Consult closely with affected communities including men and women with regards to all decisions to cancel, reduce and or handover of cleared land.

**Annex A to SNMAS 05.02 Non-Technical Survey Process Map**



# Sudan National Mine Action Standards – SNMAS 05.02

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## Mine Action Non-Technical Survey

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Contents

## 1. Introduction

Non-Technical Survey (NTS) is an important activity as part of land release process and is typically the starting point for the assessment of possible mine and or ERW contamination in an area and categorization of the area either as suspected or confirmed hazardous areas (SHA or CHA). NTS involves a thorough investigation of new information about possible explosive hazards contamination, or previously recorded hazardous areas, without the use of demining tools and equipment inside the hazardous areas.

NTS is less costly comparing to technical survey and clearance; however, it can result in release of big areas without any technical survey and clearance interventions. NTS encompasses all activities, including desk reviews, analysis of historical records and a wide range of information gathering and analysis functions, as well as physical visits to field locations. All activities of NTS are focused on identifying, accessing, collecting, reporting and using information to help define where the explosive hazards are to be found and where they are not, and support land cancellation, reduction and clearance decision making processes. Undertaking NTS to highest standards is crucial in effectiveness and efficiency of land release process.

## 2. Scope

This SNMAS provides standard guidelines and covers minimum requirements for the management and application of Non-Technical Survey as part of land release process in Sudan. It also outlines the responsibilities and obligations of the NMAC and mine action organizations involved in land release operations in Sudan.

## 3. References

IMAS 08.10, SNMAS 05.01 and SNMAS 05.03

## 4. Terms and Definitions

For details about terms and definitions used in Non-Technical Survey as part of the land release process; refer to SNMAS 05.01 of Land Release.

## 5. Purpose of Non-Technical Survey

The main purpose of NTS is to use all appropriate means of information gather including visits of the hazardous areas to identify, collect, analyze and report information and evidence to:

1) To record mine and or ERW hazardous areas;
2) Categorize hazardous areas as SHAs or CHAs;
3) Make recommendations about cancellation of recorded or newly reported hazardous areas;
4) Make recommendations about subsequent reduction and or clearance of hazardous areas;
5) Support priority setting processes based on the impact of hazardous areas.

Aims of NTS:

1) To assess whether areas are contaminated with explosive hazards;

2) To define SHAs based on indirect evidence of hazards;
3) To define CHAs based on direct evidence of hazards;
4) To cancel a complete or parts of the SHAs and CHAs based on "no evidence of" mine and or ERW hazards contamination;
5) To identify socio-economic impact and threat factors to support decisions about prioritization of the hazardous area for land release operations;
6) To record, accurately and comprehensively, direct evidence of hazards;
7) To collect information accurately and reliably about the characteristics and distribution of contamination, that can assist in effective and efficient planning of technical survey as targeted investigation and follow on clearance;
8) To collect, accurately and reliably, information about accidents and incidents to people and animals within the hazardous areas;
9) To collect information about physical changes to the environment of hazardous area, due to seasonal floods and winds including deposition of soil and accumulation of extra soil, that may have modified the local situation and require specific assets to be used during technical interventions;
10) To collect information about the physical circumstances at the site including information about access routes, roads, vegetation in the site, topography, infrastructure, agriculture, security situation, and logistical facilities that may be relevant to decision-making processes.
11) To collect information about the about the terrain and profile of the hazardous areas, the density of vegetation and other obstacles that may affect the progress rate, and recommend the most suitable assets, procedures and methodology of technical interventions.

## 6. Requirements for Recording SHA and CHA

### 6.1. SHA and CHA Criteria

NMAC with technical support of UNMAS and consultation with mine action organizations shall develop criteria for defining SHA and CHA. NMAC and mine action organizations shall ensure that these criteria are understood by all involved activities. The criteria will help the Sudan mine action programme to:

a) Promote and adopt consistent definition of SHAs and CHAs;
b) Promote uniform application of land cancellation, reduction and clearance processes;
c) Simplify management of cancellation, reduction and clearance activities;
d) Provide a framework for Sudan that need to document and demonstrate compliance with APMBC; and
e) Provide an auditable framework to assist with resolving questions relating to liability in the case of incidents.

SHAs shall be defined based on the analysis of Indirect Evidence of explosive hazards, and CHA shall be defined based on the analysis of Direct Evidence of mine and or ERW hazards in the area; within the context of Sudan and local circumstances.

Indirect Evidence includes, but not limited to:

1) Potentially productive land not in use;

2) Verbal reports from local population/former combatants;
3) Mine and or ERW hazards records, where the reliability of such records remains open to doubt or has not been assessed;
4) Analysis of other known contamination areas, tactics and historical sources;
5) Former combatant zones;
6) Evidence from previous surveys, not supported by direct evidence of the presence of contamination;
7) Mine or ERW accidents or incidents where the location of the event cannot be accurately determined.

Direct Evidences include, but are not limited to:

1) Mine and or ERW records, where the reliability of such records has been confirmed;
2) Accurate information from the reliable source of information about laying mines;
3) Visual observation of mine and or ERW, parts of them, fragmentation or craters;
4) Detonations during fires or by animals;
5) Hazards signs including fencing and marking (local or official) and ancillary equipment;
6) Mine and or ERW accidents or incidents where the location of the event can be accurately determined;
7) Visible evidence of explosive hazards.

SHAs and CHAs should also be sub classified or divided as required, to the parts within the internal zone of hazardous area; to reflect likely variations in hazard type and the confidence associated with different evidence; this will help mine action managers in planning and decision-making processes. Boundaries of SHA and CHA should also be assessed based on the available evidence.

### 6.2. Cancellation

The cancellation of previously reported and recorded hazardous area through NTS shall take place based on the application of "all reasonable effort" that it can be demonstrated with high confidence that there is no evidence of mine and or ERW contamination in the area.

### 6.3. All Reasonable Effort

"All reasonable effort" in NTS refers to the level of effort required to be expended to achieve a high level of confidence in the output of NTS. Non-technical survey may be the only activity applied to an area, or it may be one amongst a number of activities within a wider process of land release.

All reasonable efforts as part of NTS include, but are not limited to:

a) Identifying and access to all relevant sources of information, including available historical records, former combatants, affected populations including men, women and children;
b) Demonstrating that the collection of information was planned and conducted by competent and accredited NTS teams, with the capability to reach all relevant information sources including men, women and children;
c) Making efforts to understand the nature and characteristics of contamination within the hazardous area;

d) Analyzing information using all appropriate means to support decision-making;
e) Demonstrating that the decisions are made by competent and authorized staff of the mine action organizations based on the analysis and review of all available information; and
f) Applying appropriate external and internal monitoring and quality management efforts to the staff, procedures and equipment applied and used in NTS process;
g) Analysis of NTS, TS and clearance historical data that had been undertaken in the vicinity of the area.

The application of "all reasonable effort" relies upon an integrated process that addresses all aspects of the planning, operational, review and decision making stages.

### 6.4. Evidence-Based Decision Making Process

As an important principle of quality, all the decisions including decisions as part of NTS operations shall be based on available evidence and facts. Available evidence shall be considered when defining SHAs and CHAs and taking further technical actions in land release process, to ensure effective and efficient land release operations. The quality and quantity of evidence with required and sufficient details determine the quality and reliability of decisions in land release process.

NMAC and mine action organizations involved in land release operations in Sudan shall consider and understand about all sources of information which include, but are not limited to:

a) Evidence relating to types of contamination present in the context of land release operations in Sudan, tactics associated with their use, and the effect of time on their condition, distribution and detectability;
b) Evidence collected during NTS activity from the hazardous area and from the review of IMSMA records including the records of accidents and incidents;
c) Evidence discovered during survey and clearance operations at other sites in the same or neighboring communities and locality;
d) Evidence about the reliability of different information sources;
e) Evidence about the relationship between findings and recommendations arising from previous survey and what was subsequently discovered during technical interventions;
f) Evidence relating to accidents and incidents on previously cancelled, reduced or cleared land;
g) Evidence arising from monitoring of processes and their products associated with land release activities, including long term monitoring or Post Land Release Assessments.

The use of all appropriate evidence in support of decision-making shall be documented in order to establish and maintain confidence in NTS and overall land release process.

## 7. Non-Technical Survey Methodology

NTS shall be considered as a dynamic activity of information gathering and analysis about the hazardous areas including data and information about the type, nature and characteristics of contamination. Analysis of contamination information, and the effectiveness and efficiency of responses to it, should be dynamic process. It is the responsibility of NMAC to ensure that NTS data

is updated, properly analyzed andmade available tomine action organizations conducting NTS in Sudan.

It is important to consider all relevant sources of information, including historical records, police, military, hospitals, provincial authorities, landowners and if possible GIS information during the desk review activities. Identifying, accessing and making use of such information constitutes part of the application of "all reasonable effort" in NTS. As minimum the following should be consider by mine action organizations when planning NTS:

1) Review of contracts, national standards, criteria, policies and procedures relevant to NTS, as approved by the NMAC;
2) Review of all available information relating to the area, including the results of desk assessments;
3) Confirmation of information collection requirements, as defined in this standard, as well as any additional requirements specific to the site or circumstances;
4) Consideration of the requirements of the survey and the need for specific resources, skills and or capabilities, including the ability to access all relevant sources of information, including men, women and children;
5) Identification of any aspects of the survey requiring additional safety measures; and
6) Development of an appropriate and effective methodology for NTS to be undertaken.

Mine action organizations shall develop their NTS procedures based on the requirements of this SNMAS to avoid subjective statements by surveyors, identify the requirements of objective collection of evidence, and to satisfy specified safety, information and quality requirements.

Any new information and evidence shall be collected, recorded and reported by NTS teams, this will help in analysis of information and proper decision making about the land release process. When operations managers of the mine action organizations and or sub offices of NMAC realizes that the collected information by NTS teams is not sufficient to support decision making, they should consider whether additional NTS or technical activities are likely to discover additional information. SHAs shall not be defined on the basis of a lack of information, but instead on the basis of indirect evidence. Recommendations to reject new information, or cancel existing areas, should only be made on the basis that "all reasonable effort" has been applied to identifying, defining and removing suspicion of the presence of explosive hazards.

Data and information shall be collected, reported and recorded, using reporting IMSMA standard formats specified in SNMAS 10.01 of Information Management. NMAC shall ensure that there are required quality management processes both internal by mine action organizations and external by NMAC to NTS activity including collection, reporting and recording of data and information.

Marking as part of NTS activities shall be carried out based on the requirements of SNMAS 05.04 for marking.

## 8. Sources of Information

### 8.1. General

All mine action organizations accredited for land release operations in Sudan shall identify sources of information, and collected and record data and evidence from these sources. Mine action organizations should also ensure that both male and female informants who have specific information are accessed and interviewed and the findings are recorded and reported. The access to information source, interview and information gathering should be comprehensive and in such a detail that avoid frequent approach to the informants which may result in survey fatigue.

### 8.2. Assessment and Classification of Sources

NMAC should ensure that the mine action organizations have the following capabilities when conducting NTS operations in Sudan:

1) Relevant experience NTS operations in Sudan;
2) An understanding of historical, social, economic, political and cultural factors relating to the retention and reporting of information by different information sources;
3) Comparisons between different information sources;
4) Comparisons between information received and evidence discovered during subsequent technical interventions;
5) Review of information sources in light of the results of monitoring of land following cancellation, reduction or clearance; and
6) Other relevant information specific to local circumstances and conditions.

Objective evidence should be considered by NMAC and mine action organizations when classifying information sources. The classification system should be reviewed at appropriate intervals to ensure that they reflect the up to date results of analysis of evidence from all relevant sources.

The following minimum requirements shall be considered for the classification of source of information:

a) Direct physical evidence of the presence of mine and or ERW hazards, observed and recorded by NTS team;
b) Indirect physical evidence of the presence of mine and or ERW hazards observed and recorded by NTS team;
c) Information from historical sources and records shown to be reliable and accurate through comparison with direct evidence obtained at other sites and areas;
d) Information from people and institutions offering first hand sources of information. Such sources of information may include men, women and children from the affected communities, military, police, mine or ERW victims and relevant witnesses of the accidents, observed ERW and or laying mines in the area;
e) Information from people and institutions offering second hand sources of information, that they did not observe ERW or laying mines or taken part in laying mines, but may have been told about the hazard by first hand sources;
f) Information from historical sources and records, the reliability and accuracy of which have not been assessed, or where assessment indicates unreliability or inaccuracy; and

g) Information from other people and institutions that did not observe or take part in the laying of explosive hazards, but have been told by other parties that cannot be confidently identified as first hand sources.

NMAC and mine action organizations working in Sudan and are involved in land release operations, should identify and make use of every opportunity to check the quality of information through comparisons with direct evidence resulting from technical survey and clearance, and the monitoring results of land release process and outputs. The results of such checks should be taken into account during reviews of classification systems.

### 8.3. Land and Road Use

If a recorded hazardous area or road is in use by local communities, this needs to be considered as a factor when assessing new information about the area or deciding to cancel the complete or part of the area. To assess the confidence in such information, the followings shall be considered by mine action organizations:

1) Understanding of the type, nature and distribution of contamination present elsewhere within the locality, especially within the immediate vicinity;
2) Clear and accurate definition of which land use;
3) How the land and or road have been used, including the depth of intrusive activities, and the density and intensity of human and mechanical traffic;
4) For how long the land and or road have been used, with different densities and intensities of activity have taken place at different times;
5) The results of monitoring of other areas that had been similarly assessed.

It will be useful to divide the area based on different use and different usage histories.

### 8.4. Sub-Division of Hazardous Areas

Hazardous areas including SHA and CHA should be in order to identify, define and describe:

1) The presence of different contamination types;
2) Different confidence levels associated with sources of evidence, and the analysis of that evidence;
3) Areas suitable for different technical assets types and methodologies.

There should be enough details about divided parts of the hazardous areas to assist in efficient and effective subsequent deployment of resources for further NTS or technical survey and clearance. This will help in reliable and confident cancellation, reduction andor clearance of the land.

## 9. Non-Technical Survey Output

The outputs of the NTS process shall be based on the analysis of findings and information about the type, nature and distribution of contamination, and should include:

### 9.1. Documented Information

a) Reports:

Detailing what NTS activity was conducted, where, forming inputs to subsequent planning processes and as evidence demonstrating the application of "all reasonable effort" in identifying, defining and removing all presence and suspicion of mine and or ERW hazards.

The reports shall include detailed information in related IMSMA format as per the requirements of SNMAS 10.01, the map of area with enough details including coordinates of control markers.

b) Recommendations:

Recommendation for defining the area as SHA or CHAs and or cancellation of the area or parts of it as justified based on the application of "all reasonable effort". Recommendations for further NTS, or Technical Survey and clearance including details of recommended assets and methodologies.

c) Information for analysis:

NTS shall include enough recorded information that is needed for analysis by NMAC, mine action organizations and other stakeholders as appropriate.

### 9.2. Cancelled Area

One of the important outputs of NTS is cancelled area based on the application of all reasonable effort that results in "no evidence of" hazards. Cancelled area shall be properly documented in a standard format as per the requirements of SNMAS 10.01.

## 10. Survey Team Requirements

The followings requirements shall be considered by mine action organizations to equip NTS teams before conducting NTS activities, and ensured by NMAC:

1) Competent, skillfuland accredited NTS teams, to be able to engage in communication with local authority, stakeholders and all sources of information.
2) Suitable equipment including at minimum, GPS, camera, measuring tools, marking materials;
3) Stationery including drawing tools;
4) Transpiration and medical support;
5) Communication tools.

NTS activities shall be monitored internally by the mine action organizations and externally by NMAC. Refer to SNMAS 07.03.

## 11. Documentation Requirements

NTS information is essential component of land release process, effective and efficient land release process depends on high quality of information. It is paramount to ensure the quality of data collected and reported and the quality of data entry to IMSMA.

NMAC and mine action organizations shall ensure that the NTS documentation satisfies the quality requirements as outlined in this SNMAS and reflects the needs of all information users.

Appropriate quality management processes shall be established and implemented in relation to the collection, recording, reporting, and analysis of NTS information. The QM processes shall include management of shortfalls in quality of NTS data, information and documentation including investigation and taking appropriate corrective and preventive action.

The format of reports used during NTS shall be based on the requirements of this SNMAS and SNMAS 10.01 of information management. NTS reports should include decisions made during the survey, as well as the evidence that was the basis for the decisions.

Location maps should be used to indicate the extent of recommended SHA and CHA boundaries, and to locate and identify control markers and the hazard marking used during NTS operations. NTS information shall be recorded as hardcopy and electronically and may be marked on a topographical map as appropriate within the context of Sudan. NTS maps should show the location of any direct evidence of mine and or ERW hazards and other specific features of significance.

The information recorded during NTS should form part of the documentation required for handover to organizations conducting further technical survey or clearance and for the final release of land. Complete details about the local information sources including name, age, gender, address, contact details and signatures should be recorded.

NMAC operations department and mine action organizations undertaken NTS, should compare the results of NTS with the findings of subsequent TS and or clearance, to review the effectiveness of NTS activities objectively and to use the opportunity to improve NTS process.

## 12. Community Involvement

People in affected communities can provide firsthand information about the presence or suspicion of mine and or ERW contamination and can be considered as reliable source of information. Their involvement in all stages of the land release process, including NTS will ensure that the land is being used after it has been released from mine and or ERW hazards. Community involvement should include men, women and children living in or working near to the hazardous area and where appropriate, owners of land. NTS teams shall ensure that the people are consulted and their priorities reflected in NTS reports for subsequent technical interventions. Local community can provide sufficient information about the impact on their livelihood and socio-economic aspects which will also be used as reference for prioritization.

All the areas which have been released including cancelled, reduced and cleared, shall be subject to monitoring as per the requirements of SNMAS 07.03. Monitoring should be properly planned and agreed between all parties including communities to help measure the impact of cancelled land on local life and to clarify issues related to liability and land status in case of any subsequent mine or ERW accidents.

## 13. Liability Issues

For details about liability, refer to SNMAS 05.01 for Land Release.

## 14. Responsibilities and Obligations

### 14.1. Sudan National Mine Action Centre (NMAC)

As coordination and regulating body for the mine action programme of Sudan, NMAC shall:

1) Develop, manage and maintain national mine action standards for NTS, consistent with national land release policy;
2) Accreditmine action organizations to carry out NTS activity;
3) Monitor the performance and NTS outputs of mine action organizations;
4) Ensure compliance of mine action organizations procedures and competence in NTS operations;
5) Establish QM process for ensuring the quality of NTS documented information;
6) Utilizeand analyze NTS documented information to understand better the nature, extent and distribution of contamination for annual operational plans;
7) Define liability issues relating to land release process in Sudan.

NMAC shall also set out specific criteria for the cancellation of previously recorded suspect hazardous areas and acceptance or rejection of new informationby NTS. Such criteria should be agreed between NMAC, mine action organizations and key stakeholders, and the local community responsible for receiving the released land, and government authority.

### 14.2. Mine Action Organizations Involved in Land Release Process

All mine action organizations accredited for undertaking of survey and land release operations in Sudan, shall:

1) Obtain accreditation from NMAC to conduct NTS;
2) Apply and meet the requirements of this standard in NTS process;
3) Develop procedure for the implementation of NTS;
4) Collect the necessary information as required by the NTS documentation;
5) Handover the surveyed area to the organization undertake follow on technical activities;
6) Maintain and make available documentation as specified by the NMAC;
7) Involve community people including men and women in the affected communities, as required, with regards to all decisions made by NTS team;
8) Seek feedback from NMAC in terms of quality, timeliness and content of the reports;
9) Establish internal monitoring as part of QMS to monitor and measure NTS activities and their outputs.

## Field Risk Assessment in Land Release Operations

### 1. Introduction:

Field Risk Assessment (FRA) is the process through which the risk factors involved in various demining worksites and field activities are carefully identified, evaluated and assessed and required and appropriate risk mitigation measures and actions are applied.

### 2. Purpose:

The purpose of FRA in a demining worksite is to allow the informed selection of a combination of measures, actions and steps that mitigate the risk to a tolerable level and improve safety of the team members and the beneficiaries and to ensure effective implementation of land release process including the application of all reasonable efforts to realize a safe land is handed over to the community.

### 3. Requirement:

FRA shall be conducted in each demining worksite and recorded within the task dossier and shall be revised and updated as soon as new risk factors are identified. FRA shall also be verified by the internal and external QM and operations staff, confirming that it is conducted, revised and updated (as required) and is appropriate to identified risk factors.

### 4. Risk Assessment Process:

#### 4.1. Identification of Risk Factors:

##### 4.1.1 Worksite Condition within entire task, divided to parts if different:

**A. Ground Profile:**

| Ground Profile | Soft | Medium | Hard | Wet | Extra Soil | Metal Contamination |
|---|---|---|---|---|---|---|
| Flat | | | | | | |
| Hillside | | | | | | |
| Valley, Canal, Riverbed | | | | | | |
| Uneven | | | | | | |
| Others specify | | | | | | |

**Score from 1 to 5 (suitable to difficult) …….**

**B. Obstacles:**

| Obstacles | Slight | Medium | Heavy | Roots | Leaf Litter | Dump | Other |
|---|---|---|---|---|---|---|---|
| Bushes | | | | | | | |
| Jungle/Trees | | | | | | | |
| Sands/Gravel | | | | | | | |
| Flint/Rocks | | | | | | | |
| Ruins/extra | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| soil | | | | | | | |
| Old Military Positions | | | | | | | |
| Other specify | | | | | | | |

**Score from 1 to 5 (Suitable to difficult) ……**

**C. Other Obstacles:**

| Ditches | Trench /Dump | Wire Obstruction | Power Poles | Holes | Underground aqueduct | Heavy Metal |
|---|---|---|---|---|---|---|
| | | | | | | |

**Score from 1 to 5 (Suitable to difficult) ……**

**D. Terrain and Climate:**

| Terrain | | | | |
|---|---|---|---|---|
| Low Slope | Medium Slope | Steep Slopping | Sliding steep | |
| | | | | |
| Climate | | | | |
| Very hot | Hot | Normal | Cold | Strong wind |
| | | | | |

**Score from 1 to 5 (Suitable to unsuitable) ……**

a) Summary and Freehand Map of the task with description of the ground conditions in different parts:

| Summary: |
|---|
| |

N

**Freehand Map**

**4.2. Types of Hazards:**

a) AP blast mines; ☐
b) AP bounding fragmentation mines ☐
c) AP fragmentation mines (stake mounted) ☐
d) AP fragmentation mines (stake dissolved) ☐
e) AP mines with emerged fuse ☐
f) AT mines metallic ☐
g) AT minimum metallic mine ☐
h) Different ERW ☐
i) Grenades (hand) ☐
j) Fuses (unidentified) ☐
k) Sub munitions ☐

l) Rockets ☐
m) Mortar bombs (HE) ☐
n) Phosphorous ☐
o) Propellant ☐
p) Other specify:

| |
|---|
| |

Landmine, ERW contamination history to identify the age of mines laid and ERW left in the site:

| |
|---|
| |

List probable changes in hazards that made them more sensitive and riskier, for example:

a) Stained and sensitive
b) Changed direction
c) Washed down with extra soil
d) ……
e) ……

**Score from 1 to 5 (Low to high risk or normal to difficult) ……**

**4.3. Intended/Applied Technical Survey/Clearance Procedures:**

a) Manual: Signal Investigation ☐ Full Excavation ☐
b) Mechanical: Preparation ☐ Verification ☐ Processing ☐
c) Mine Detection Dogs: Reduction ☐ Verification ☐
d) Manual + Mechanical + MDD: Integrated Operations ☐

**Score from 1 to 5 (Suitability of the procedure to unsuitable procedures) ……**

**4.4. Human Resource:**

a) Deminers Experience in intended/applied procedures:……

b) Deminers Training in intended/applied procedures:……

c) Adequate Command and Control Element/Experience in Intended/applied procedures: ……

d) Training and Qualification of Command Group in Intended/applied procedures:……

**Score from 1 to 5 (Suitable to unfit) ……**

**4.5. Demining Tools and Equipment:**

a) Metal Detector (Type and Specification):……
b) Prodding/excavation tools: Bayonet ☐ Scraper ☐ ; If any other tools require to be used; provide reason:

| |
|---|
| |

c) Demining tool kits
d) Demolition tools including explosives materials
e) Pulling tools and ropes
f) Marking materials
g) PPE and Visors
h) Other specify:

**Score from 1 to 5 (Suitable to unsuitable) ……**

**4.6. Medical Support:**

Qualified paramedic, medical kit and emergency equipment, including appropriate stretcher:

Ambulance and driver:

Medical evacuation plan:

**Score from 1 to 5 (Suitable to unsuitable) ……**

**5. Evaluation of the Risk Factors:**

Analyze the risk factors considering the scores allocated to worksite conditions including ground profile, terrain, obstacles and climate, type and condition of hazards items, intended/applied procedures, human resource and demining tools and equipment:

a) What is the risk level to the personnel and risk of missed EO?
    1) High – if the average of scores is 4 or 5.
    2) Medium – if the average of scores is 3.
    3) Low – if the average of scores is 2.
    4) Improbable – if the average of scores is 1.

| |
|---|
| If the risk level is 4 to 5 the team must consult with Operations Manager of the organization and |

| |
|---|
| the issue is to be escalated further to NMAC and UNMAS sub office and Operations.<br>If the risk level is 3, the Operations Manager of the organization should be consulted and if required NMAC and UNMAS sub office to be consulted.<br>If the risk level is 2 the team command group must share the FRA findings with Operations and NMAC and UNMAS sub office for information.<br>If the risk level is 1, the team should proceed with clearance and follow routine reporting procedures. |

b) If any demining accident happens, what will be the severity of consequences and why?
    1) Fatal?
    2) Severe?
    3) Minor?
    4) No injuries?

| |
|---|
| |

c) What Risk mitigation measures are necessary?
    1) Changing procedures? describe the changes and state the reason:

| |
|---|
| |

    2) Changing tools, equipment? describe changes and state the reason:

| |
|---|
| |

    3) Changing staff? describe the changes and state the reason:

| |
|---|
| |

    4) Increase number of the command and control elements? describe increment and state reason:

| |
|---|
| |

5) Emphasize on and provide information about present risks and precautionary measures, on daily basis to the team members? Brief description:

| |
|---|
| |

d) List of additional assets if required to mitigate the risks?
   1) Machinery?
   2) Tools?
   3) Equipment?
   4) Staff?

e) What appropriate actions are taken so far?
f) Do the team members know the risks involved in the task?
g) Are the required changes communicated to the office and then office to NMAC and UNMAS SO and HQ operations?

**6. Conclusion and Record of Actions:**

FRA shall not be limited to one time at the start of technical survey and clearance operations; rather this shall be conducted periodically, maintained as a continual effort, and updated as soon as new risk factors are identified. All appropriate actions taken at the result of FRA shall be recorded. Internal and external QM and Operations visitors shall verify the conduct and appropriateness of the FRA.

**7. Record of Actions Taken and Recommended:**

| |
|---|
| 1.<br>2.<br>3.<br>4. |

Date of FRA conducted:
Sign by Team Leader, Site Supervisor:
Date of FRA revised and updated:
Sign by Team Leader, Site Supervisor:
Verified by Internal QMI, OPS, QM Manager:

Date verified:

# Sudan National Mine Action Standards – SNMAS 05.03

Second Edition: October 2018
Version 02

## Mine Action Technical Survey

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Contents

## 1. Introduction

Technical survey (TS) is an important activity in land release process and is a detailed and technical and topographical data gathering activities undertaken in Suspected Hazardous Areas and Confirmed Hazardous Areas that are surveyed and reported through non-technical survey (NTS). Technical survey can be conducted as standalone and also as an integrated activity with clearance operations.

Conducting technical survey as part of land release process may require use of different assets, such as Manual, Mechanical or Mine Detection Dogs (MDD) or combination of assets according to the site specific condition and availability and suitability of the type of assets. Therefore, comprehensive TS operational plan should be developed during technical survey operations to ensure safe, effective and efficient use of these assets to achieve expected results and realize effective land release application and outputs.

Application of comprehensive TS may result in recommendation to subsequent conduct of clearance using the most suitable assets and alternatively; TS may result with confidence that there is "no evidence of" hazards in some or all parts of the area and should be reduced, verified and released without being fully or partially cleared.

TS shall always be conducted in such a way that leading to a conclusion for releasing the land without need for clearance or properly identify actual hazard areas for full clearance. But any such conclusion and decision shall be based on proper analysis of reliable data that is previously provided and newly collected during the TS activities.

## 2. Scope

This SNMAS provides standard guidelines and covers minimum requirements for the management and application of Technical Survey as part of land release process in Sudan. It also outlines the responsibilities and obligations of the NMAC and mine action organizations working in Sudan.

## 3. Reference

IMAS 08.20, SNMAS 05.01 and SNMAS 05.02

## 4. Terms and Definitions

For details about terms and definitions used in Technical Survey, Non-Technical Survey and Clearance as part of the land release process; refer to SNMAS 05.01 of Land Release.

## 5. Technical Survey Requirements

### 5.1. Principles of Technical Survey

The following Technical Survey principles are applicable and shall be considered by NMAC and mine action organizations working in Sudan:

a) Technical survey methodology shall satisfy safety requirements.

b) Technical survey should be a dynamic process of investigation and information gathering, and any new information that is revealed shall be considered as a fact for decision making for further interventions.

c) Technical survey typically complements non-technical survey; therefore, no technical survey should be conducted unless there is recommendation from NTS on further processing of a SHA or CHA.

d) To ensure effective and efficient application of technical survey operations, deployment of appropriate technical survey assets shall be decided based on proper assessment and analysis of worksite situation and anticipated hazards in each individual hazardous area.

e) Technical survey result should justify the needs for subsequent clearance operations.

f) Targeted TS should be preferred over systematic investigation;

g) Details of what was found and where, and what was done and where, shall be recorded and reported with sufficient accuracy to satisfy applicable standards and allow meaningful analysis of the type, nature and distribution of contamination within its surrounding environment;

h) The result of technical survey shall be recorded and reported for further analysis of type, nature and distribution of contamination within the surrounding environment;

i) Technical survey operations may result on making evidence based decision to add more pieces of contaminated area adjacent to the SHA or CHA that had not been previously identified through NTS;

j) The quality of TS activity and outputs shall be monitored to allow improvement to technical survey procedures and practice and to establish and maintain confidence in the quality of information provided and the land that is released.

### 5.2. Conduct of Technical Survey

This is important to conduct technical survey in a systematic manner and in light of NTS information. The mine action organizations accredited in and conducting TS in Sudan shall develop comprehensive and practical operational plan for the implementation of TS, in each individual hazardous area.

Prior to start physical implementation of TS activities, the organization shall collect, review and analyze all available information related to THE hazardous areas that are planned for land release operations. Review and analysis of such information should include information about the ground profile, geography and location, climate, vegetation, obstacles, as appropriate and known the type and density of anticipated contamination in each worksite.This will help to make decision on allocation of appropriate time and use of the most suitable asset for conducting TS operations.

Mine action organization shall ensure that any new information that comes out as part of TS activity is properly recorded and analyzed, such information may require changes to the plan, assets and methodology of TS.

Mine action organizations shall consider the following when planning TS operations:

1) Review of all available information relating to the hazardous areas (SHAs, CHAs);

2) Analysis of contamination characteristics and typical distribution at the sites within the locality;

3) Assessment of the types of contamination likely to be present and their likely density and distribution within the area;

4) Confirmation of information collection requirements, as defined in SNMAS, as well as any additional requirements specific to the site or circumstances;

5) Consideration of the performance of available assets against the expected contamination types in the technical survey role;

6) Identification of areas that would justify targeted investigation, High Threat Areas;

7) Development of a technical survey approach that satisfies the principles described in 5.1 above.

### 5.3. Technical Survey Information and Recommendation

All information identified and collected during TS, shall be recorded in related IMSMA format with required and enough description, analyzed and used as technical specification for appropriate decision, planning and management of either subsequent clearance operations or release of the land without clearance.

As minimum, the following information shall be collected during TS operations:

a) Definition of the type, condition and extent of hazards, including areas actual hazardous areas and the areas reduced.

b) Assessment and confirmation of the ground in terms of the soil and metal contamination.

c) Confirmation and identifying the boundaries of actual mine and or ERW hazardous area for clearance.

d) The suggested depth of clearance for actual hazardous parts of the area which are subject to full clearance. This shall be clearly indicated in reports and maps.

e) The assets and resources recommended for carrying out further clearance operations.

f) Reliable information which should be sufficient to determine and demonstrate providing confidence to the land users that the area reduced through TS is safe and free from mines and ERW hazards.

g) Additional information for the establishment of priority for future actions.

If the technical survey is conducted as standalone operations, then in addition to the information above, a detailed report and map shall also be prepared for entry into IMSMA.

The technical survey report and map shall reflect the followings:

a) Control Markers including reference point, bench mark and start point, temporary marking including turning points and boundaries around the area and their bearings and distances.

b) Location of visible mines and or ERW and the pattern of mines (if known).

c) Location of any mine and or ERW that are found and destroyed during TS operations;

d) Boundaries of actual hazardous area for subsequent clearance operations.

e) Recommendation of use of the most suitable asset for clearance operations.

f) Prominent natural and man-made features such as high ground, water courses, trees, road, buildings, bridges and more within and in close vicinity to the hazardous area.

### 5.4. All Reasonable Effort in Technical Survey

All mine action organizations working in Sudan shall at minimum consider the following when conducting TS operations, and shall be part of their Standard Operating Procedures and TS training management package, NMAC shall ensure application of all reasonable effort by mine action organizations and their teams:

1) Understand the nature and characteristics of contamination within the area of operations, through reviewing previous hazards reports and conducting fresh NTS;

2) Deploy the most suitable assets for conducting TS operations based on the nature, characteristics and possible distribution of explosive hazards in the site;

3) Demonstrate that the performance of survey assets as per the hazard types has been assessed, monitored, reviewed and confirmed to be acceptable, and properly reflected in technical survey plans and operations;

4) Conduct comprehensive Field Risk Assessment (FRA) and repeat it as soon as new evidence discovered. Refer to annex A of this standard.

5) Provide evidence of developing appropriate TS operational plan and updating it based on the available and new information, and analysis of information and evidence;

6) Apply appropriate internal quality management; focusing on TS team members, equipment used, procedures applied and information associated with the TS process; and

7) Proper decision making based on the analysis and review of all available and new information and evidence.

The application of “all reasonable effort” relies upon an integrated system that addresses all aspects of information management, planning and operations, review and decision-making stages.

## 6. Role of Technical Survey in Land Release

A robust technical survey process may in many cases provide the ability to reduce the original size of SHA and or CHA. As such the organization shall be able to classify the area based on the presence or absence or “no evidence of” mine and or ERW hazards in the area. This can be achieved through gathering sufficient information using TS assets such as manual, MDD or machinery.

If technical survey resulted in confirmation of “no evidence of” mine and or ERW hazards in a part of or complete SHA and the initial suspicion does not longer exist, then the land should be released and the methods used shall be recorded.

After the review and analysis of previous and new information collected during TS operations, the TS team may reach to a decision to recommend and identify one or more area within initial SHA or CHA to be released through full clearance. The TS team may recommend a buffer zone around the

boundaries of actual hazardous area recommended for cleared. The extent of buffer zone around the actual hazardous area should be site specific and dictated in light of the findings during clearance of area recommended for full clearance.

## 7. Technical Survey Methodology

### 7.1. General

Technical survey is the activity of collectingof data using demining technical tools and equipment and analysis of data and informationas part of land release process with the main aim to support evidence-based decision making about the effective release of land from mine and or ERW hazards. The data and information shall be made available to the field operations and QM personnel as well as NMAC and mine action organization's senior management to make decision about the most suitable and appropriate TS assets and methodology to be used.

High quality information and proper analysis lead to high quality and confident decision making. In particular, efficient decisions about when to stop technical activity may benefit from the preservation of information about what was found where during the technical surveyoperation.

With regard to assigning the type of assets and methodology in TS, the following shall be considered:

a) Safety aspects of the asset;

b) The probability that the asset will indicate the presence of explosive hazards in the area;

c) The extent to which the asset will preserve information associated with explosive hazards and other aspects of the surrounding environment;

d) The speed and cost with which the asset can undertake the technical survey function; and

e) The suitability of the asset in light of the surrounding environment, infrastructure and climate.

The decision to deploy an asset in a technical survey role should be documented in terms of the suitability of that asset against the assessed hazards type.

### 7.2. Accreditation of Technical Survey Teams and Assets

Assets used in technical survey operations,shall be accredited as per the requirements of SNMAS 07.02 and related TS accreditation form as described in Annex X of SNMAS 07.02. Accreditation of TS team shall be undertaken to assess and evaluate the capability of TS teams and assets in TS role and operations indicating that the team and assets are able and competent to effectively apply TS procedures, indicate presence of explosive hazards; if present, define hazardous area properly and meet the requirements of Sudan NTSGs and support decision making in relation to land release as a result of TS and the recommended further actions to be taken.

### 7.3. Classification of Survey Assets

Classification of survey assets should be based upon a combination of an assessment of the logic of asset's performance in indicating the presence of explosive hazards, and the evidence collected during the tests and ongoing operations, in terms of confidence that the asset will indicate the presence of explosive hazards if they are present. NMAC and mine action organizations should make sure that the confidence is based on upon evidence showing that the TS asset is capable of indicating

Over time the confidence level should reflect evidence to a greater extent than logical assessment. In order to do so it should be required that operators collect and report data about the performance of different assets against different hazard types during field operations, as well as any trials.

Confidence levels should be reviewed at appropriate levels to take into account up to date information about the performance of assets.

Where different assets exhibit different confidence levels, authorities may choose to use combinations of assets in order to achieve acceptable cumulative levels of confidence.

### 7.4. Targeted Investigation

Targeted investigation should be considered as preferred approach of TS using the most suitable asset including manual and or intrusive machine within a CHA that is defined based on direct evidence of presence of mine and or ERW hazards.

Targeted investigation allows the TS team to direct exploratory clearance lanes towards the direct evidences within the CHA, and will be able to deal with the direct evidence, identify and collect more facts and reach to a decision to release some parts or the whole area without further clearance or identify one or more parts of the area for full clearance. In some occasions and based on evidences, the TS team may decide to add some portions of the land into polygon of CHA which had not been covered during NTS.

The TS team may use inside out approach as continuation of targeted investigation where the team will extend the exploratory lanes based on their findings, to the surrounding of the targets identified within the CHA.

Targeted TS should reflect available information about the expected presence of hazard items and take into account analysis of the wider context of contamination within the sites and locality.

To achieve high levels of confidence in the results of technical survey, the survey methodology should be developed to ensure:

1) The definition of any target area is based upon an analysis of collected and available information and evidence, and takes into account any appropriate buffer zones;
2) Exploratory lanes should not pass through a contamination area without identifying at least one piece of evidence, if contamination is in fact present; and

3) The separation of exploratory lanes shall not be so great as to allow survey assets to pass either side of a contaminated area.

The technical survey methodology should be developed to reflect any information about the hazard types that might be present at the site and the type and capability of available survey assets. It should also define the proportion of the ground requiring clearance, and the width, arrangement

and separation of investigation lanes or exploratory lanes and any requirement for follow up by other assets.

### 7.5. Systematic Investigating

Prior to starting systematic investigation, the review of available NTS information shall be undertaken to determine:

a) If it is possible to conduct targeted investigation; or

b) If the collection of additional information through a fresh NTS might allow targeted investigation.

TS teams should always conduct a fresh NTS in hazardous areas to confirm the available NTS information and to collect more data and information, before starting TS activities. The fresh NTS will help the team to define with confidence and analysis of new information, parts of the contaminated area as High Threat Area (HTA) for targeted investigation, and parts of it as Low Threat Area (LTA) for systematic investigation. If it is still found not reasonable to divide the area to the high and low threat area; then systematic investigation approach shall be undertaken, covering entire SHA. This will allow the TS team to find more reliable information through having access to different parts of the SHA and to decide either to recommend clearance operation in some parts of the SHA, or cease the operation and release the land with confidence, back to the community or land users as reduced area.

In light of more evidences found as a result of systematic investigation, the team may reach to decision to change the systematic investigation to target investigation in some parts of the hazardous area.

## 8. Technical Survey Output

### 8.1. Documented Information

As minimum the TS outputs shall include documented information that covering the following:

1) Documented and topographical definition of hazardous areas, to High Threat Area (HTA) for actual clearance, area reduced and area cancelled;

2) Required information for planning the clearance of HTA including recommended clearance assets;

3) Evidence collected through the application of all reasonable effort that determine and demonstrate that areas reduced and or cancelled are free from mine and or ERW hazards;

4) Adjustments to SHA and CHA boundaries in light of evidence discovered;

5) The suggested depth of clearance of the areas identified to contain mine and or ERW hazards;

6) Required information for the prioritization ofclearance;and

7) The resources and or assets to carry out clearance.

### 8.2. Reduction by Technical Survey

Parts of or the whole CHA or SHA can be reduced and released,following the application of "all reasonable effort" that identify, define and remove all presence and suspicion of explosive hazards, and show that the application of further technical effort would be unreasonablein relation to expected results. For the parts of the hazardous area that needs to be reduced through technical survey, it is necessary to show that the efforts applied could reasonably identify evidence of the presence of mine and or ERW contamination, if present. In order to release the land through TS, the following requirements shall be ensured:

1) The scope of assessment of expected mine and or ERW contamination was reasonably sufficient;

2) The technical survey assets used and the methodology applied were appropriate to identify the potential contamination.

Applying all reasonable effort is essential to be considered in land release through reduction as a result of technical survey operations. All reasonable effort to be applied to the extent that it can be demonstrated with high confidence that there are "no evidence of" explosive hazards in the area and applying more efforts is unreasonable.

## 9. Technical Survey Documentation Requirements

The evidence and information collected during TS shall be properly recorded and reported to NMAC in related IMSMA TS format; this forms the documentation requirements of TS and is an essential component of the land release process. Successful and credible land release and evidence based decision making during the land release process mainly relies on the quality of information management including, but not limited to:

1) Proper collection of data and information during TS activities;
2) Recording and reporting of data and information in the right and approved format, timely;
3) Proper data entry in IMSMA;
4) Analysis of data and information.

NMAC and mine action organizations shall ensure that technical survey documentation satisfies quality requirements and reflects the needs of all information users.

NMAC shall ensure that there is a proper and well established quality check process regarding the data and information management. The quality check shall include investigation of shortcomings in the quality of technical survey data, information and documentation, and timely corrective and preventive action activities. NMAC and mine action organizations shall compare TS data with the clearance findings, this will help mine action programme of Sudan to objectively review TS process and improve it.

Technical Survey shall include a detailed map of the hazardous area with reference to the Reference Point, Bench Mark and other significant features natural and man-made features. As minimum a TS shall contain the following:

1) A title which includes task number and detailed location;
2) North direction;
3) Scale;
4) Polygon or traverse of the area with details of reduced area, cancelled area and area for clearance.

5) Information box which includes details about the total size of area and its break down to the size of area for clearance, area reduced and area cancelled, duration of TS activity, details of the team and organization and coordinates of control markers;
6) A legend which indicates the symbols used in mine action land release.

If TS is conducted as a standalone activity; the information recorded during technical survey should form part of the documentation required for clearance and for the final release of land either by the same organization or other organization.

## 10. Technical Survey Team Requirements

The following requirements shall be undertaken by mine action organizations undertaking technical survey operations in the field:

a) Training: Mine action personnel involved in technical survey shall be suitably trained, experienced and qualified.

b) Equipment: Prior to deployment to the field, the organization shall make sure that the teams are properly equipped with appropriate demining tools and equipment, measuring equipment including but not limited to GPS, Camera, Compass, Measuring tape and complete drawing box. Technical survey teams may be part of a demining team which shall be equipped with transportation and medical support as outline in SNMAS 08.03.

c) Communication. The technical survey teams shall be equipped with suitable communication equipment that allows them to maintain communications with their office and liaise with communities and government authorities and stakeholders.

d) Medical support and evacuation: The technical survey team shall be supported with a dedicated medic. The team shall also be aware of the closest available medical facilities and prepare a medical evacuation plan (CASEVAC) for each worksite.

e) Stationary: Technical survey teams shall be equipped with required stationary and standard IMSMA reporting formats.

## 11. Responsibilities and Obligations

### 11.1. Sudan National Mine Action Center (NMAC)

NMAC as coordination and regulation body for the mine action programme of Sudan is responsible for the followings:

a) Develop, manage and maintain standard related to technical survey.

b) Accredit capable demining organizations for conduct of technical survey.

c) Manage and maintain Information Management System (IMSMA) to manage and keep the TS documented information.

d) Analyze TS documented information for planning clearance operations.

e) Oversee and monitor TS activities and their outputs including quality check of the documented information produced by TS organizations.

f) Conduct periodic review of TS and clearance findings for continual improvement of land release operations.

g) Undertake long term monitoring of TS outputs of reduced and cancelled areas to ensure the areas are in use by the land owner and users.

h) Develop liability policy inclusive of provisions with regard to the TS outputs as part of land release process.

### 11.2. Mine Action Organizations

All mine action organizations intend to undertake TS as part of land release operation in Sudan shall:

a) Obtain accreditation from NMAC to conduct technical survey activities in Sudan.

b) Meet the requirements of SNMAS, terms of contract and other regulations issued by NMAC with regard to land release in Sudan.

c) Develop SOPs and training management package for TS and include the principles of TS as outlined in this SNMAS.

d) Undertake and apply all reasonable effort in TS operations.

e) Develop and maintain TS capacity.

f) Provide reports and make available technical survey related documentation as required by this SNMAS and as specified by NMAC.

g) Establish and maintain proper community liaison throughout TS activities and involve them in relation to their priorities and the decisions made as a result of applying all reasonable effort.

h) Provide feedbacks related to comments from NMAC in terms of quality, timeliness and content of the technical survey reports and documented information.

**Annex A to SNMAS 05.04 Marking of Mine and ERW Hazards**

**Figure 1 – Hazard Markers and Signs**

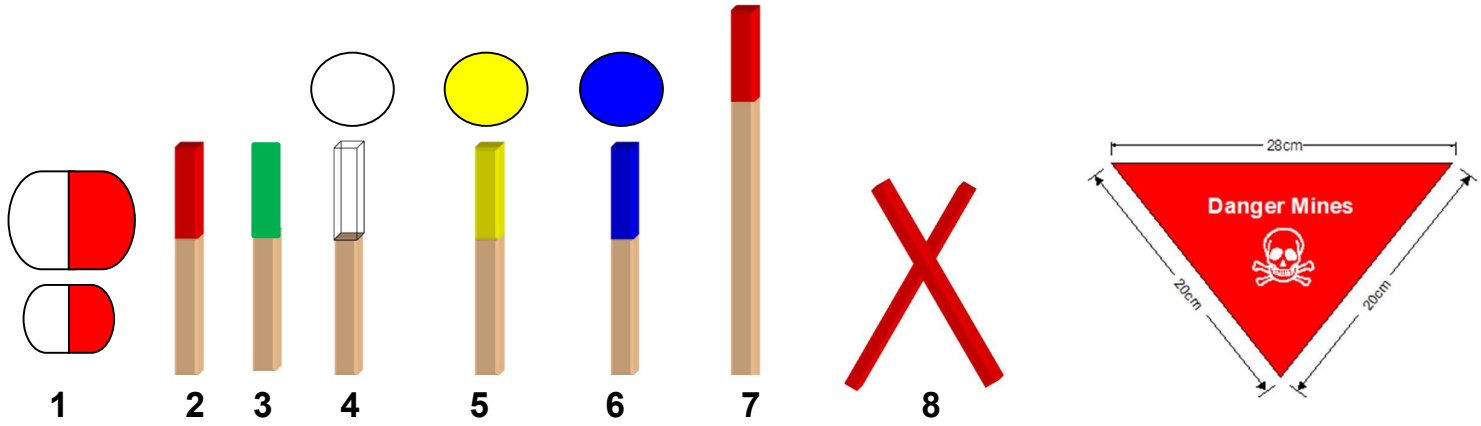



**Figure – 2: Control Markers**

**Figure – 3: Base Stick**

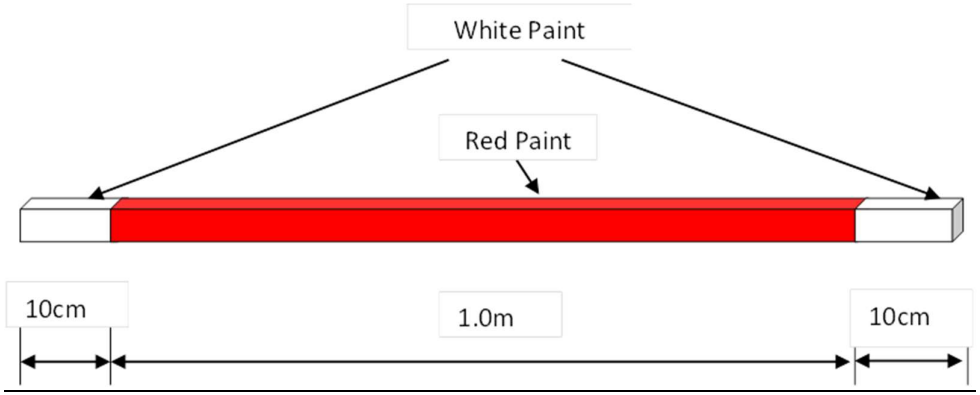


**Figure 4: – area marking prior to clearance lanes being started**

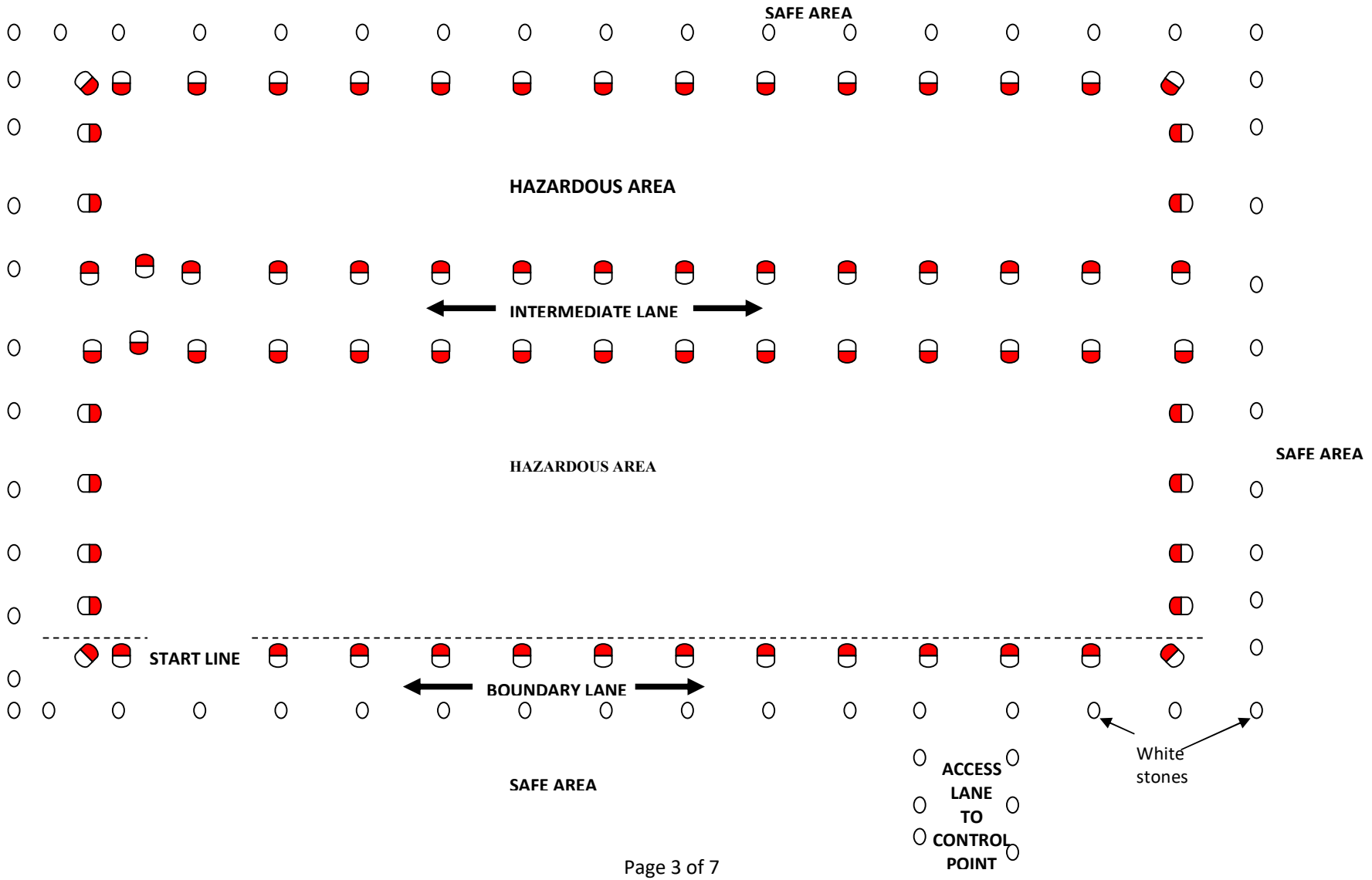


**Figure – 5: area marking once clearance lanes have started**

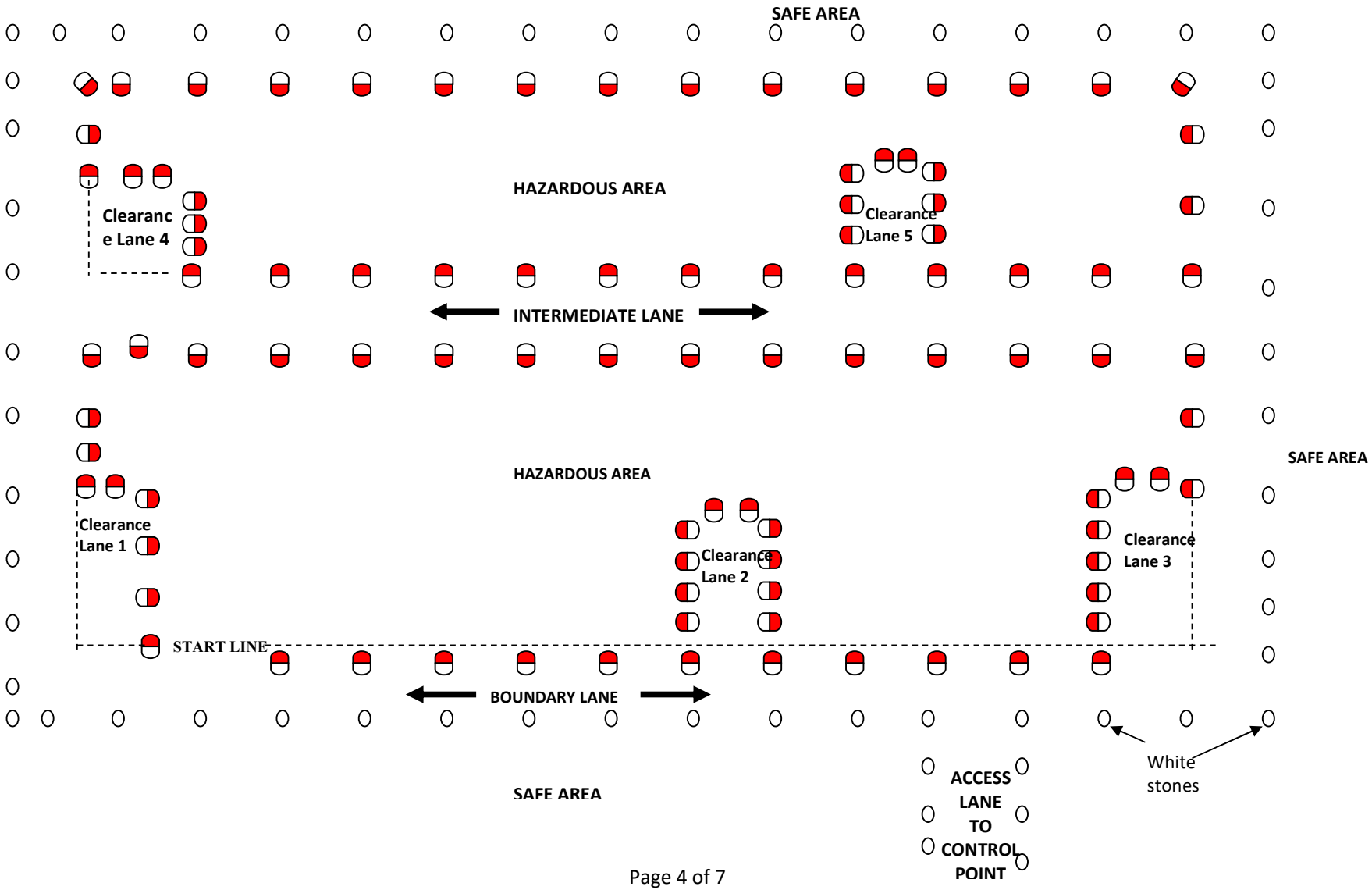


**Figure – 6: marking of clearance lane that borders a safe area**

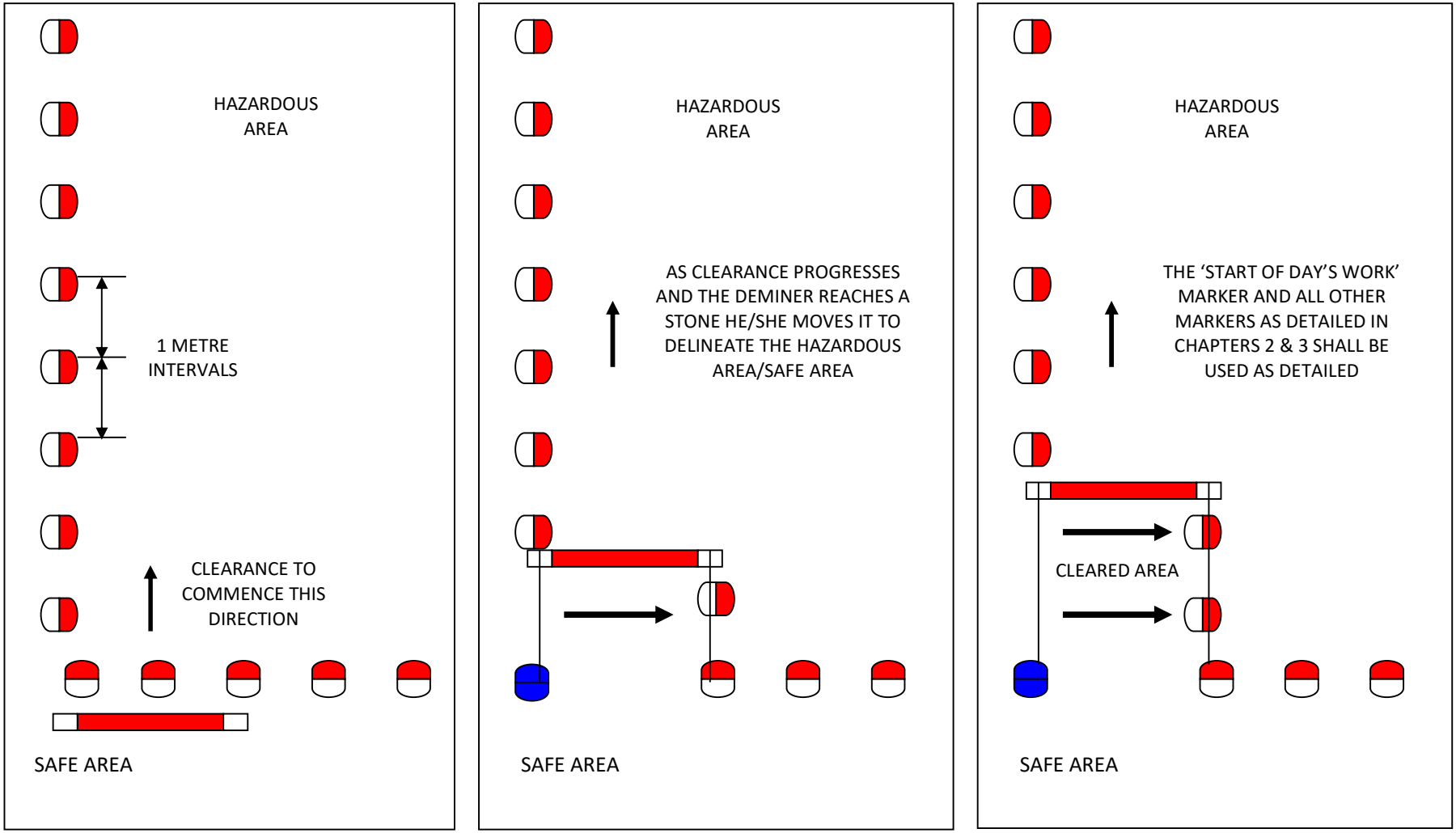


**Figure – 7: Limits of metal detector's sweep**

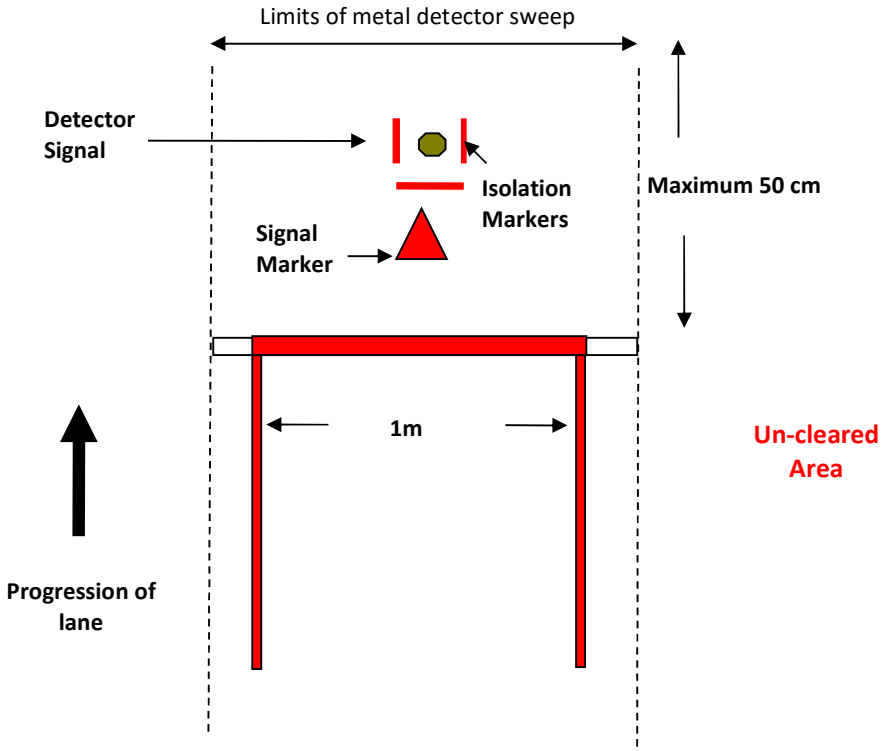
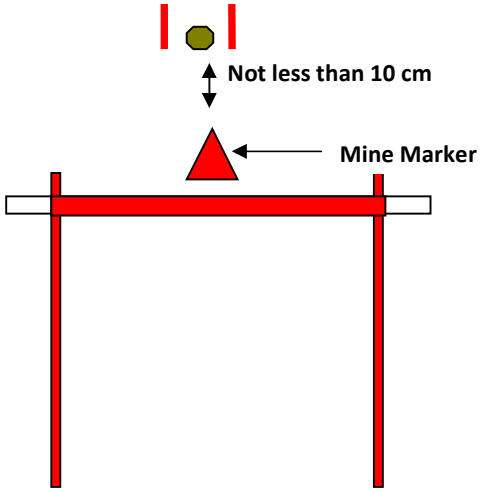


**Figure – 8: marking of located signal (possible Mine or ERW)**



# Sudan National Mine Action Standards – SNMAS 05.04

Second Edition: Nov 2018
Version 02

## Marking of Mine and ERW Hazards

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Contents

## 1. Introduction

The marking of mine and Explosive Remnants of War (ERW) hazardsand contaminated areas is one of the essential aspects in prevention of accidents to the people, especially those living in vicinity of contaminated areas. Marking is undertaken to provide a clear, visible and unambiguous warning of danger to the people and contribute in reducing the risk of mine and ERW hazardsto the men, women and children in the affected communities. This can also be carried out, if possible and appropriate, through installing physical barriers to reduce the risk of unintentional entry of people and their animals into hazardous areas.

This National Mine Action Standard (SNMAS) draws up the requirement of Anti-personnel Mine Ban Convention (APMBC or Ottawa Convention) that Sudan is committed to it, regarding the identification and marking of explosive hazards. Sudan as state party to APMBC has specific obligations regarding the marking of explosive hazards.

Each State Party to the APMBC is obliged "to ensure as soon as possible that all Anti-Personnel Mines (APM) 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 APM contained therein have been destroyed".

In addition to considering the provision of APMBC of identification and marking of hazardous areas in Sudan territory, this SNMAS also covers the requirements of marking that are necessary to be undertaken during the land release process of non-technical and technical survey and clearance operations and activities.

## 2. Scope

This SNMAS covers the requirements for marking mine and ERW hazards and marking system that is applied during the land release demining operations and the marking that needs to be emplaced after the land has been released from hazards and handed over the beneficiaries and communities.

## 3. References

IMAS 08.40, SNMAS 05.01, SNMAS 05.02 and SNMAS 05.03 and SNMAS 06 series.

## 4. Terms and Definition

A complete glossary of all mine action terms and definitions are given in IMAS 04.10, which should be referred to, IMAS 04.10 is quite inclusive and broad in principle, covering all mine action terms and definition that are used globally including Sudan. However for the terms related to Land Release used in this SNMAS is given in SNMAS 05.01.

## 5. General Characteristics of Hazard Marking Systems

The marking system shall be providing a clear and visible warning signs to the people,to avoid approaching the mine and or ERW hazardous areas. It will be useful to utilize locally available materials which are durable for the expected duration of the marking signs to be in place.

According to the local context and circumstances, the materials used in marking systems should have little or no value or practical use for purposes other than mine and ERW hazardous area marking, this will help the mine action programme to ensure that the mine and or ERW hazardous area marks are not removed and nor used for other purposes.

## 6. Mine and ERW Warning Signs and Markers

The warning signs and markers are used to indicate mine and ERW hazards, and can bepermanent or semi-permanent according to the purpose and intended duration of their use.

### 6.1. Mine and ERW Hazards Warning Signs

The warning signs shall provide visible and clear notice in a written andsymbolic form to the local population and general public about the presence of mines and ERW, when used as part of marking system. See Annex A for mine and ERW hazards' warning signs and markers.

The words shall represent the hazards in local language and English, and the symbol shall indicate 'danger' in a form that should be easily understood and recognized nationally and locally by men, women and children.

The mine and ERW hazards markers can be used for the same purpose especially when the signs are not available, or when local conditions prevent their effective use.

Warning signs shall at minimum be visible and recognizable in daylight at a distance of 30 meters and from adjacent signs. If covered and masked by vegetation or terrain, the distance between signsshould be reduced and required height should be considered to ensure their visibility, otherwise the use of a physical barrier should be considered.

Mines and ERW warning signs shall not be constructed frommunitions casings and materials.

### 6.2. Mine and ERW Hazards Markers

The mine and ERW hazards markers shall be used for the same purpose as warning signs to provide visible and clear notice and warning to the local population and general public about the presence of mines and ERW to avoid approaching hazardous areas. Instead of written warning and symbols, markers are red painted pickets and stones and or other features that can be used for the same purpose and painted with red color.

The hazards markers shall at minimum be visible and recognizable in daylight at a distance of 30 meters and from adjacent markers. If covered and masked by vegetation or terrain, the distance between markers should be reduced and required height should be considered to ensure their visibility, otherwise the use of a physical barrier should be considered. Mines and ERW markers shall not be constructed from munitions casings and materials.

## 7. Marking System in Land Release Operations

### 7.1. General

The following three categories of marking system should be considered as part of land release operations including Non-Technical Survey, Technical Survey and Clearance:

a) The perimeters of all mine and ERW hazardous areas which are not planned to be released in near future, should be marked with permanent marking system. A combination of markers, signs and physical barriers should be considered.

b) The perimeters of all mine and ERW hazardous area which are under land release operations shall be marked with temporary marking system. Such marking system may include physical barriers. Such marking system shall be undertaken by TS and Clearance teams.

c) Improvised marking system is generally placed or erected by the local population. They may also be used by demining teams and organizations when materials are not available to construct temporary or permanent marking system.

### 7.2. Marking System as part of Land Release Operations

#### 7.2.1 Control Markers

Control markers are used to indicate the key reference points to the hazardous areas. The control markings shall be placed in safe and cleared areas. They shall be clearly visible in daylight from a minimum distance of 30m.

Control markers shall be marked and written in Red for minefields and cluster munitions and Blue battle area clearance (BAC) tasks. The control markers to be as key references are:

1) Reference Point (RP): A RP is a fixed point of reference and should be located in a suitable distance outside the hazardous area. It should be a permanent and easily recognizable landmark. The RP shall be established in such a location that all other control markers are easily referred to. The location of a RP shall be recorded through Global Positioning System (GPS). it shall be marked with a sign to be clearly distinguishable from other RPs and control markers in the area. Where possible, the sign should be positioned approximately 125 cm above the ground level. The sign shall include:

    a) The letters “RP”.
    b) An arrow indicating the direction of the hazardous area or BM.
    c) A distance and bearing to the hazardous area; and
    d) A unique task number prefixed by either “MF” for a minefield or “BF” for battle area clearance.

2) Benchmark: A BM is a fixed point of reference used to locate a hazardous area and its Starting Point. One BM may be used for more than one hazardous area, if needed. The BM shall consist of three metal rods each approximately 30cm long driven flush into the ground forming a triangle with sides of approximately 30cm.The location of BM shall be recorded with GPS and located in a suitable distance from the Starting Point, in a safe ground outside the hazardous area and clearly marked with specific signs distinguishing it from other BMs and control markers. Where possible, it should be positioned approximately 125 cm above the ground. A BM shall at minimum consist of the below signs and words:

    a) The letters ‘BM’.
    b) A unique task number, and hazard ID prefixed by the letters ‘MF’ or ‘BF’.
    c) An appropriately painted triangle with sides around 15cm in length.
    d) An arrow directing the location of Starting Point of the hazardous area.
    e) A distance and bearing to the Starting Point.
    f) The identification of the team, which positioned the BM.
    g) The date BM is established.

3) Start Point (SP): A SP is the point at which the hazardous area baseline begins. SP shall consist of three metal rods of approximately 30 cm in length driven flush into the ground with the rods forming a line approximately 30 cm apart. The exact position of the SP is on the central rod. SP shall be clearly marked with an appropriate painted sign or rock with the

letter 'SP'. If a sign is used, it should be square in shape with sides at least 50 cm in length and, where possible, be positioned approximately 125 cm above the ground surface.

4) Turning Point (TP): A TP should be positioned at each point at which the boundary of the hazardous area changes direction. A TP should consist of a single metal rod driven flush in the ground. The position of each TP should be located using a bearing and distance from the previous TP or the SP. Positions of TPs may not be recorded with GPS.

   All TPs shall be clearly marked with an appropriate painted sign or rock placed above the metal rod. The sign or rock shall be marked with the letter 'TP' and the TP number, determined sequentially from the SP, in white. If a sign is used, it should have a diameter of not less than 30cm and, where possible, it should be positioned approximately 125 cm above the ground. The bearing of each direction changes and the distance between the SP and TP1 and between individual TPs should be recorded on the hazardous area map included with the IMSMA Minefield report.

   If the distance between two TPs is more than 50m, then IPs shall be used to ensure that the direction between TPs can be easily and accurately followed. The IP shall consist of a single metal rod driven flush into the ground and should be marked with a sign or rock above the rod. They shall be painted the same as TPs but shall not be numbered. If a sign is used, it should have a diameter of not less than 30cm and, where possible, be positioned approximately 100 cm above the ground. IPs shall be positioned at intervals appropriate to the site conditions.

### 7.2.2 Perimeter and Clearance Lane Marking

The perimeters of all hazardous area, the clearance lanes and other necessary aspects as detailed below shall be clearly marked with appropriate markers as part of the land release operations. The wooden pickets, posts and or painted stones shall be used as appropriate to the prevailing local and ground conditions and availability of the material.

The following color code and identification system shall be adopted and used in the context of Sudan, by all mine action organizations conduct land release operations.

1) Red and white rocks: The rocks used for marking purpose shall not be less than 10 cm in diameter. The red and white are the preferred method of delineating between hazardous and safe areas and should be used whenever practical and available for the following reasons:

   a) Rocks are generally of no use to the local population and therefore less likely to be removed.

   b) Use of painted rocks clearly defines safe and hazardous areas, as the red side shall be positioned towards the hazardous area and the white side to the safe area.

   c) Painted rocks are unambiguous in certain circumstances including clearance lanes, cleared lane and intermediate lanes. When used, rocks shall be spaced at a maximum of 1-meter intervals.

2) Short, red-topped picket: Indicate the boundary between clear and hazardous areas. They shall be spaced at a maximum of 1 meter and minimum of 30 cm above the ground.

3) White-topped picket or white painted rock: Indicate the boundary of designated safe areas. Pickets shall be a minimum of 30 cm above the ground.

4) Yellow-topped picket or yellow painted rock: Indicate the location of destroyed anti-personnel mines, anti-tank mines or ERW.

5) Blue-topped picket or blue painted rock: Indicate the start of a deminer's daily clearance and the location of metal collection pits.

6) Green-topped picket or green painted rock: Indicate the area sample checked as part of the Quality Control activity.

7) Long-red topped post: Indicate the boundary between clear and hazardous areas. They shall be spaced a maximum of 15 m apart and posts shall be a minimum of 1 m above the ground. A mine warning sign is normally positioned on these posts. When used during clearance operations, small red topped pickets or red rocks shall be positioned between the long red topped post at a maximum of 1 m intervals, especially when visibility between long pickets or large stones is restricted due to terrain and or vegetation.

8) Crossed Red Pickets: Used to indicate the extent of clearance when work ends in a clearance lane for whatever reason and for whatever length of time.

The aim of marking is to have one continuous perimeter that at all times clearly defines the hazardous and safe areas throughout the life of a demining worksite. Refer to Annex A of this SNMAS for pictorial representation of the marking which shall be used as part of land release operations in Sudan.

#### 7.2.3 Base Sticks

The Base Sticks shall be used by deminers to maintain clearance lane width during the clearance. The area behind the base stick indicates cleared area while the area in front of base stick is un-clear area and shall not be crossed be crossed at any time.

The red painted portion of the base stick (100 cm) marks the correct lane width whilst the white ends (10 cm each side) serve as a reminder to the deminers to overlap the clearance area into the adjoining lanes and as safety margins.

The two lengths of mine marking tape or cord shall be attached to the base stick in an appropriate fashion that enables it to be unreeled as the deminer progresses so as to indicate progress in the current clearance lane and to assist in the maintenance of the required direction of clearance. Appropriate stone or stick marking shall be placed as forward progress is made, at 1 m intervals.

### 7.3. Marking System of a Released Area

The marking of areas that have been released following land release process shall:

1) Provide a clear and unambiguous picture to the landowner and beneficiaries about the released area, with white marking and white cross marker on all hazard markers including hazards signs.
2) Include control markers with indication of area released from hazards. Presence of control markers after the area is released from hazards will help the programme to easily locate and approach safely, if follow up work is required.

3) If only a portion of a hazardous area is cleared, and suspected areas remain, then the unclear areas shall be fenced where possible or marked properly. The areas that are assessed as having "no evidence of" hazards; do not need to be fenced but should be recorded as not being cleared; either cancelled or reduced.

All perimeter and control points shall be indicated on both the IMSMA Completion Report and associated map.

## 8. Responsibilities

### 8.1. National Mine Action Centre (NMAC)

As the coordination and regulating body for mine action in Sudan, NMAC is responsible to:

1) Develop, update and publish standards for the design and construction of appropriate and achievable hazard marking systems to be used in Sudan.
2) Maintain hazardous areas marking system proper communication with local government authority and local people.
3) Monitor establishing marking system by demining and survey teams, based on the requirements of this SNMAS.
4) Review and accredit mine action organizations marking SOPs, and
5) Ensure that mine action teams have properly briefed local people and communities about the marking system and their importance and maintenance.

### 8.2. Mine Action Organizations

All mine action organizations accredited and conducting survey and land release operations in Sudan, shall:

1) Develop SOPs for marking system, either separate or part of survey and clearance procedures.
2) Include hazardous area marking system in their Survey and Clearance training management packages and provide the training to their survey and demining teams.
3) Consider the requirements of this SNMAS when establishing markers as part of survey and land release operations.
4) Ensure quality of markers and marking materials to be durable and stay clear throughout the intended timespan.
5) Ensure that their teams have properly briefed local people and communities about the marking system and its importance.
6) Coordinate their marking systems with other demining organizations operating in the area.
7) Include marking system features in their RE messages or provide inputs to RE organizations to include marking system features in RE messages.

# Sudan National Mine Action Standards – SNMAS 06.01

Second Edition: December 2018
Version 02

## Clearance Requirements

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**Contents**

## 1. Introduction

Mine and Explosive Remnants of WAR (ERW) clearance is an important part of land release operations. Land release is described as the process of applying all reasonable effort to identify, define, and remove all presence and suspicion of mines and ERW through non-technical survey, technical survey and or clearance. Clearance is the last activity in land release process and should mainly be carried out in Confirmed Hazardous Areas (CHA), however, parts of Suspected Hazardous Areas (SHA) may also be recommended to limited clearance operations,which are normally established following a non-technical survey or technical survey. The aim of clearance is the identification, removal and destruction of all mines and ERW hazards, from a specified area to a specified depth to ensure the land is safe for land users.

The land release including clearance shall be undertaken in such a way that the beneficiaries of are fully confident that cleared and released land is safe for their use. This requires management systems and clearance procedures which are appropriate, effective, efficient and safe. The communities live in and around the hazardous areas shall be involved in the process and receive regular briefings and explanations during the clearance operation as this acts as a very effective confidence building measure; Community Liaison (CL) is an integral part of the land release process and shall be considered by mine action organizations throughout the demining and other mine action activities including Mine and ERW Risk Education (MRE).

To build the confidence of land release beneficiaries and stakeholders, mine action organizationsshall establish an effective management system, establish and follow programme policies, develop and maintain operating procedures, and apply these procedures in a safe, effective and efficient manner. Management system and operating procedures shall be based on national mine action standards and auditable.

## 2. Scope

This SNMAS provides standard guideline on clearance requirements within the mine action context of Sudan which includes manual clearance and road and routes clearance. This standard should be read in conjunction with national standards for Battle Area Clearance (BAC), Explosive Ordnance Disposal (EOD), Mechanical and MDD standards, and other national standards for land release process. All mine action organizations working in Sudan shall develop their SOPs considering the requirements of Sudan national mine action standards.

## 3. References

IMAS 09.10 is the main reference for this SNMAS, however, Sudan specific requirements have also been considered.

## 4. Terms and Definitions

A complete glossary of all the terms, definitions and abbreviations used in the SNMAS are given in IMAS 04.10. However, all the terms relating to land release process are covered in SNMAS 07.01.

## 5. Manual Clearance Requirements

### 5.1 General

The following requirements shall be considered in Sudan Mine Action Programme:

1) A specified land shall be accepted as 'cleared' when all mine and ERW hazards are identified and destroyed from that area to the specified depth.
2) The specified area to be cleared shall be determined by a non-technical and or technical survey or from other reliable information which establishes the extent of the mine and ERW hazard area.
3) The priorities for clearance as part of land release process or standalone clearance intervention, if needed, shall be determined based on the requirements of SNMAS 03.01 and the priorities of affected communities and humanitarian and development needs.
4) All mine action organizations conducting land release operations in Sudan, shall be operationally accredited covering all their capabilities such as manual, mechanical and mine detection dog.
5) Each hazardous area shall be subject to reconnaissance prior to issuance of task order by NMAC.
6) Community Liaison shall be an integral part of land release process including clearance operations.

### 5.2 Steps of Manual Clearance Operations

Generally the followings steps should be considered during manual clearance operations:

1) Visually and manually inspect the area in front of the Base Stick for tripwires, ERW, surface-laid mines, protruding fuses or suspicious objects;
2) Using a tripwire feeler to search for tripwires if the minefield is covered by vegetation;
3) Clear vegetation as required, using a appropriate tool.
4) Carry out controlled sweeps with a metal detector over the entire width of the clearance lane.

### 5.3 Detection of Tripwires

Alight-gauge tripwire feeler that is fabricated in such a way to allow the detection of loose and tight wires shall be used to locate tripwires. If the vegetation does not allow the use of a tripwire feeler, the deminer shall proceed with visual search followed manually with the use of hands slowly moving forward, gently parting any thick vegetation that may obscure tripwires.

### 5.4 Vegetation Removal in Clearance Lane

Vegetation removal shall take place in a safe and controlled manner, limiting environmental impact of vegetation removal and avoiding any disturbance of vegetation outside the width of the clearance lane.

The demining teams shall undertake a field risk assessment (FRA) and specify the level of vegetation effects as site specific obstacles, and the develop and apply the appropriate procedure for vegetation removal. The FRA shall be submitted to NMAC sub office for approval.

### 5.4.1 Burning Vegetation

To avoid environmental impact of demining operations, burning of vegetation should not be the primary option, rather and if needed, vegetation removal through cutting them in clearance lanes should be considered as preferred method. However, if burning found to be the only option to facilitate safe clearance, then the following requirements shall be met:

1) Demining organization's supervisor and team leaders consulted with NMAC, local authority and community and got their agreement;
2) Ensure that there is no damage to neighboring areas;
3) Ensure limited burning of vegetation;
4) Ensure no movement around and in the vicinity of burning vegetation, as burning may alert the stability of ERW and can result in explosion;
5) A minimum wait time of 24 hours should elapse between burning an area and manual clearance taking place on it;
6) In all cases, a suitable firebreak should be constructed and NMAC sub office and local services (if available) shall be informed, during the burning operation;
7) A minimum wait time of one week shall elapse between burning an area and MDD operations taking place; and
8) The authorization for burning shall be taken from NMAC sub office.

## 5.5 Use of the Metal Detector

Metal detector shall be properly assembled, tested and compensated (detectors with such specification) prior to start sweeping in a clearance lane, it shall always be ensured that each single detector is fully functional, checked, balanced and its sensitivity adjusted to the target specified in the area.

As routine confirmation test, the sensitivity of the metal detector shall be checked at least once every **fifteen minutes** and any changes shall be notified to team leader and recorded. Details of detector calibration from the manufactures shall be included in the organizations SOPs.

The detector shall be used to check the minimum of 120 cm of the clearance lane; as one meter wide lane and 10 cm of safety margin to both sides of the clearance lane. The metal detector search shall be conducted to a maximum of 50 cm forward of the base stick, ensuring that the area is checked at least twice. The detector search process shall incorporate an overlap, ensuring that the distance moved forward is at least ten cm less than the distance searched.

## 5.6 Base Sticks

SNMAS 05.04 covered the requirements for Base Stick in details. The Base Stick shall be used to establish a clear understanding that the area behind the stick is safe and cleared from the hazards and the area in front of the stickis unsafe and not yet cleared. The deminer shall never cross the Base Stick forward towards the hazardous area. The detector sweep shall take place in front of the stick covering the same width and maximum 50 cm in length of the clearance lane. When moving the Base Stick forward; a safety margin or overlap of minimum 10 cm shall be maintained. It means 50cm searched but base stick shall be moved forward to a maximum of 40 cm.

## 5.7 Depth of Clearance

The depth of clearance shall be determined by the clearance organization in consultation with NMAC sub office and developed during the reconnaissance activities considering the information

from non-technical and technical surveys, or other reliable information and intended land use. Otherwise, the minimum clearance depth shall not be less than 13cm from the original ground surface to the top of explosive hazard. Specifying clearance depths will depend on the intended land use, the likely mine and or ERW hazards in the area and other environmental factors.When determining the clearance depth, the following requirements shall be considered:

1) Review and adjust the clearance depth as clearance activity progresses, and any changes agreed upon between NMAC and mine action organization and formally recorded in task dossier.

2) When explosive hazards are anticipated at depths greater than can be reliably detected with the available metal detectors, an alternative or combined method of clearance be selected and agreed upon between NMAC and mine action organization.

3) For mines and ERW laid on the surface of the ground, the specification may call for their removal and or destruction in situ. However, this shall be decided as a result of technical survey to confirm that there is no sub-surface explosive ordnance in the area.

4) Clearance in urban areas may require the removal of many meters of rubble as part of the clearance process. The depth of clearance shall be determined based on local situation and the amount of rubbles and accumulated soil on the original ground surface.

5) In situations where large ERW including bombs and missiles have been used, the depth of clearance may be several meters.

6) If the ground level has changed since mines were originally emplaced, then the clearance requirement shall be written in Task Order in such a way as to ensure that there is no misunderstanding over the required clearance depth.

Shifting sands in desert areas or coastal areas may require clearance to a depth of 1.0m or 2.0m to locate and destroy mines which were originally laid. The requirements for clearance depth as covered in this standard shall be considered in all contractual agreements Task Order. The main references for Call for Proposals and Request for Proposals within Sudan shall be Sudan Mine Action Standards.

### 5.8 Investigation of Detected Signal with Prodding

When undertaking investigation of detected signals the following are applied:

1) All the signals that are detected and pinpointed with a metal detector shall be counted as hazard item, unless the source is a visible metal fragment.
2) When the visible metal fragment is removed, the point shall be searched again to ensure no more signals exist there.
3) All the pinpointed signals shall be carefully dealt with; the investigation process through prodding shall be started from a safety distance of minimum 15cm before reaching to the signal marker.
4) The pinpointed signal shall be marked with signal marker, that is a piece of wood, square or circular in shape, 5 cm in diameter and painted with red color. Refer to annex A of SNMAS 05.04

5) The prodder shall be used considering an angle of 30 degree with the ground surface, and should be inserted to the ground in less than 5 cm apart, or less than the size of smallest mine found in Sudan and the entire width of the signal shall be covered.
6) Depth of each prod should be to the same level and where necessary the ground should be removed and a second deeper prod should be used to ensure the full search depth has been achieved.
7) Where hard ground is encountered water may be used to soften the ground before prodding.
8) When getting closer to the signal, the prodder should not be used; rather a scrapper is used to discover the source of signal.

### 5.9 Investigation of Detected Signal with Excavation or Sapping

After locating and pinpointing the signal, the appropriate NMAC approved excavation tool shall be used to remove the soil and identify the source of signal. Any excavation shall ensure the required depth is achieved and no downwards pressure is applied. The trench for excavation shall at minimum be 20cm in depth and 15 cm behind the pinpointed signal.

If an object is not located after using the prodder, the cause of the metal detector signal may be either a deeply buried mine or a Small Arm Ammunition (SSA) or small metal object. The excavation tool shall still be used to remove the soil and locate the source of signal. The same process of signal investigation shall be repeated until the source of signal is identified and the excavation trench should be wide enough to allow the movement of the excavation tool. After the removal of and dealing with signal, the area shall be re-searched with detector to ensure no more signals exist.

### 5.10 Pulling Drill

In order to facilitate safe clearance operations, there may be a need to remotely pull a mine or ERW or an obstacle in a hazardous area. When pulling is required, the supervisor is responsible for the pulling the target. The rest of team members shall be withdrawn to a safe area and sentries posted. A pulling non-stretchable cable shall be laid along the clear ground between the pulling point and the location of the item. As part of safety and protection actions, and if there is no other barrier, sandbag fulcrum should be placed at a safe distance before the item to establish barrier against blast fragmentation, and provide a greater angle to dislodge the item from its position.

As soon as the safety and protection actions completed and team members retired to the safe area, a hook/clip should be attached or the cable is tied to the target. The item shouldbe pulled in a slow, continuous motion, avoiding any sharpjerking action. A minimum wait-time of 60 seconds shall be considered before approaching the item. The type of ERW or mine being pulled shall dictate requirements for extended wait time. If signs of smoke are seen from the area, a wait-time of at least 30 minutes shall be enforced, commencing from the last signs of smoke. After the wait-time has elapsed, the sentries shall remain in position while the pulled item is checked. This is a ‘one-man risk’ and shall be conducted by an EOD qualified operator.

### 5.11 Areas with High Metal Contents

In areas where the metallic content of the soil is high, the metal detector may be ineffective. The detector procedure shall then be removed from the mine clearance sequence and replaced with a complete excavating to a depth stated in tasking order or identified during the clearance of similar tasks in the area, from the original ground surface.

### 5.12 Mountainous and Rocky Terrain

In areas where the ground is mountainous and rocky, there may be situations that permit limited use of detectors and may require removal of rocks. In such cases full attention shall be paid to possible presence of explosive ordnance beneath the rocks. Therefore, the team supervisors shall undertake periodic Field Risk Assessment to make informed and the most practical decision on the best and safe clearance methods including visual search, the use of detectors around the rocks before moving them and removal of rocks through the pulling drill. If seemed necessary to remove the rocks manually, effort shall be made to ensure there is no EO around the rock and can be lifted manually to avoid any unintended detonation. If possible, the rocks should be lifted vertically with full attention to be paid to the safety of operators.

### 5.13 Clearance of Obstacles

In EO contaminated areas with certain obstacles, a procedure for clearing obstacles shall be used as a result of comprehensive FRA. The following are considered as potential obstacles:

a) Former trenches in defensive positions;

b) Ditches in mined areas;

c) Massive barbed wire, Fortified wire entanglements; and

d) Abandoned vehicles.

Obstacles shall ideally be cleared 360 degrees around and along the axis on both sides. The EOD qualified operator should be consulted, if required.

## 6. Working Hours

A demining team shall not work longer than 50 minutes before taking a break of at least 10 minutes. The working time may vary based on weather and climate conditions. However, the deminers' rest period shall not be disturbed. A normal working day for a demining team should not exceed 8 hours, including travel to/from the site. In excessive climatic conditions, the working hours may be adjusted and reduced or the daily routine changed. A safe and sensible approach shall be considered by the demining supervisors in order to achieve the best possible clearance results without compromising the safety of demining team personnel and the quality of work.

## 7. Road and Route Clearance Requirements

Following non-technical survey (NTS), the routes and roads that have been identified as SHA, shall require further efforts of information gathering especially during the land release process. Further information gathering or NTS can result in recommending cancellation of the area, or a need for technical survey and possible limited clearance.

The routes and roads that are confirmed to contain EO, shall be subject to technical survey and clearance using appropriate methodology and assets including the use of mechanical demining units.

### 7.1 General

The following requirements shall be considered by mine action organization during road and or route clearance:

1) Width of route and road to be cleared depends on the local conditions; however, the required clearance width should not be less than 8 meters. The width can be increased to

facilitate and accommodate reconstruction machinery and activities to take place as donors may want to expand the width.

2) All survey and assessment information relating to the roads and routes that are collected through the use of different methods shall be entered to IMSMA and properly maintained for timely analysis and planning and prioritization purpose.
3) Producing hazards maps and GIS information including existing features related to the ground profile throughout the length of the routes and roads are crucial for planning and prioritization, to be considered.
4) When planning road or route clearance operations, all the information shall be properly analyzed by NMAC Operations department, its sub office and mine action organization.
5) The result of analysis shall be documented and added to the task dossier. This will help clearance organization to apply all reasonable efforts and conduct effective clearance. For details about all reasonable efforts refer to SNMAS 05.01, 05.02 and 05.03 and land release policy.

### 7.2 Road and Route Clearance Operations

NMAC operations department in consultation with sub office and a comprehensive data analysis may authorize use of certain assets and clearance methods including manual clearance, or manual supported by MDD and or mechanical, to effectively suit the specific local situations and site specific requirements; provided that the required level of confidence on detection and clearance of all hazards is built and being achieved. For details about mechanical and MDD operations refer to SNMAS 06.04 and 06.05.

Any decision on integrated operations using different assets together shall be based on a comprehensive Field Risk Assessment and properly documented.

### 7.3 Post Road and Route Clearance Marking

Where a road and or a route passes through a big CHA or SHA and the presence or suspicion of contamination remainsto the flanks of the cleared road or route and it is impossible to conduct land release operations there in immediate future; permanent marking and or fencing shall be established and erected to both sides of the road to establish a clear and visible barriers to the local people to avoid entering the contaminated areas. For details about permanent marking and fencing refer to SNMAS 05.04, however, the following requirements shall be fulfilled:

1) The Permanent Marking and Fencing should extend each side of the outer boundaries of the contaminated area, with both sides of roads being fenced; the fencing should be placed at minimum 1m inside the actual cleared area.
2) The marking of cleared route and road following clearance shall be unambiguous and permanent.
3) The control markers including Reference Point, Bench Mark, Start Point and each Turning Point shall be physically marked and situated in accordance with the requirements of SNMAS 05.04.

4) If following the NTS no specific hazardous areas are identified to any side of the route or road and if the width of it is less than 50 meters; then the left side of the road and route shall be used as the marking line.
5) Coordinates of control markers shall be recorded either with DGPS or GPS.
6) All turning points coordinates, shall be recorded and included in IMSMA Completion or Suspension report, and associated map submitted.

### 7.4 Post Route Clearance Documentation

If presence or suspicion of contamination remains to both or one flanks of the cleared route or road, it shall be clearly mentioned in IMSMA completion report, if needed the remaining area should be surveyed as a separate hazardous area either SHA or CHA based on indirect or direct evidence identified there. If there is no presence or suspicion of hazards remained around the cleared route or road, this shall also be covered in IMSMA completion reports.

## 8. Community Liaison

Community Liaison shall be considered an integral aspect of mine action activities including land release process. CL intended to ensure the SMAP is sensitive and responsive to community needs and priorities including the needs of men, women and children. Mine action organizations shall ensure that the mine and or ERW affected communities understand and support mine action activities.CL in land release operations includes the following activities:

1) Data gathering on the scope and impact of mine and ERW hazards and victims of mine or ERW incidents, prior to the implementation of mine action, especially land release activities.
2) Establishing a baseline for data gathering on socio-economic impact of demining services, after the completion. This will help SMAP to measure the impact of humanitarian demining, learn lessons and to encourage socio-economic and development interventions;
3) Liaison and support to the local community members and leaders before, during, and after demining operations, to ensure that local needs are addressed and full consultation and dialogue is established;
4) Collecting information on hazardous areas, to facilitate mapping and marking of such areas and help identify and prioritize demining activities;
5) Liaison with government bodies, NGOs, mine action organisations and UN agencies to ensure a coordinated approach to development;
6) Providing information to the community representatives including men, women and youngsters on demining intervention and deliver RE to at-risk group of people within the community.
7) Supporting local community in its developmental efforts, through liaison with development agencies, victim assistance programmes, advocacy programmes and other community-led initiatives.

All the above activities should ensure that a mine action organisation will operate in the context of genuine, identified humanitarian needs, in full collaboration with the mine action stakeholders and beneficiaries.

## 9. Responsibilities

### 9.1 National Mine Action Centre Sudan (NMAC)

The Sudan National Mine Action Centre with technical support of UNMAS shall:

1) Specify the area to be cleared and depth of clearance in contracts, agreements and tasking order;
2) Specify the standards and guidelines for monitoring and QC to be applied to clearance contracts and agreements;
3) Accredit demining organizations and their clearance assets to undertake clearance operations in Sudan;
4) Conduct monitoring and QC of land release including clearance operations and outputs;
5) Undertake post demining impact assessment (PDIA) of the areas released through NTS, TS and clearance;
6) Manage and maintainInformation Management System through IMSMA to record all survey and clearance data; and
7) Manage and maintain a quality management system in SMAP to ensure consistent delivery of quality clearance and land release services.

### 9.2 Mine Action (Demining) Organizations

All mine action (demining) organizations working in Sudan shall:

1) Obtain accreditation from NMAC to operate as a clearance organization;
2) Apply the requirements of SNMAS throughout the clearance and land release operations, as specified in their contract agreements;
3) Develop SOPs for clearance and land release activities;
4) Maintain and make available documentation of clearance to NMAC and properly report their outputs in standard IMSMA forms as specified in SNMAS 10.01;
5) Ensure effective application of community liaison with the affected community and they are fully consulted and are cognizant of all demining activities in the area;
6) Ensure that the clearance priorities of men, women and children are considered throughout the clearance and land release operations;
7) Undertake internal monitoring and QC of their clearance activities and outputs, and regularly report to NMAC on the quality of their demining activities.

# Sudan National Mine Action Standards – SNMAS 06.02

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Version 02

## Battle Area Clearance (BAC)

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Contents

## 1. Introduction

Armed conflicts and hostilities leave behind munitions, if not managed immediately after the hostility and conflict is over or ceased; they can cause and pose severe impact on the communities and people living around or close to those battle areas. Presence of munitions can also hinder livelihood and development interventions. The common understanding is that the munitions that areused during the armed conflicts, do not all of them always work as intended, rather some of them remain unexploded.

In situations where there has been high ammunition usage rates the resulting hazards from Explosive Remnants of War (ERW) can be extensive across battle areas. In addition, in almost all post-conflict environments, there have been undesired explosive events in ammunition storage facilities because of inadequate and/or inappropriate munitions management. As a result, ERW have been dispersed and scattered over a large area around the storage facilities.

The hazardor risk from ERW will vary according to the munitions type and a number of factors associated with their release, firing or arming systems. Therefore, if the condition of an item of ERW cannot be established, the principle is to treat each ERW item as hazardous and to destroy them in situ. The purpose of dealing with ERW as part of demining operationsin Sudan is to survey, identify, remove and destroy all ERW hazards from a specified area to a specified depth to ensure that the land is safe for land users. Battle Area Clearance (BAC) is the systematic and controlled clearance of ERW contaminated areas where the risk is known to be ERW.

It is paramount that the confidence of beneficiaries and stakeholders is built on the areas cleared from ERW that they can safely use the land after clearance completed. Undertaking BAC operations requires well established management system,operating procedures, well trained operators and quality assurance and monitoring processes which are appropriate, effective, efficient and safe. To achieve the confidence of beneficiaries, the planning and prioritization for BAC shall consider national and local level needs and requirements. Community liaison is effective confidence building measure in demining including BAC operations.

All the hazardous areas contaminated with mine and or ERW in Sudan shall be surveyed and recorded in IMSMA as CHA or SHA based on the direct or indirect evidenceof hazards that are identified during survey activities, the requirements for survey are detailed in SNMAS 05.02. However, many CHAs and SHAs will only contain ERW including unexploded Land Surface Ammunition (LSA) and or unexploded air delivered weapons which require BAC operations. BAC is the term used to describe the systematic search, locating and clearance of all items of explosive ordnance within a given area.

## 2. Scope

This SNMAS provides standard guidelines and requirements for the clearance of explosive remnants of war (ERW) and BAC operations in Sudan. This SNMAS should be read together with SNMAS 06.01 for clearance requirements and SNMAS 05 series for land release operations.

## 3. Reference

The main reference for this SNMAS is IMAS 09.11.

## 4. Terms and Definition

A complete glossary of all mine action terms and definitions is given in IMAS 04.10, which should be referred to, IMAS 04.10 is inclusive and broader in principle, covering all mine action terms and definition that are used globally including Sudan. However the terms related to BAC operations are covered in this SNMAS and those used in Land Release are covered in SNMAS 05.01.

The term "Battlefield" refers to an area in which ERW including UXO and Abandoned Ordnance (AO) 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.

The term "Battle Area Clearance (BAC)", refers to the systematic and controlled clearance of hazardous areas where the hazards are known not to include mines.

The term "Cluster Munition" refers to a conventional munition that is designed to disperse or release explosive sub-munitions each weighing less than 20 kg and includes those explosive submunitions.

## 5. Battle Area Clearance (BAC) General

BAC operations involve locating, investigation and disposal of ERW, including UXO, Abandoned Explosive Ordinance (AXO) and other Explosive Ordnance, but not mines, over specific areas, which may include battlefields, defensive positions and sites where air delivered or artillery munitions have been left, fired or dropped. Prior to conduct BAC operations, the demining organizations shall be accredited for BAC operations and shall use NMAC approved BAC SOPs, equipment and well trained and qualified operators.

BAC operations involve surface and sub-surface clearance and this shall be decided based on a comprehensive Field Risk Assessment (FRA), and the requirements of beneficiaries and humanitarian and rehabilitation priorities and intended land use. However, the first option should always be the sub-surface clearance in all BAC tasks, unless technical survey dictates that there is no need for sub-surface clearance in parts of or in the whole BAC task. BAC operations do not cover the disposal of stockpiled munitions in national storage facilities.

Former battlefields shall be accepted as "cleared" when the clearance organisation has ensured the removal and or destruction of all, or specified, ERW hazards, depending on the tasking order and instructions, from the specified area to the specified depth.

## 6. Battle Area Clearance Requirements and Prioritization

### 6.1 BAC Prioritization

Priorities for BAC tasksas part of humanitarian demining should be established at the outset, and as a result of analysis on non-technical survey data and requests for clearance. The priorities for clearance shall be determined based on the impact of battlefields on the communities, the blockages they have created and based on the national mine action plan and the needs and priorities of humanitarian assistance missions. For more details about planning and prioritization, refer to SNMAS 03.01.

The priorities for BAC clearance as part of supporting development interventions may specify an exact area to be cleared with clearance depth specified for different areas depending on the assessment of hazard site and the intended land use.

### 6.2 Quality of Clearance

The requirements for BAC depend on the extent and type of hazards, and the site specific conditions. The two categories of clearance are surface and sub-surface clearance, the clearance organization shall make an appropriate and evidence based decision on the extent of surface and sub-surface clearance to be undertaken in a BAC tasks. A comprehensive technical survey as per the requirements of SNMAS 05.03 and Field Risk Assessment shall be conducted in each BAC task in order to support decision making process for surface and or sub-surface clearance.

Surface clearance usually relies on visual search;however, there may be situations that need instrumental search to supplement and facilitate BAC search of areas with vegetation, earth mounds and other areas that limit the visual search. Recording of searches, munitions types and locations of items found is crucial in BAC operations that can assist in determining the requirements for sub-surface search and clearance.

At minimum the sub-surface search of 20x20 meter boxes shall be conducted on all direction from the location where an ERW item or several munitions have been identified during the surface search, the boxes shall be expanded based on the types of hazards and the worksite requirements.

Unless specific requirements dictate, all ERW items found during BAC operations should be destroyed in-situ. If in situ destruction is not possible, all safe to move ERWand Small Arms Ammunition (SAA) and hazardous parts thereof, shall be removed and disposed of, in a designated demolition site; in accordance with requirements of SNMAS 06.03 Explosive Ordnance Disposal.

All ERW contaminated areas are subject to sub-surface clearance, unless technical survey identifies certain parts within a hazard require only surface clearance. Decision on surface clearance shall be based on the findings of technical survey and field risk assessment. All technical survey reports shall be submitted to NMAC through its sub offices by clearance organizationfor approval, prior to conduct further clearance operations.

The removal and destruction of all or specified ERW hazards, in the specified area to the specified depth shall be achieved by:

1) Tasking BAC accredited organisation with operationally accredited capabilities including competent staffwith appropriate levels of EOD qualification, using effective management system,and applying safe and effective operational procedures (SOPs) approved by NMAC;
2) Internal and external Quality Assurance monitoring ofthe BAC operations and Quality Control of the cleared areas and outputs;
3) Regular review of the QA and QC findings and taking required improvement actions;
4) Ensuring proper community liaison and involvement of people including men, women and children;
5) Conducting post-clearance impact assessment of the cleared land.

### 6.3 Depth of Clearance

The depth of clearance in BAC operations shall be determined by the clearance organization in consultation with NMAC sub office, based on the findings of non-technical and technical surveys and other reliable information including technical survey and clearance of the neighbouring battle areas cleared which can establish the depth of ERW hazards expected in the area, comprehensive FRA and an assessment of the future intended land use. If required inputs to establish clearance depth are not available or cannot be obtained, then the minimum clearance depth should be adjusted based on the types of anticipated ERW hazards, the metal contents and the calibre of ERW items. Below mentioned requirements shall be considered by clearance organizations when establishing clearance depth in BAC tasks:

a) ERW may be on the surface of the ground. In this case, the specification may call for the removal and or destruction only of surface ERW hazards;
b) Clearance in urban areas may require the removal of many meters of rubble as part of the clearance process;
c) In situations where large bombs and missiles or heavy calibre projectiles have been used, the depth of clearance may be several meters;
d) Shifting sands in desert areas or coastal areas may require clearance to a depth of

several meters to locate and destroy ERW which were originally on or close to the surface;

The following should be considered when ERW hazards are located in a piece of ground that requires sub-surface clearance:

e) 30 cm from the original ground surface for ERW with calibre 82mm and smaller, ;

f) 100 cm from the original ground surface for ERW items with calibre between 82 and 120 mm; and

g) More than 100 cm to several meters for heavy ERW including air dropped bombs and artillery munitions.

The required clearance depth can be adjusted as clearance work progresses. Any change shall be agreed between NMAC and the clearance organisation, and shall be formally recorded in task dossier. The clearance operations may be repeated if there is a subsequent change to the land use which requires a greater depth of clearance; this should be decided by NMAC and communicated to clearance organization.

**7. Cluster Munitions (CMs)**

Cluster munitions are delivered by a wide variety of launch or delivery systems, such as missiles, rockets, projectiles, mortars or aircraft dispensers. The CMs are normally dispensed in one of three ways; base ejection, nose ejection or case rupture. Since sub munitions disperse after ejection, the density of the impact footprint is dependent on the speed and altitude at which the dispenser, projectile or rocket opens.

The failure to detonate rate of CMs cannot be accurately determined, unless such necessary strike data is available.

The requirements given in this standard provides the foundation and framework from which each mine action organization shall develop their SOPs.

1) Once a cluster munitions strike area has been identified, it shall be surveyed and recorded in IMSMA.

2) All CMs sites shall be prioritized based on the threat to human life and livelihood and shall be cleared as per the requirements of this standard.

3) The clearance of cluster munitions strike areas should employ a two-phase approach, including visual search (phase one) as a means of rapidly removing the immediate and obvious cluster munitions threat and risk to human lives.

4) During the visual search the site supervisor shall ensure that a strict control is maintained, and the area is thoroughly investigated.

5) The CMs that require to be destroyed in situ shall be clearly marked and the local population warned of the threat, before demolition. If required, protective work to be employed to minimize damages.

6) Close liaison with the local community, local authority and any other organizations working in the immediate vicinity shall be maintained when conducting demolitions particularly in built up areas.

7) Site supervisor shall determine as accurately as possible and record the coordinates of the centre of the cluster strike. This recorded information shall be used during the phase two of clearance which is sub-surface search using detection tools and equipment.
8) The information gathered during the Phase I visual search should be used to assist with the Phase II planning of technical survey and clearance including targeted investigation to the cluster strikes and systematic investigation in rest of the CMs task.

9) Phase II search shall be conducted immediately after phase I and may be conducted as a combination with Phase I.

10) A site-specific clearance depth shall be agreed between the clearance organization and the NMAC operations department and sub office and shall be formally recorded in the clearance plan for each CMs site.

11) If any mines, tripwires or suspicion of mines are discovered during the sub-surface search, the task shall immediately be stopped, the appropriate safety requirements considered, and the facts reported to NMAC sub office and operations department.

12) The clearance organization shall undertake a comprehensive field risk assessment (see Annex A to SNMAS 05.03), revise the operational plan obtain NMAC approval of the changes in operations.

## 8. Detection Equipment

For sub-surface BAC various detecting equipment may be appropriate, that include:

1) Shallow search metal detectors, the same as used during mine clearance operations, however, operational efficiency needs to be considered when using them in BAC operations.
2) Shallow search metal detectors which are designed or calibrated against a specified ERW targets.
3) Wide area and large loop metal detectors
4) Deep search locators.
5) Magnetometers.
6) Detector arrays, manually carried or mounted on vehicles,
7) Possible use of mine detection dogs (MDD), however, the use of MDD will be severely limited in highly contaminated ERW hazards due to dispersed explosive contamination of the land.
8) Any new detection technology that comes to exist.

## 9. Safety

The minimum safety distances for BAC operations are dependent on the expected hazard and the type of operation being conducted. The following requirements shall be considered by clearance team:

1) For surface clearance investigation of ERW, where there is a risk of movement or disturbance of ERW items, a minimum of 50 meters of safety distance is considered and the principle of the minimum number of people in a specified danger area applied.

2) For sub-surface clearance involving excavation, a suitable safety distance related to the expected munitions is assessed and applied. The safety distance should be based on the

conduct of FRA, and minimum of 25 meters is applied, the safety distance can be increased based on the type of anticipated ERW item; to a minimum of 50 meters.

## 10. Recording and Reporting

Management and maintenance of comprehensive records relating to what has been found in BAC operations, by which organization, where and in which depth will assist Sudan Mine Action Programme (SMAP) short and longer term planning.

To respond to urgent humanitarian needs; rapid surface BAC will reduce risk to communities, IDPs and returnees, and enable access across the land. In the longer term, additional sub-surface clearance may be or become necessary. There are significant benefits of maintaining records indicating what type of munitions may be found in different areas, based on surface clearance data. It is therefore crucial that all BAC completion reports shall have records of the type of ERW identified during clearance operations. Every BAC task, regardless whether it is surface or sub-surface, shall be accurately documented including the type of ERW, and recorded in IMSMA.

IMSMA and GIS shall enable accurate information management to help plan immediate and long term BAC and EOD requirements. To properly manage the residual risk of ERW contamination in Sudan, a robust and comprehensive recording system within IMSMA shall be managed and maintained.

## 11. Responsibilities

### 11.1 National Mine Action Centre Sudan (NMAC)

The Sudan National Mine Action Centre with technical support of UNMAS shall:

1) Specify, plan and prioritize the ERW contaminated areas to be cleared and the depth of clearance in tasking order.
2) Specify the standards and guidelines for monitoring and QC to be applied to clearance contracts and agreements.
3) Accredit demining organizations and their clearance assets to undertake BAC operations in Sudan.
4) Conduct monitoring and QC of land release operations and outputs.
5) Undertake post demining impact assessment (PDIA) of the areas released through NTS, TS and clearance.
6) Manage and maintain Information Management System through IMSMA to record all survey and clearance data.
7) Manage and maintain a quality management system to ensure consistent delivery of quality clearance and land release services.

### 11.2 Mine Action Organizations

All mine action organizations working in Sudan shall:

1) Obtain accreditation from NMAC to operate as a clearance organization.
2) Apply the requirements of SNMAS throughout the clearance and land release operations.
3) Develop SOPs for BAC operations.
4) Maintain and make available documentation of clearance to NMAC and properly report their outputs in standard IMSMA forms as specified in SNMAS 10.01.

5) Ensure effective application of community liaison with the affected community and they are fully consulted and are cognizant of all demining activities including BAC operations.
6) Ensure that the priorities of men, women and children are considered throughout the clearance and land release operations.
7) Undertake internal monitoring and QC of their clearance activities and outputs, and regularly report to NMAC on the quality of their demining including BAC operation.

**Annex A to SNMAS 06.03 Central Disposal Site**

## 1. General CDS Requirements

### 1.1. Considerations for Physically Sighting the CDS

Careful consideration shall be given to the physical sighting of the CDS, and the following points shall be adhered to:

a) The CDS shall have a safety distance of not less than 2,000 meters from the communities and other populated areas.

b) The land on which the CDS is to be used shall not be in use by the public and shall have no grazing or agricultural value.

c) The area shall be clear of inhabited buildings and personnel for at least 2,000m in all directions.

d) Access to the area should be controllable, with the use of warning signs, observation points and sentries.

e) A suitable protected firing point should be located a minimum of 300m from the demolition site and situated where maximum visibility to the whole area is available. A protected firing point is not necessary if a remote-controlled firing device is being utilized.

f) Suitable parking and access routes should be available for delivery of the UXO.

g) Liaison shall be conducted with local authorities and Government, Police and surrounding villagers.

h) The location should offer limited or restricted access by local population and situated at a safe distance from local villages, main roads and farming land.

i) Probable noise levels, ground shock and blast damage to dwellings, security of the site, presence of nomadic tribes and any other local influences must be strongly considered.

## 2. Properties of CDS

### 2.1. Disposal Grounds at a CDS Require the following Properties:

a) Isolation: Isolation is the most important requirement for the safety and protection of personal property, livestock and structures.

b) Deep soil: That is reasonably free of rocks and stones.

c) Secondary fire hazards: Disposal sites shall not be located over pipelines, over power cables or near fuel storage areas.

d) Electro-Magnetic Fields (EMF): Major demolitions are normally initiated by electrical means which are vulnerable to external EMF. Disposal sites shall not be situated near radar installations, radio transmitters or high-voltage power lines.

e) High ground: Higher ground reduces the effects of blast and ground shock and is also relatively well drained. However, high ground also tends to increase fragmentation range.

## 3. Priorities and Principles of CDS

The destruction and demolition of munitions and EO are potentially hazardous activities and involve risk and the risks are minimised if the correct priorities and principles are followed.

### 3.1. Priorities

The priorities that shall always be observed at a CDS are:

a) Safety: Safety of both personnel and property, if a method is not safe it shall not be used.

b) Security: Security of both the items being destroyed and the serviceable explosives used to destroy them.

c) Accounting: Proper accounting of explosive usage is critical. Any losses of explosives shall be promptly identified, investigated and reported.

d) Speed of Work: Speed shall never be achieved at the expense of any of the first three priorities.

### 3.2. Principles

The following principles shall be applied to all EO disposal tasks:

a) Know the ammunition: It is crucial to know in detail both the EO being destroyed and the explosives being used. Unless the design characteristics of both are known, it will not be possible to determine a safe and effective means of disposal.

b) Plan the task carefully: Do not leave the planning until arrival at the disposal site, work out the program and procedures in details; well in advance.

c) Create a safe working environment: Create and maintain a working environment that is safe for everyone; the disposal party, other personnel, local population, property, livestock, vehicles and equipment.

d) Give and obey directions precisely: The disposal site is no place for ambiguity or misunderstanding. Directives shall be clearly understood by all personnel.

e) Careful observation: Observe all the safety precautions and use only the approved methods, do not take short cuts.

f) Clear the disposal area prior to departure: No disposal task is complete until the demolition danger area has been cleared of all hazards and contamination, including clearance of all rubbish and litter.

## 4. CDS 'Site Standing Orders'

The CDS 'Site Standing Orders' shall include information on the following requirements:

a) The types of disposal operations that is going to be conducted and the limitations on these operations.

b) The layout of the site; including all Control Points and, where necessary, the location of separate areas for conventional demolitions, burning and other specialized disposal operations.

c) The command and control arrangements; including the location and manning of sentry points.

d) The safety requirements; including authorized access routes, the route(s) to the nearest suitable medical facility, the position of warning signs and marking and the provision of fire-fighting equipment.

e) Where applicable, any requirements and procedures to be followed for the issue of 'Notice to Airmen (NOTAM)'.

f) Communications.

g) Environment.

h) Liaison; both with local authorities and the community before and after disposal activities are conducted.

i) Post-disposal clearance of scrap and physical maintenance of the site.

j) All requirements for the keeping of records of the items having been disposed of.

## 5. Demolition Pits Requirements

The requirements of a demolition pit at the CDS are as follows:

a) When possible site the pit in a natural depression and in soft ground.

b) The pit should as much as possible be free from stones and any other material that could create flying fragments and debris during demolitions.

c) The pit should initially be dug approximately 1.0m x 1.0m x 1.0m. It will get progressively larger with each demolition.

d) The soil excavated from the pit should be mounded around the top outer edges and compacted in order to deflect blast and improve fragment containment.

### 5.1. Rules for the Use of Demolition Pits

Demolition operators should utilize existing demolition pits when it is practical to do so. The following rules shall be adhered to when using a demolition pit within a CDS:

1) Before and after each use, the pit shall be checked for any unexploded ordnance.
2) Maximum effort shall be made to avoid the risk of items being thrown out of the demolition pit during demolitions.
3) Any intended destruction of white phosphorus (WP) shall be detailed to the NMAC Operations and its sub office
4) No pit shall be used for at least 24 hours following a detonation, unless the ground is thoroughly soaked with water.
5) Safe routes into the pits shall be established and all working areas in pits shall be safe and stable.
6) Measures shall be taken to ensure that personnel do not walk or stand over undercuts into the sides of pits.

### 5.2. Loading the Demolition Pit

To ensure complete destruction of all EO set up in the pit for demolition and to minimize blast and fragmentation affect from the demolition, the following points shall be adhered to when loading the demolition pit:

a) When forming stacks items shall be placed in the pit in four layers, the bottom layer should contain low quantity of explosives like fuses, grenades and SSA. The second layer should contain thick cased munitions. Thin cased high explosive items shall then be placed in third layer and then fourth layer should contain donor charge items.

b) To establish and maintain an effective propagation wave and ensure a successful demolition, air voids shall be minimized. Munitions shall therefore be placed directly in contact with a donor charge and directly in contact with each other.

c) Stacks and their explosive chains shall be stable enough and sufficiently shielded so as not to be affected by detonations in other pits.

d) Once the donor charges have been placed, the stack may be covered with a plastic sheet and the pit backfilled and tamped with soil.

e) All munitions awaiting destruction shall be stored outside the fragmentation distance, if they are not to be used for the serial being loaded.

f) Minimum number or personnel should be used when loading the demolition pit.

g) The pit shall never be more than half filled with EO.

h) Detonators or initiation sets shall not be buried under any circumstances.

## 6. CDS Control Points

Several control points are required at a CDS, and shall include:

a) Vehicle parking area.

b) Command Post (CP).

c) Stores and administration area.

d) First aid post.

e) Helicopter Landing Site (HLS), if appropriate.

f) Rest areas.

g) Safety areas.

h) Field explosive store.

i) Toilets.

j) Firing point.

k) Sentry points.

l) Locations for warning signs.

### 6.1. Sentries

1) Placement of Sentries: The placement of sentries shall conform to the following requirements:

   a) Sentries shall be placed to control all likely access routes to the disposal site.

   b) Sentries shall be placed outside the danger area. Where sentries cannot be placed outside of the danger area, they shall be provided with suitable protection from the danger of fragmentation and blast. This protection shall not to affect the sentry's ability to effectively fulfil their duties.

   c) Sentries shall be able to observe the whole danger area including gullies and dead ground.

   d) Sentries shall be allocated individual areas of responsibility and these areas shall overlap to ensure complete coverage.

   e) Sentries shall have radio communications with the firing point as the primary means of communication and have an alternate means of communication.

   f) The supervisor of the disposal task shall regularly test communications with the sentries. If communications are lost, preparation for the demolition shall be suspended until communications are re-established.

2) Briefing of Sentries: Prior to placing sentries, the supervisor of the disposal task shall thoroughly brief the sentries on their responsibilities and duties. As a minimum, the points shall be covered during the briefing:

   a) The precise location of their sentry post and their individual area of responsibility.

b) The location of other sentries.

c) The requirement to remain all-times alert.

d) The procedure for communications checks and the call signs and signals to be used.

e) The alternative means of communications to be used if radio communications fail.

f) The action the sentry shall take in the event of misfires, accidents, loss of communications and unauthorised entry into the disposal area.

## 7. Requirements of OIC

The following requirements shall be followed by the Officer in Charge (OIC) of the demolition being conducted at the CDS:

1) Pre-firing requirements shall include:
   a) The danger area shall be cleared of all non-essential personnel, vehicles, equipment and livestock.
   b) Sentries shall be warned that firing is about to start.
   c) If electrical initiation systems are used, the complete firing circuit shall be tested for continuity.
   d) Immediately before firing occurs the disposal supervisor shall radio the sentries to confirm the danger area is still clear and to warn them the firing of the charges is about to occur.
2) Misfire requirements shall include:

Supervisor shall observe the following wait time before moving from the firing point and approaching the demolition charge:

a) Electrical initiation: 10 minutes.

b) Non-electrical initiation: 30 minutes.

During the wait time, no person shall leave the safety area, nor shall any unauthorised person be allowed access to the disposal area.

3) Post-Firing requirements shall include:
   a) Any mandatory ‘wait time’ for the type of disposal operation being conducted shall elapse before any movement into the danger area is to take place.
   b) The supervisor of the task shall personally check that all charges have fired as intended and there is no residual hazard in the area.
   c) Any necessary post-demolition activities shall occur for the type of EO being disposed including visual search and raking of the ground to ensure no WP munitions are present.

d) Once the supervisor has determined that the area does not contain any EO, the 'all clear' shall be announced.

## 8. General Safety Requirements

The following general safety requirements are applicable to all disposal operations:

a) No disposal tasks shall be undertaken if there are electrical storms in the immediate area.

b) The supervisor shall ensure that required safety distances can be achieved for the specific disposal task.

c) There shall be no smoking or naked flames within 30m of explosives.

d) All work shall cease if communications cease to function.

e) A qualified medic, dedicated ambulance driver and appropriate medical equipment are mandatory in each disposal task.

### 8.1. Accident Prevention and Requirements

The mandatory requirements in the case of an accident shall be:

a) The disposals party shall include at least one person trained and equipped to provide first aid and treat traumatic injuries (designated medic).

b) Unless they are provided with appropriate protection, the designated medic and the equipment shall stay and put readily available but outside of the danger area.

c) There shall be an established casualty evacuation plan and procedure and standby medical cover shall be available.

d) There shall be a serviceable ambulance or vehicle fitted out to allow a medic to treat at least one stretcher borne casualty and transport the casualty safely to a hospital or medical facility.

### 8.2. Accident Response Requirements

The repose to be provided in the case of an accident shall include:

a) Stop disposals, make safe the prepared demolitions, carry out first aid and CASEVAC and call on back up medical aid.

b) Inform the NMAC, UNMAS and NMAC sub office.

c) Note all details pertinent to the eventual investigation.

d) Mark and protect the accident scene.

e) Render safe and repack all munitions and explosives that have been unpacked and prepared for disposals.

f) Note the name of the casualty, time of the accident and details of injuries.

g) Note the time of evacuation of the casualty.

h) Consult NMAC about the destination for the evacuation.

i) Notify NMAC of the destination for the evacuation vehicle and the estimated time of arrival.

**Annex B to SNMAS 06.03 NOTAM Form**

## Notice to Airmen (NOTAM) Form

From:

To:

Date:

Subject:

| | | |
|---|---|---|
| 1) | NOTAM Request Number | |
| a. | Location: | |
| b. | Coordinates | |
| c. | Map/sheet name | |
| 2) | Quantity of Explosives per charge | |
| 3) | DTG | Date: Time (from/to): |
| 4) | Safety Distance | Horizontal (m): Vertical (f): Vertical + 500 (f) |
| 5) | Name and Call Sign of Operator | Channel: Frequency: |
| 6) | Name and Contact details of Operations Manager (NGO) | |
| 7) | Name and contact details of NMAC Sub Office. | |
| 8) | Additional Information | |

Prepared and Submitted by:

Name: Title: Sign:

Organization: Tel/email:

Verified by:

Name: Title: Sign:

Organization: Tel/email:

# Sudan National Mine Action Standards – SNMAS 06.03

Second Edition: December 2018
Version 02

## Explosive Ordnance Disposal (EOD)

Sudan National Mine Action Centre (NMAC)
Block 21, Building 241, Mekka Street, Riyadh, Khartoum – Sudan
Website: www.su-mac.org

**Contents**

## 1. Introduction

Explosive Ordnance Disposal (EOD) involves the disposal of Explosive Ordnance (EO) which includes landmines and Explosive Remnants of War (ERW), but as part of demining operations, the main focus is on the disposal of ERW. The majority of ERW found during demining operations are small items of Unexploded Ordnance (UXO), such as sub-munitions, grenades and mortar ammunitions. However, ERW can also include larger items such as artillery ammunition, guided missiles, air-dropped bombs, caches of Abandoned Explosive Ordnance (AXO), post-explosion clearance of ammunition storage areas and booby traps. The wide variety of size and complexity of ERW requires special attention to be afforded to the management of EOD and the qualifications required to deal with the varying devices.

The aim of this standard is to provide specifications and guidance for the management of EOD as part of mine action in Sudan. It covers general principles and management responsibilities for EOD. It does not provide specific technical guidance for the disposal of particular EO, which should be covered in mine action organizations Standard Operating Procedures (SOPs) and Training Management Packages (TMPs)

The safe and efficient removal and disposal of EO is an integral part of mine action in Sudan and ensuring safety and efficiency in all mine action activities including EOD, requires establishing an appropriate management system, operational procedures, suitable qualification and proper oversight, reporting and recording, and Quality Management (QM) aspects within Sudan Mine Action Programme (SMAP). NMAC as coordination and regulating body for mine action in Sudan is charged with responsibility of setting the requirements formanagement system, operational procedures, training and qualification, safety, information management and quality management for EOD operations in Sudan.

## 2. Scope

This SNMAS covers standard guidelines and requirements for management and undertaking EOD operations in Sudan. All mine action organizations working in Sudan shall develop their own SOPs for EOD operations in line with requirements of this standard. This SNMAS also covers the requirements for NOTAM.

## 3. Reference

The main references for this SNMAS are IMAS 09.30 and IMAS 04.10.

## 4. Terms and Definitions

A complete glossary of all mine action terms and definitions is given in IMAS 04.10, which should be referred to; IMAS 04.10 is inclusive and broader in principle, covering all mine action terms and definition that are used globally including Sudan. However, the terms related to EOD are covered in this SNMAS.

The term “Explosive Ordnance Disposal (EOD)” refers to the detection, identification, evaluation, render safe, recovery and disposal of EO.

The term “Explosive Remnants of War (ERW)” refers to Unexploded Ordnance (UXO) and Abandoned Explosive Ordnance (AXO), excluding landmines.

The term "Explosive Ordnance" refers to 'all munitions containing explosives including landmine, cluster munitions, unexploded ordnance, abandoned ordnance, booby traps, other explosive devices which defined by CCW APII and Improvised Explosive Devices[1].

## 5. Scope of EOD Operations in Sudan

### 5.1 General Principles

EOD operations involve the detection, identification, assessment, render safe and disposal of all types of EO that are used and discovered in Sudan. While EOD performs these tasks on all types of ordnance (including mines), it is separate and distinct from demining operations. EOD also specifically covers:

a) The disposal of explosive ordnance on demining worksites as a routine part of demining operations upon discovery of ERW;

b) The dispose of ERW discovered outside hazardous areas; this may be a single or spot ERW or a large number inside a specific area;

c) The disposal of stocks of Abandoned Explosive Ordnance (AXO);

d) The disposal of EO which has become hazardous by deterioration, damage or attempted destruction;

e) Undertaking stockpile destruction, Open Burning and Open Demolition (OBOD) operations;

f) EOD operators shall deal only with those EO and situation for which they have been trained and authorized. All other cases shall be referred to the next higher level of expertise;

g) The effective management of EOD operations includes 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.

### 5.2 EOD Qualifications

EOD operations should be carried out in different levels, from the neutralisation of large bombs and missiles to the destruction of grenades and sub-munitions. EOD qualifications shall be appropriate to the hazard and the munitions most likely to be found in Sudan. The qualifications of EOD operators shall fulfil the requirements of ERW problem and be regulated by NMAC on behalf of the government of Sudan. The details about EOD qualifications are described below:

1) Level 1: A Level 1 (EOD) qualification enables the trained operator to locate, expose and to destroy in situ, single items of mines and specific ERW on which the individual has been trained. Therefore, Level One operators may be licensed to destroy only specific items of ordnance.

[1] Improvised Explosive Devices (IEDs) meeting the definition of mines, booby-traps or other devices fall under the scope of mine action, when their clearance is undertaken for humanitarian purposes and in areas where active hostilities have ceased. Reference IMAS 04.10

2) Level 2: In addition to the skills of a Level 1 (EOD) qualification, a Level 2 (EOD) qualification enables the trained operator to determine when it is safe to move and transport munitions and to conduct the simultaneous disposal of multiple items of ordnance using line mains or ring mains. This qualification extends only to those mines and specific ERW on which the individual has been trained.

3) Level 3: In addition to the skills of a Level 1 and 2 (EOD) qualifications a Level 3 (EOD) qualification enables the operator to conduct render-safe procedures and final disposal of a wide range of specific types of explosive ordnance on which the individual has been trained.

4) Level 3 +: In addition to the skills of a Level 1, 2 and 3 (EOD) qualification, which cover the skills that are routinely required in Mine Action, there may be a requirement for additional specialist skills. The Level 3+ (EOD) qualification is for specialist EOD operators who have been trained in areas that needed to address specific hazards. For more details about EOD Level 3+ competencies, refer to below link: https://www.mineactionstandards.org/standards/te-protocols/te-protocols-in-english/

Whenever there is a requirement for specialist skills not covered in the Level 3 qualification then it is the responsibility of NMAC with technical support of UNMAS to specify the additional EOD skills required for a particular task, and mine action organizations shall demonstrate that their Level 3+ operators have the higher-level training and experience appropriate for the task.

Some ERW fall within the guidelines for the above qualification levels but present a specific or additional hazard, including items containing White Phosphorous (WP), missiles, or the requirement for bulk demolitions. Special consideration shall be given to the need for additional training, or for specific exclusion from the category of competence.

Where particular items are frequently encountered, specific training in disposal of those items should be given to enable the operators to deal with them, rather than continually referring the problem to the next higher level of expertise, or deploy required qualified operators to complete the EOD task.It should be noted that sub-munitions may be particularly hazardous to deal with and shall only be dealt with by level 2 or above qualified personnel.

### 5.3 Certification

At every level of EOD competency, NMAC as ultimate certification body shall ensure that the training organisation explicitly list the disciplines on which the individual has been trained. At the most basic level this should include the specific munitions on which the individual has been trained to destroy or neutralise, and for more advanced levels should cover the generic competency subjects covered by the training.

To complement the certification the operators should maintain logs of their application of the training such that demonstrate their operational experience.

### 5.4 Quality and Audit of the Qualifications

NMAC shall develop performance criteria, appropriate assessment tools and procedures in order to assess the level and quality of competence of EOD operators. This shall include the requirements for:

a) Written tests as per the completion of EOD training;
b) Practical exercises and demonstration of EOD task;

c) Monitoring procedures for assessment of performance during EOD operations.

As referenced in part 5.2, item 4); NMAC shall ensure that EOD Competencies Standards T&EP 09.30/01/2014 is applied in Sudan to enhance the process of planning, undertaking and evaluating EOD operators' development and capacity building. This can also help to improve the assessment of training and competency of operators involved in EOD operations in Sudan.

### 5.5 Neutralisation and Disarming of EO

If required and practical, and if are not safe to more thedetected mines and ERW, they should be neutralised in situ. The decision whether to move a particular type of mine or ERW shall be based on an assessment by an appropriately qualified EOD operator. EO should be rendered safe or disarmed, if possible, prior to moving to a suitable location for disposal. Any EOD activity should be closely coordinated with NMAC operations and sub office in order to take required actions including community awareness and agreement.

Mine action organisations, with an integral EOD capability, shall prepare Standard Operating Procedures (SOPs) for neutralisation and disarming activities which are appropriate for the mine and ERW hazards likely to be encountered and encountered in Sudan, and which are consistent with accepted international EOD practice.

Upon discovering ERW items by a mine action organization that require specialized EOD capacity, while the organization lacking such a suitable integral EOD capability, then the mine action organization shall notify NMAC operations and sub office in order to assign appropriately certified EOD operators within the structure of an accredited organisation to undertake the operations. The mine action organization discovered the item shall mark, map and report the items.

Neutralisation and disarming procedures should not be necessary for bulk or individual items of AXO as they are not, by definition, have been primed or have failed to explode. However, that AXO could have been exposed to extreme temperature and climate changes for a prolonged period of time, resulting in degraded stability of the ordnance, such AXO shall be death with a careful approach.

### 5.6 Demolition of EO

All mine action organisations working in Sudan shall develop SOPs for the effective and safe demolition and destruction of ERW relevant to the operating environment. The SOPs shall include the demolition of mines and ERW in-situ, or recovered and destroyed individually. EOD operations shall be carried out in a manner that minimises any impact on the environment (refer to SNMAS 07.04). Planning for and demolition of bulk AXO shall be conducted by suitably trained and qualified EOD operators. Special attention shall be paid to ensuring the containment of blast, ground shock and fragmentation effects resulting from the demolition of mines and ERW. Sites chosen for bulk demolition shall be located sufficiently far away from populated areas so as to represent no risks to the residents.

### 5.7 Disposal Site

A disposal site is an area authorized by NMAC for the controlled demolition of mines and ERW found during demining operations. Where both demolition ground and burning ground are required, they may be co-located on a disposal site. Disposal sites shall be sited to ensure that hazards associated with demolition operations are reduced to an acceptable level remaining cognisant of the requirement to protect the environment wherever possible. Selection of disposal sites shall be based

on consent of NMAC sub office, operations department, demining organization and local authority. See annex A to this SNMAS for details about Disposal Sites.

### 5.8 Transportation of Mines and ERW

In-situ disposal shall be the primary means of dealing with unsafe to move EO, unless factors such as proximity to communities, buildings, important facilities or the inability to achieve required safety distances prohibits in situ disposal. In-situ disposal negates the inherent risk to personnel during the movement of EO.

When it is required to move EO, it shall only be moved from the original location provided that the EO has been assessed and identified as safe-to-move by a qualified EOD Level 3 operator. All emplaced mines that are subject to be removed, shall first be removed through pulling as a precaution against booby trapping, prior to the movement. When EO must be destroyed in-situ and there is a risk to personal property, then protective works shall be used.

Where protective works are required to ensure the protection of property or infrastructure or to prevent the contamination of work areas, the type of protective works used shall be appropriate for the task at hand. The protective works shall properly design and constructed so as to achieve the protection required.

### 5.9 Quality Management (QM)

Adherence to and considering of QM principles and requirements are essential for ensuring the safe, effective and efficient management, planning and undertaking of EOD activities in Sudan. All mine action organizations conducting EOD operations in Sudan, shall consider the requirements of SNMAS 07 series of standards; to meet the quality requirements of EOD activities, operations and outputs.

## 6. Reporting of EO

When mine action organizations are notified or reported about presence of EO, located outside their task, they shall assess the EO in coordination with NMAC sub office and report that to sub office covering following requirements:

1) Reporting date of EO, including reporting source;

2) Location of the EO including GPS coordinates, a sketch of the location should also be provided;

3) Type, quantity and status of EO (safe-to-move or unsafe-to-move), if known, a detailed description should also be provided along with photographs;

4) Required EOD capacity to deal with reported EO, and whether such capacity is available or not with the demining team in the area;

5) The impact of EO on local people and their proximity to populated areas and current risk, this should lead the team to set the priority for removal and clearance;

6) Contact details of local people or individuals that may help locating the EO; and

7) Any local or formal marking or warning signs of the EO.

## 7. Notice to Air Movement (NOTAM)

A notice of controlled demolition or disposing off EO shall be submitted to inform any Air Movement when the total of explosive charge exceeds 25kg including the explosive quantity of the donor charge. This NOTAM shall be applied to all control demolitions take place within 2 km of any airport or main HLS. All controlled demolition as part of EOD operations shall be formally coordinated by related mine action organization in the area with NMAC sub office and local authority. All mine action organizations shall consider below requirements:

1) When using and transporting explosives materials for demining operational purpose, on or off an NMAC approved Central Demolitions Site (CDS), with or without a NOTAM, mine action organizations shall inform the local military units through NMAC sub office.

2) Mine action organizations shall coordinate and inform area military units, governmental authority, and other mine action teams, with or without NOTAMin the area about any controlled demolitions including date, time and location of CDS, through NMAC sub office.

### 7.1 Submission of NOTAM

NOTAMs are required in order to inform and notify aviators and local aviation authority in advance of the use of explosives in the area. This will help aviators and EOD teams to avoid any adverse effects of demolition on air traffic and those areas are not over-flownat critical times. However the information should also be used to notify other interested parties including local government authority, military units, UN mission and humanitarian aid agencies.

All NOTAMs shall be submitted direct to the NMAC and NMAC shall disseminate it to area aviation and UNMAS, UNMAS shall notify UN agencies in the state especially WFP's Humanitarian Air Services and UNISFA and UNDSS. A NOTAM shall include the following details:

1) Location of demolition including GPS coordinates;

2) Amount of explosives to be used in Kg;

3) Planned date and time of demolition, if daily and routine demolitions are required, the mine action organization shall ensure the same time on daily basis and clearly mention that in consolidate NOTAM.

4) Any changes to the date and time of demolition shall be properly communicated to all concerned;

5) Safety distances for explosive charges of demolition shall be included in NOTAM; as in meters for horizontal and feet for vertical safety distances. Vertical safety distances shall include 500 additional feet to the horizontal one. Maximum vertical safety distance allowed within 10km of an airport or main HLS is 1500 feet, unless prior approval is granted through the NOTAM system;

6) Demolition team's contact details including the name of the supervisor, radio call sign, calling channel and frequency;

7) Contact details of the operations in-charge of the mine action organizations including his/her telephone number and email address; and

8) Additional information to encompass reason for demolition.

All EO including UXO and landmine subject for disposal in CDS shall be weighed based on the weight of explosives contained inside EO. This figure included in the statement of net explosive quantity (NEQ) in kilograms.

A NOTAM shall always be submitted at least 7 days in advance of first planned demolition, whenever practical and possible. The only exception to this 7-day rule is when exceptional circumstances and the tasking process dictate to do so, in such cases emergency NOTAM shall be processed.

### 7.2 Emergency NOTAMS

When there is emergency task that requires controlled demolition, a NOTAM shall be raised and submitted to NMAC for further urgent processing. In such cases the means of initiation should be electrical,and the time of detonation shall be carefully controlled to ensure that the airspace is clear of aircraft. The following requirements shall be met:

1) Required safety precautions are taken whenever the explosive destruction of EO is carried out. The safety precautions include visual and aural inspection of the airspace above and around the demolition area to encompass the implemented safety distance.

2) If controlled demolition is taking place within 1 km of an airport, the organization shall contact the airport authority and control tower to ensure they are well aware of the demolition, its location and timing.

See annex B to this SNMAS for NOTAM contents.

## 8. Responsibilities

### 8.1 Sudan National Mine Action Centre (NMAC)

As part of management, coordination and regulating EOD aspects in Sudan, NMAC is responsible to:

1) Establish and maintain national standards for EOD;
2) Establish and maintain performance criteria and tools for quality and audit of the EOD operators;
3) Establish and maintain the capability to accredit EOD training organizations and monitor the training and certification process;
4) Establish and maintain the capability to accredit mine action organizations involved in EOD operations in Sudan.
5) Assess and allocate appropriate disposal sites to be used by mine action organizations conducting EOD operations in Sudan.

6) Develop guidelines and procedures for the safe and efficient use of disposal sites considering environmental protection;
7) Establish and maintain the capability to monitor the safety, efficiency and effectiveness, of EOD operations and develop measures to protect the environment especially the environmental impact of EOD operations and bulk demolitions.
8) Establish process for EOD incident reporting; and
9) Ensure that national capacity development process is established and required EOD capacity exists in Sudan.

### 8.2 Mine Action Organizations

Mine action organizations undertaking EOD operations in Sudan, shall:

1) Obtain from NMAC, accreditation for EOD operations;
2) Develop and maintain SOPs for EOD operations which comply with the requirements of this SNMAS and other standards relevant to EOD operations, including 05 series of SNMAS;
3) Ensure that their EOD operators are competent and suitably trained and qualified and present their certificates and CVs to NMAC during accreditation and monitoring processes;
4) Record and maintaining the EOD operators' logs of their operational experience;
5) Ensure proper application of their NMAC approved EOD SOPs in a consistent, effective and safe manner which include procedures to protect the environment;
6) Ensure EOD operations and controlled demolitions are well coordinated and communicated with all concerned stakeholders in the field;
7) Undertake regular internal QA monitoring and QC sampling of EOD activities and outputs;
8) Undertake post EOD impact assessment as required by NMAC and or contract agreement;
9) Ensure that the affected community is fully cognizant of all EOD activities including clearance requirements and implications, particularly related to the depth of clearance.

### 8.3 EOD training Organizations

Any national EOD training organizations shall:

1) Gain from NMAC, accreditation for EOD training;
2) Develop and maintain EOD training management packages and submit to NAMC for approval;
3) Develop and maintain procedures undertaking for EOD training which comply with national and international mine action standards;
4) Establish training facilities including theoretical and practical areas for the provision of EOD training;
5) Establish and maintain certification procedures so that training completion certificates explicitly list the disciplines on which the individuals have been trained and qualified as competent.

In addition, any international EOD training organization providing EOD training in Sudan shall present their documents and evidence of being accredited and recognized as EOD training institution, based on the requirements of international mine action standards (IMAS).

**Annex A to SNMAS 06.04 Mechanical Demining Operations - Weekly Report**

| Organization Name: | | | | | | | Reporting Period: | |
|---|---|---|---|---|---|---|---|---|
| Mechanical Demining Team Name/No: | | | | | | | Task Number: | |
| Supervisor Name: | | | | | | | Location: | |
| Method of Operation and Role of Demining Machine: | | | | | | | | |
| Active time | Satureday | Sunday | Monday | Tuseday | Wednesday | Thurseday | Total | Remarks |
| Area Covered (m2) | | | | | | | | |
| Area Prepared (m2) | | | | | | | | |
| Area Followed up (m2) | | | | | | | | |
| Number of EO discovered/detonated (Type) | | | | | | | | |
| Working depth (cm) | | | | | | | | |
| Fuel consumption (L) | | | | | | | | |
| Demining machine hrs meter reading | | | | | | | | |
| Operational time (hrs) | | | | | | | | |
| Maintenance time (hrs) | | | | | | | | |
| Inactive time | | | | | | | | |
| Transport to site (hrs) | | | | | | | | |
| Breakdown, repairs (hrs) | | | | | | | | |
| Breakdown, no spares (hrs) | | | | | | | | |
| Waiting for task (hrs) | | | | | | | | |
| Waiting for transport (hrs) | | | | | | | | |
| No operator/mechanic (hrs) | | | | | | | | |
| No support personnel (hrs) | | | | | | | | |
| No fuel, oil, lubricants (hrs) | | | | | | | | |
| Weather constraints (hrs) | | | | | | | | |
| Security constraints (hrs) | | | | | | | | |

# Sudan National Mine Action Standards – SNMAS 06.04

Second Edition: December 2018
Version 02

## Mechanical Demining

Sudan National Mine Action Centre (NMAC)
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**Contents**



## 1. Introduction

The safety and efficiency are common consents in demining operations and continually improving them especially as part of the land release operations is the permanent objective of Sudan Mine Action Programme (SMAP). Efforts shall be made by NMAC and all accredited mine action

organizations in Sudan to seek and adopt the methods, tools, equipment and procedures that enhance safety of demining staff, beneficiaries, communities and other stakeholders as well as ensure operational efficiency. Demining machines have been used in demining operations for many years in Sudan with increasing output especially in road and rout verification and clearance, and the clearance of vast flat areas safely. This SNMAS covers the requirements of mechanical demining operations in Sudan and provides guidelines and specifications that promote the safe, efficient and effective use of machines in demining operations.

## 2. Scope

This SNMAS covers the standard guidelines and specifications for mechanical demining operations in Sudan.

## 3. References

The main references for this standard are IMAS 09.50, IMAS 07.11 and IMAS 08 and 09 series.

## 4. Terms and Definitions

A complete glossary of all mine action terms and definitions is given in IMAS 04.10, which should be referred to, IMAS 04.10 is inclusive and broader in principle, covering all mine action terms and definition that are used globally including Sudan. However, the terms related to mechanical operations are covered in this SNMAS and those used in Land Release operations, are covered in SNMAS 05.01.

The term 'mechanical demining operations' refers to the use of demining machines on demining operations and may involve a single demining machine employing one mechanical tool or ancillary, a a demining machine employing a variety of tools or ancillaries, or a number of machines employing a variety of tools and ancillaries.

The term 'demining machine' refers to a unit of mechanical equipment used on demining operations.

The term 'mechanical tool' refers to the working component(s) attached to a demining machine, such as flails, tillers, sifters, rollers, excavators, ploughs, magnets and cultivator. A single demining machine may utilize several different tools, which may be fixed or interchangeable.

The term 'residual risk' as part mechanical demining operations relates to the hazard remaining from landmines or ERW following mechanical demining in a hazardous area.

## 5. Use of Demining Machines in Demining Operations

### 5.1 General

Demining machines used in demining operations are generally classified in following categories:

1) Demining machines used for ground preparations;
2) Demining machines used for ground verification; and
3) Demining machines used ground processing.

Some machines may be designed to fulfil more than one of these purposes. Many of these machines are also designed to be Mine Protected Vehicles (MPV) and so protect the occupants and equipment from the effects of a mine detonation. Such machines are mainly used in survey operations.

### 5.1.1 Machines Designed to Detonate Hazards

Machines designed to detonate or otherwise destroy hazards may be meeting their design aims under different conditions. Their use may reduce or, in some cases, eliminate the need for follow up operations especially where the perceived hazard was non-existent. Such machines are mainly used in technical survey and hazardous area verification purposes.

### 5.1.2 Machines Designed for Ground Preparation

Ground preparation machines are primarily designed to improve the safety and efficiency of demining operations by reducing and or removing obstacles mainly for manual demining operations.

Ground preparation includes:

1) Vegetation cutting and clearing;
2) Removal of tripwires;
3) Loosening the soil through ploughing and ripping;
4) Removal of metal contamination;
5) Removal of building debris, boulders, rubble, defensive wire obstacles; and
6) Softening the ground for follow up operations.

Ground preparation may or may not involve the detonation, destruction or removal of landmines.

### 5.1.3 Machines Designed to Detect Hazard

Machines designed to detect hazards can include variety of detecting tools and ancillaries such as sifting, rollers, machine mounted metal-detectors array or vapor sampling devices. Some physical detection methods may involve detonating some hazards during the detection process. Such machines are mainly used in mine and ERW survey role.

### 5.1.4 Machines Designed for Ground Processing

Machines designed for ground processing can be the same machines designed for preparations but with specific ancillaries for ground and soil processing including buckets such as Gill Buckets and Star Buckets and sifting system.

## 5.2 Follow up Requirements

The following follow up requirements shall be considered as part of mechanical demining operations in Sudan:

1) When demining machine is used to detonate mines in a hazardous area; it may leave the mines or parts of them behind within the required clearance depth. The follow up operations shall be carried out before the area is released as cleared.
2) When demining machines are used for ground preparation in a Hazardous Area, such areas shall be followed up by other demining operations.

3) When demining machines are used for detection or in technical survey operations, the information that they provide shall be followed up as appropriate and determined by an

information management process, leading to a decision to clear the area, mark the area or release the land as verified of having "no evidence of hazards".

4) When a demining machine is used in a technical survey role aiming to detonate mines to define the boundaries of hazards, follow up after the use of demining machine in those areas where no detonation occurred, may not be required as the aim is to search for evidence of hazards, rather such area should be released as reduced area without follow up operations.

### 5.3 Land Release with Mechanical Demining Operations

The main requirement for land release as a result of mechanical demining operations shall be the application of "All Reasonable Effort". All mine action organizations working in Sudan shall apply and consider "All Reasonable Effort" covered in SNMAS 05.01, 05.02 and 05.03 when undertaking land release operations using mechanical demining machines.

Hazardous areas can be released as a result of mechanical demining operations either in technical survey and or clearance roles. Land release involves a machine being used to indicate or confirm the presence or absence of explosive ordnance within a suspected or confirmed hazardous area. This will support the demining team in fact-based decision making; either to continue demining operations in case of identifying evidence of EO or cease operations as soon as "no evidence of" EO is proved by mechanical demining operations. Use of mechanical demining aims to enable the deployment of other demining assets only in areas that are proven to contain EO.

The scope and extent of mechanical land release operations depends on factors such as the accuracy and completeness of existing information, terrain and ground profile, vegetation, type of machine and their attachments and type of EO and area reduction requirements as covered in SNMAS 05.03 and tolerable risk. Generally, the less information available about a hazardous area, the more investigation is required by a machine in order to be able to confirm the location of EO and define hazardous areas. Application of the requirements of SNMAS 05.02 shall be considered when collecting information about hazardous areas.

### 5.4 Facilitating Demining Operations

Demining machines may also be used for other functions in support of technical survey and clearance operations. Such functions may include:

1) Preparing tracks to permit access into areas for demining operations;
2) Excavation in support of deep search operations;
3) Removal of debris to enable access to suspected hazards.

There may situation where the machines are used in leveling the roads after being cleared; to verify the clearance and facilitate use of released road and routes by the beneficiaries and public transport.

## 6. Systems Approach to Mechanical Demining

The important aspect in mechanical demining operations is the selection and use of the most suitable machines and appropriate ancillaries to achieve optimum results and ensure safety and operational efficiency. There are varieties of demining machines and related ancillaries and tools designed for different purposes including detonation of EO, however, there is possibility that machines will leave some EO undetonated. It is, therefore, important to consider a '**systems approach**' whereby machines with a combination of tools, a combination of machines with different

tools, or non-mechanical demining methodologies are applied at different stages during the demining process.

The systems approach is about the use of demining machines being integrated with other demining assets (manual or MDD) to ensure that the most effective outcome is achieved.

Below are the steps involved in a systems approach leading to the selection of appropriate demining machines to use in a hazardous area.

1) STEP 1: Identify what mechanical demining systems **can** consistently, safely and efficiently achieve the optimum results when used in the hazardous area.
2) STEP 2: Identify what mechanical demining systems **cannot** achieve the optimum results when used in the hazardous area.
3) STEP 3: Identify the further work that will need to be completed before the land can be released after mechanical demining operations completed.

The main consideration as part of the system approach to mechanical demining shall be the application of "all reasonable effort".

### 6.1 Tolerable risk

The identification of tolerable risk to the end user is an important component of any demining operation including mechanical demining, as it determines how thorough the demining process shall be, to reach the required level of tolerance. After mechanical demining has been completed, an assessment of the residual risk posed by remaining hazards may show that the risk is already tolerable and no further demining is required. See SNMAS 05.01 of land release operations.

## 7. Mechanical Demining Operations Requirements

Demining machines used in demining operations in Sudan shall conform to below requirements:

1) Each demining machine and mechanical tool shall be Tested and Evaluated by NMAC to determine their suitability for the operations they are expected to carry out in the worksite conditions in which they will be used;

2) NMAC shall ensure that the operation of each demining machine is assessed and confirmed to be safe for the operator, demining staff and beneficiaries. The protection level for machines shall be established through a risk assessment; and

3) Mine action organizations shall develop Standard Operating Procedures (SOPs) for each type of demining machine and their ancillaries that are used in a hazardous area. The SOPs should include general mechanical demining procedures, procedures specific to the machine, and procedures for the integration of the machine with other machines or demining operations

4) Demining machines, their ancillaries and teams relating to any mine action organizations shall be tested, evaluated and licensed/accredited by NMAC, prior to deployment and starting any mechanical demining operations in Sudan.

Prior to the procurement and purchase of any demining machines by any mine action organizations, NMAC shall be consulted to properly assess that the machine is suitable to be used in Sudan and also to assess the in-country infrastructure and technical support facilities to ensure that a demining machine can be operationally maintained in the areas where it will be used.

## 8. Testing and Evaluation (T&E) of Demining Machines

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

### 8.1 Scope of T&E

T&E for demining machines shall be designed to:

1) Identify the operational capability and limitations of the machine;
2) Identify the optimal operating conditions for the machine in its intended operating environments;
3) Identify the effectiveness in disrupting, destroying, detonating or otherwise removing different types of landmines or ERW from hazardous areas in different operating environments. This should only occur for landmines or ERW that a machine has been designed and developed to combat in accordance with the manufacturer's specifications;
4) Identify the residual risk remaining from each potential hazard to be targeted in the operating environments in which the machine(s) will work. (for individual demining machines, or a number of machines or tools to be used as part of a systems approach);
5) Identify any limitations in the employment of a machine (environmental conditions such as inclines, wet soil, hard ground, temperatures, or certain explosive hazards);
6) Assess and confirm the safety of the machine for the operator and any other person on a mechanical demining worksite;
7) Identify the operating procedures required to ensure that a machine is able to achieve the specified standards; and
8) Identify any potential environmental damage caused through the use of demining machines, such as soil erosion.

Where a demining machine has been through T&E or has proven to be effective in other comparable locations, additional formal T&E may not be necessary. This shall only be permitted if continued performance monitoring is carried out by NMAC and the demining organization using them, and that the operating procedures for the machine are such that the NMAC is confident that the standards required of the machine, and any required follow-up demining, will be achieved.

Where such operational performance monitoring is undertaken, records shall be maintained by NMAC and the demining organizations. The records shall be sufficient to justify any changes to the operating procedures of the machine.

### 8.2 CWA 15044:2009 for T&E of Demining Machines

The European Committee for Standardization (CEN) has developed a CEN Workshop Agreement (CWA) for the T&E of demining machines (CWA 15044:2009). This CWA provides standardized methodology for T&E of demining machines. It gives technical criteria for the following:

1) PERFORMANCE TEST:

A test to establish whether the machine and its tool(s) is capable of performing the role for which it is intended under comparable and repeatable conditions and to evaluate the manufacturer's specifications;

2) SURVIVABILITY TEST:

A test to verify that the demining machine survives the explosive forces used as design criteria; and

3) ACCEPTANCE TEST:

A test to ensure that a demining machine is able to work in the environment where it is intended to be used.

The CWA also establishes the requirements for the test targets to be used in the performance and acceptance tests. Further information can be found at https://www.mineactionstandards.org/standards/te-protocols/te-protocols-in-english/

### 8.3 Mechanical Records

All mine action organizations conducting mechanical demining operations in Sudan shall maintain detailed records of their mechanical operations including the records of follow-up demining activities and submit them to NMAC Information Management section for entry to IMSMS database; after being checked and verified by NMAC sub-office. Such documented information will support the Sudan Mine Action Programme in operational decision making; including decisions to release land after mechanical demining operations without follow-up activities, if statistical data proves sufficiently that the residual risk posed by remaining hazards is tolerable.

Reporting on operational performance indicators, such as:

a) Hours worked in the worksite;
b) The size of hazardous area covered and processed;
c) The landmines and ERW found and discovered.

Are essential in order to maintain sufficient statistical records. However, reporting on non-operational time, such as:

a) Mechanical breakdowns;
b) Transport between sites and base camp or machine parking facility;
c) Logistical delays including provision of required fuel, lubrications and spare parts;
d) Downtime due to the environmental limitations.

Are essential to help SMAP in understanding the operational constraints and or visualizing performance trends of demining machines, which subsequently can help the programme to improve the efficiency and reduce adverse effects of mechanical operations in Sudan. See Annex A for an example of a weekly report format for a mechanical demining unit.

## 9. Requirements of Mechanical Procedures

All mine action organizations working in Sudan and intend to carry out mechanical demining operations shall develop operating procedures for mechanical operations that at minimum include the following main requirements.

### 9.1 General

The following main requirements shall be considered:

1) Demining machines are only employed within the limits of their operational accreditation as established during T&E undertaken by NMAC and documented in organizations SOPs.
2) Follow up of soil expansion as a result of ground processing.
3) Depth of processing shall be referenced to the original undisturbed ground surface, not from the surface loosen soil.

### 9.2 Landmines, ERW and other Hazards

The following requirements shall be covered in organizations SOPs:

1) The use of demining machines on the area containing explosive hazards that the machine is designed for, tested and approved. If during operations, such a hazard is identified, the mechanical demining operation shall be stopped, and a review of the task shall be carried out involving NMAC operations and sub office.
2) Checking demining machines prior to operations and after daily operations before moving from hazardous to safe areas, in order to ensure that no EO or their components including remain in the working or moving parts of the demining machine or are attached to the machine.

### 9.3 Management of Mechanical Demining Operations

The SOPs shall cover a detailed procedure for the management of mechanical demining operations that ensures that adequate control over the operation and that it is possible to provide emergency support in accordance with accident response and equipment recovery plans.

### 9.4 Medical Support

Based on the requirements of SNMAS 08.03 the mechanical demining SOPs shall cover the detailed procedure and requirements for medical supports including accident response plans, emergency response plan, evacuation plan and the requirements of CASEVA. The SOPs shall also include procedures for the extraction of a casualty from the inside of any machine used inside a hazardous area.

### 9.5 Communications

Communications between the site supervisor and the mechanical operator shall be in place at all times while a demining machine is working in a hazardous area.

### 9.6 Personnel

The requirements of qualified staff including if practical female staff, in a mechanical demining worksite shall be covered in SOPs, this will ensure that the followings are achieved:

1) Standards for operations are maintained;
2) Where applicable, the effective integration with other demining operations is achieved; and
3) The necessary support is provided in an emergency.

### 9.7 Maintenance and Servicing

The SOPs shall include provisions for the maintenance and servicing of demining machines and mechanical tools, including but not limited to:

1) Demining machines and tools are maintained and serviced in accordance with the manufacturers' recommendations;
2) Maintenance and servicing are carried out by qualified staff and authorized agencies;
3) Routine checks are made on the working components of demining machines, as working components crucial to the effective operation of a demining machine. If damaged or lost, the components shall be repaired or replaced before further work continues;

4) Routine inspections of safety features on demining machines shall be carried out and where damage is identified, the damage is repaired before further work continues; and
5) Whenever a demining machine is subject to a detonation that may have affected the safety of the operation, the demining machine is immediately withdrawn from the hazardous area and inspected.
6) Where damage to a demining machine may place staff in danger from subsequent detonations, the demining machine should not return to work until the damage is repaired.

The key aspect of proper maintenance of demining machine maintenance is the way that a machine is effectively operated without downtime or cease of operations for repair. The SOPs shall also include provisions regarding the qualification and skills of operators to be experienced in operating and in maintenance of their machines.

### 9.8 Recovery Requirements

Mechanical demining SOPs shall include provisions for the recovery of:

1) The demining machine becoming stranded in hazardous area;
2) The machine operator onboard the machine in such an event.

The provisions shall ensure the safe extraction of the operator as quickly as possible, and the safe recovery of the demining machine in a reasonable time.

### 9.9 Fire Precautions and Drills

The SOPs shall include provisions to be followed in the event of a fire on a demining machine when employed in hazardous areas, in parking, on the way moving to/from the working site and when refueling the machine. On no account shall any person be permitted to enter a confirmed hazardous area to fight a fire on a burning demining machine without first clearing the access routes.

Demining machine shall always be fitted with fire extinguisher or fire suppressing system especially when the operator is present on-board and working inside the hazardous area.

## 10. Environmental Considerations

### 10.1 General

The ground over which mechanical operations are carried out shall be left in a state whereby the land is suitable for its intended use when handed over to the beneficiaries.

Where mechanical operations involve the removal of vegetation or occur on ground that may be subject to erosion, demining organizations shall ensure that measures are taken to limit such erosion.

The operation, repair, maintenance and servicing of demining machines shall be carried out in an environmentally acceptable manner preventing ground or watercourse contamination from fuel, oil and lubricants. SNMAS 07.04 provides further details on environmental protection.

### 10.2 Protection of Property and Infrastructure

Planning for mechanical operations shall take into account any possible damage to property or infrastructure. Where damage to property or infrastructure is possible, the property owners or local authorities should be consulted prior to the operations.

When machines are used in clearance of residential areas or agriculture land, they may remove boundaries of the land and this may create a potential land right dispute. Measures shall be taken to ensure property ownership prior to the operation.

## 11. Responsibilities

### 11.1 Sudan National Mine Action Centre (NMAC)

The NMAC shall:

1) Operationally accredit demining machines in accordance with the requirements of this standard and SNMAS 07.02;
2) Ensure and oversee the implementation of this standard for the employment of demining machines on demining operations;
3) Implement QM systems to ensure the safe, effective and efficient use of machines on demining operations based on the requirements of SNMAS 07.01 and 07.02;
4) Develop an environmental policy for the use and maintenance of demining operations including use of machines; and
5) Provide advice to prospective demining machine users.
6) Establish, maintain and implement procedures to ensure the proper T&E of demining machines and their teams are undertaken prior to their deployment on demining operations;
7) Establish and maintain reporting systems and procedures for the gathering of data on mechanical and follow-up demining operations. Such data should be made available to all stakeholders; and
8) Provide advice and assistance to demining organizations in establishing tolerable risk for demining operations based on the NMAC risk management framework.

### 11.2 Mine Action Organizations

All mine action organizations working in Sudan and intend to undertake mechanical demining operations, shall:

1) Obtain (from the NMAC) the operational accreditation for each different demining machine (model, make, type) to be used in demining operations;
2) Comply with Sudan National Mine Action Standards and contractual obligations for the employment of demining machines and undertaking demining operations.
3) Apply management practices and operational procedures which aim to clear land to the requirements specified in SNMAS, contracts and agreements as agreed with NMAC and UNMAS;
4) Establish and maintain reporting systems and make the information available on mechanical and follow-up demining operations as specified by the NMAC; and
5) Establish systems and procedures to ensure that demining machines used on mechanical demining operations operate effectively, are properly maintained and serviced and remain safe for the operator and support staff.
6) Ensure capacity building of their staff in mechanical demining operations.

# Sudan National Mine Action Standards – SNMAS 06.05

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# Dogs Detection System (DDS) in Land Release Process

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**Contents**

## 1. Introduction

A system is made up of combination of interacting and interlinked processes, as such the dog detection system includes certain interlinked processes ranging from the breeding, selection and training of MDD with handler, accreditation and operational testing, veterinary and health support, food and accommodation, acclimatization up to operational survey and clearance activities, and collection and the use of performance data to maintain confidence in the validity of the system as a whole and of the outputs it delivers.

A Dog Detection System (DDS) comprises the dogs, handlers, supervisors, managers, standards, policies and procedures, health and logistics support, training, accreditation, operational testing and monitoring; that are combined to offer a reliable means of detecting Explosive Ordnance (EO). As with any tool used for explosives detection, DDS shall meet the standard of providing confidence to the stakeholders that the EO will be detected if present.

Dogs have been used in land release operations for a considerable period of time as detection tool. The collection, analysis and transparent dissemination of comprehensive, quality data detailing the performance of DDS, as part of a consistent and comprehensive quality management system including accreditation and monitoring, is the means by which confidence is maintained in the performance of DDS used in land release operations.

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 including railways and other similar situations where metal detectors cannot be used effectively. The quality and credibility of MDDs in land release operations depend on effective standards, procedures, policies, training in an effective training facility, test and licensing, health care, logistics and considering their limitations during planning and operations and their proper management and maintenance by mine action organizations. Despite the limitations, MDDs can be used in suitable situations and land can be released as a result of their operations in Sudan.

## 2. Scope

This SNMAS provides standard guidelines and requirements of the use of MDDs in demining operations within the mine action context of Sudan. This standard should be read in conjunction with national standards for Battle Area Clearance (BAC), Explosive Ordnance Disposal (EOD), Mechanical and land release operations especially the SNMAS for technical survey. All mine action organizations intend to use MDDs as part of their land release operations in Sudan shall develop their SOPs considering the requirements of this standard.

## 3. References

IMAS 09.40, 09.41, 09.42 and 09.44 are the main references for this SNMAS, however, Sudan specific requirements have also been considered.

## 4. Terms, definitions and abbreviations

A complete glossary of all mine action terms and definitions is given in IMAS 04.10, which should be referred to, IMAS 04.10 is inclusive and broader in principle, covering all mine action terms and definition that are used globally including Sudan. However, the terms related to MDD operations are covered in this SNMAS and those used in Land Release are covered in SNMAS 05.01.

The term 'Dog Detection System (DDS) refers to the combination of dog, handlers, supervisors, managers, equipment, training facilities, policies, procedures, training management package, and other associated functions, that interact to provide a tool to detect vapour from EO. 'Vapour' may include vapour from the case material and other substances as well as from explosives.

The term 'MDD organization' in this SNMAS refers to any organization (government, NGO or commercial entity) responsible for implementing demining projects or tasks with the use of MDD.

The term 'Mine Detection Dog' (MDD) refers to a dog specifically trained to detect the vapor from mines and ERW, which may be not only explosive vapors but vapor from the case material and other substances.

The term 'target object' is used to describe the object that the MDD is supposed to detect during live mine and ERW detection. The target object may be a mine or ERW, or part thereof, of a type typically found during live operations in the area.

The term 'target odor' is used to describe the scent from the target object.

The term 'test item' is used for any mines or ERW items that are laid in the test site for detection by the MDD.

## 5. Use of MDD for Mine and ERW Detection

MDDs are commonly used globally as a mine, ERW and sub-munitions detection tool, based on below mentioned reasons:

1) If implemented correctly, detection by MDD can be faster and cost effective than manual demining using metal detectors and excavation;

2) As part of well-designed and well-managed DDS, MDD can detect mines and ERW with low-metal and no-metal contents, as well as mines and ERW located in areas with high metal background, such as cluster munitions strike sites, former battlefields, railway lines and high mineral ground; and

3) MDDs can be used in a complementary role including clearance verification and Quality Control.

## 6. Roles of MDDs in Land Release Operations

### 6.1 General

MDD can be used in different roles as part of demining tool kit, however they are best at working in areas where there are low concentrations of mines and or ERW. Therefore, they are well suited and commonly used for activities such as:

1) Mine and ERW verification;

2) Area reduction and delineation of minefield boundaries;

3) Searching roads and road verges.

MDDs can also be used in below roles:

1) Clearance verification, including the rapid sampling or QC of cleared land, which can be done after both manual and mechanical demining;

2) Searching pockets of land unreachable by demining machines;

3) Searching railways and sites heavily contaminated with metal; and

4) Creation of safe lanes for clearance start points.

### 6.2 Use of DDS in Technical Survey

1) MDD can effectively be used for mine and ERW verification during technical survey to identify the location of mine and ERW;

2) MDD are suitable for establishing that there are no EO in an area, confirming "no evidence of" mine and or ERW;

3) MDD can support decision about suspected hazardous areas to be released much faster comparing to use of manual demining;

4) MDD can work quickly in areas with low EO density and are well suited to the boundary delineation role. However, manual demining teams shall be deployed to deal with confirmed hazardous areas known to contain mines and or ERW;

5) MDD are suitable and cost effective in technical survey of roads comparing to manual demining and have less environmental impact than mechanical demining;

6) When used in TS role, the following points shall be considered:

    a) Minimum of two MDDs are used when searching as part of TS operations;
    b) Provide evidence or "No Evidence of" EO for analysis to support the land release decision-making process.
    c) MDDs are used as intrusive detection tool, typically into a suspected hazardous area (SHA).
    d) SNMAS 07.03 is applied when using DDS in TS role; to determine the presence or absence of EO.

DDS may be used in TS role into confirmed hazardous areas, however, manual and mechanical assets are more suitable for the conduct of TS in areas known, or assessed as more likely, to contain EO.

### 6.3 Use of DDS for Clearance

If DDS are used as the primary detection tool, then all areas shall be searched by at least two different MDDs and another MDD for QC before being considered as cleared.

### 6.4 Use of DDS during Emergency Response

Specially trained MDDs can be used in cases of urgent medical evacuation.

### 6.5 Use of DDS in Clearance Verification

When DDS operations are carried out to provide verification following manual or mechanical operations, or confidence building, it shall be ensured that the clearance requirements as specified in SNMAS 06.01 are achieved. However, if EO is found, MDD verification operations shall be stopped and the area shall be rechecked with primary method used.

MDDs are also well suited to be used on roads and other linear features where there is minimum vegetation, tripwires are not expected, and where the reduced environmental impact compared to that associated with the use of mechanical assets, is expected and intended.

## 7. Test and Licensing of MDD Teams (MDD and Handler)

As part of accreditation process, the test and licensing of MDD teams provide an assurance that the MDD and its handler can be effectively used in land release operations and can achieve the requirements of national and international mine action standards relating to the release of land from the presence and or suspicion of EO. MDD teams accreditation shall be supplemented by QA monitoring of entire DDS including but not limited to the following aspects:

a) MDD management and maintenance;
b) DDS facilities;
c) MDD teams training;
d) Test and licensing process including test area;
e) Operations in the field, including documentation and records;
f) Occupational health and safety;
g) Logistical support and transportation;
h) Field training and documentation;
i) DDS outputs.

Test and licensing of MDD teams shall be carried out at minimum once a year to ensure effective DDS operations and reliable outputs in compliance with national and international mine action standards. For details about MDD teams' test and licensing refer to Annex D of SNMAS 07.02.

In addition to testing, licensing and monitoring by NMAC, it is essential that maintenance training, operational testing and monitoring continue to be undertaken at frequent intervals by DDS using organization; the results shall be recorded and maintain in relate file of each MDD.

## 8. Limitations on the Use of MDD

MDD cannot be used successfully under all circumstances, the following limitations shall be considered when planning and undertaking MDD operations:

1) Presence of dense and thorny vegetation, which can restrict the search pattern of MDDs and result in un-searched areas. Vegetation may also prevent the handler from controlling the search or observing MDD indications and signals.

2) MDDs shall not be used in areas where the vegetation has recently been burned, before at minimum four days of soak time.

3) High concentration of EO can confuse MDDs that can result in missing some signals and will have safety implications, in addition, the number of indications could make the operation inefficient.

4) Scattered explosive as a result of use of demining machines can get MDDs confused and may miss some of the signals.

5) Very hot and cold weather has a significant effect on the performance of MDD. Wet and cold weather restrict the dispersal of the scents, while hot weather affects its detection capability. MDDs shall not be used when the temperature is colder than $8^0$ Celsius or higher than $35^0$ degree Celsius unless they have been specifically trained and accredited for.

6) In certain environments, raining and flow of rainwater may spread target odors widely; making it difficult for MDD to pinpoint EO. MDDs shall not be used when it is raining or until the soil has dried after a heavy rain.

7) Consistent high winds can interfere MDD operations by dispersing the vapors which can result in missing signals or multiple false indications. MDDs shall not be used if the wind speed is greater than 4 m/s at ground level especially where the soil surface is very dry, and dust is being raised.

8) MDDs shall not be used when the prevailing wind is coming from behind. MDDs should ideally be used to search with a side wind but can also be used when there is a head wind.

9) Sudden changes and shifts in working conditions can significantly affect MDDs performance. Retraining and or acclimatization shall be considered if there is a sudden shift in working conditions, either due to unusual weather patterns, or the MDD has been moved to another geographical area.

10) MDDs should not work in areas where tripwires are expected, unless they are specifically trained to detect tripwires.

11) MDDs shall not be used in steep sloping areas that they may dislodge stones, rocks or boulders or they need to concentrate on maintaining their balance rather than conducting the search.

12) MDDs should not be used as follow up tool after demining machines, unless they are specifically trained, tested and licensed for such operations.

## 9. Minimum Requirements for the Operational Use of DDS

### 9.1. DDS Records

The following information, as a minimum, shall be established, maintained, retained, updated and documented to provide a continuous record accompanying each MDD through accreditation and during its working life:

1) Breed sex, genealogy, age, reproductive history, and any identifying marks, features or tag references;

2) Medical details including dimensions and weight;

3) Details of all routine health checks and inoculations;

4) Details of all illnesses, injuries and treatments, as well as dietary requirements;

5) Details of initial accreditation, its extension through periodic reassessment and any periods when accreditation is withdrawn;

6) Training records including dates, duration and type of training, instructors and handlers, environmental conditions, operating procedures, target objects and the results of training;

7) Records of operational performance including any operational test passes and/or fails, nonconformities specific to the animal identified during operations, and any other significant events relating to the performance of the MDD; and

8) Other information as may be required by the NMAC.

### 9.2. Accreditation

Accreditation shall address all aspects of the DDS, not just the MDD and handler combination, but include field supervision, veterinary and welfare support, facilities, procedures for the selection, training and operation of the DDS and internal quality, safety and information management aspects.

All DDS shall be accredited in accordance with the requirements of SNMAS 07.02 prior to their employment on operational activity. Accreditation shall be approved, maintained or withdrawn in light of the results of:

1) Accreditation testing and periodic reassessment testing;
2) Operational testing;
3) The results of in progress monitoring in accordance with SNMAS 07.03; and
4) Other conditions specified in accreditation agreements.

Facilities, and personnel carrying out accreditation testing of MDDs and handlers shall themselves have been accredited to conduct DDS testing, by NMAC. Facilities and personnel carrying out accreditation testing of MDDs and handlers shall be subject to monitoring and inspection by the NMAC Operations and Quality Management departments with technical support of UNMAS.

Significant changes relating to DDS that require immediate actions, include:

1) Changes of handler and MDD combinations;
2) Changes in operating methodology or changes to the known threat.

In case of such changes, organizations shall notify NMAC, and this may result in a suspension of current accreditation and re-testing in accordance with the new changes and requirements before receiving further operational accreditation.

### 9.3. DDS Inputs

Inputs to DDS shall be identified and subject to appropriate and effective quality management monitoring, inspections and checks. Inputs include:

#### 9.3.1 MDDs

Organizations shall ensure that their Mine Detection Dogs:

1) Have demonstrated suitability and competence in the EO detection role in combination with their specified handler, during accreditation testing at NMAC authorized test area and in any subsequent operational testing;

2) Have documented evidence of their accreditation, testing and working history;

3) Are provided with adequate and appropriate medical, welfare and training support;

4) Are subject to appropriate and effective monitoring; and

5) Are withdrawn from detection work at any time when there is any reason to doubt their continued ability to satisfy detection or other requirements.

#### 9.3.2 Handlers

MDD handlers shall:

1) Have demonstrated suitability and competence in the EO detection role, in combination with their specified MDD, during accreditation testing at NMAC authorized test area and in any subsequent operational testing;

2) Have documented evidence of their accreditation, testing and working history;

3) Be provided with appropriate and adequate insurance are social welfare cover;

4) Be trained on the most up to date version of applicable SOPs, work instructions and other documentation detailing the conduct of operations;

5) Be subject to effective supervision;

6) Be subject to appropriate and effective monitoring; and

7) Be withdrawn from detection work at any time when there is any reason to doubt their continued ability to satisfy detection or other requirements.

#### 9.3.3 Supervisors

DDS Supervisors shall:

1) Have been assessed to be competent to act as supervisors in accordance with the competence principles set out in SNMAS 07.03;

2) Be authorized as supervisors of DDS by the organization;

3) Have documented evidence of their training supervisors;

4) Be provided with appropriate and adequate insurance and social welfare cover;

5) Be trained on the most up to date version of applicable SOPs, work instructions and other documentation detailing how operations should be conducted;

6) Provide effective supervision of DDS operations; and

7) Be subject to appropriate and effective monitoring.

#### 9.3.4 Management System

The overall management system applied by DDS using organizations, shall at minimum include but not limited to the following:

1) Quality management aspects, including personnel and MDDs selection, operating procedures, equipment procurement and management, training, monitoring and continual improvement of DDS operations;

2) Risk management aspects, including risk assessments, identification and application of appropriate and effective risk mitigation measures and periodic review of risk aspects;

3) Occupational health and safety aspects, relating to the welfare and performance of MDDs, handlers, supervisors, team members and visitors; and

4) Information management aspects, relating to the identification, collection, reporting and analysis of performance data, inputs to land release, and support to operational improvement processes.

### 9.3.5 Occupational Health and Veterinary Support

Successful DDS operations rely on:

1) Proper and appropriate feeding;
2) Proper and standard training; and
3) Appropriate and timely treatment of MDDs.

Poor attention to the health of MDDs, and their treatment when sick, may result in:

1) Prolonged training periods;
2) Failure in test and licensing;
3) More expenses;
4) Limited operational output;
5) Death of MDDs as a result of poor health care and inadequate vaccinations and neglected symptoms of disease.

Adequate and appropriate veterinary support shall be provided that included but not limited to:

1) Knowledge of health issues associated with working locations;
2) Prevailing climatic conditions and diseases; and
3) Environmental aspects that cause ill health to MDDs.

Providers of veterinary and medical support to MDDs shall be competent to fulfil their responsibilities and shall have completed appropriate and relevant studies and hold formal qualifications from Sudan government recognized institutions.

The MDDs healthcare system shall include:

1) Establishing and maintaining adequate veterinary support;

2) Carrying out initial screening of MDDs;

3) Satisfying any applicable quarantine requirements;

4) Conducting periodic health checks, treatment and vaccinations;

5) Providing suitable food and water in appropriate quantities, as and when required to maintain the health and performance of the MDDs;

6) Physical and mental exercise to sustain the MDDs' wellbeing and operational performance;

7) Providing kennel and shelter facilities of an adequate size that maintain appropriate environmental conditions and with access to daylight, exercise areas and human company;

8) Maintaining transportation facilities, equipment and procedures that keep MDDs safe and healthy and that do not adversely affect their operational performance;

9) Maintaining a high standard of hygiene at all times; and

10) Providing on site medical knowledge, skills, equipment and procedures necessary to treat MDDs and evacuate them to a suitable veterinary facility in the event of an accident.

MDDs shall be subject to:

1) Health check each day before starting work;
2) As required during the work; and
3) At the end of the day on completion of work.

No MDD shall be used in land release operations; if it is suffering from illness, incapacity or other condition that may affect its performance, until a subsequent health check shows that it is fit to work.

#### 9.3.6 Food and Water

DDS using organizations shall make adequate provision of clean and appropriate food and water for MDDs, necessary to sustain them and maintain their ability to conduct DDS operations safely and reliably.

#### 9.3.7 Equipment

Equipment used within the DDS shall be subject to:

1) Well-managed procurement;
2) Proper storage;
3) Regular inspection, test and maintenance;
4) Effective repair procedures that ensure their continued suitability and capability to satisfy operational quality and fulfil safety and environmental requirements.

#### 9.3.8 Documentation

As minimum, the following documentation shall be available and accessible in all DDS work sites:

1) Task order;
2) Site operational plan;
3) On-site training record of MDDs;
4) Health checks and vaccination of MDDs;
5) Accreditation license of MDD and handler;
6) Up to date SOPs; and
7) Reporting forms.

## 9.4. DDS Activities

### 9.4.1 Integration with other Operational Procedures

DDS SOPs should be integrated with procedures applying to other associated survey and clearance activities as part of the land release process, including manual and mechanical operations.

### 9.4.2 Accommodation and Transport

MDDs shall be accommodated and transported in a proper way to ensure their continued health and ability to perform EO detection functions.

### 9.4.3 Training

DDS training shall be properly planned, conducted, monitored, regularly reviewed and updated as necessary, to ensure the continued competence and capability of all aspects of DDS support and operations. This shall include but not limited to:

1) Establishing clear, relevant training objectives;
2) Establishing proper training area with enough training boxes and targets;
3) Delivery of training by NMAC and related organization's authorized and competent trainers;
4) Ensuring that training sites, targets and conditions correspond to those associated with operational sites and EO threat;
5) Monitoring of training, collection and analysis of performance data; and
6) Updating training package and program based on review findings and in response to changing circumstances, conditions and standards.

### 9.4.4 Standard Operating Procedures (SOPs)

DDS using organizations shall develop SOPs to:

1) Fulfil accreditation requirements;
2) Ensure the safety of MDDs, handlers, supervisors, team members, visitors and land users;
3) Ensure that all specified land is searched by the DDS (MDDs, handlers, applying accredited methods) that can detect target items;
4) Conduct operations that fulfil the requirements of this standard and other related national and international mine action standards;
5) Define working time durations and rest intervals for MDDs and handlers appropriate to operational methodologies and working conditions; and
6) Consider changes in circumstances and improvements to operating methods and practices.

### 9.4.5 Operational Planning

DDS operational plans shall:

1) Be properly documented in appropriate format;
2) Include integrated operations considering the findings of Field Risk Assessment (FRA);
3) Fulfil requirements specified in related national and international mine action standards, task order, contracts and other applicable documentation;
4) Consider FRA and the capabilities of the allocated DDS;
5) Reflect input from the informants and relevant stakeholders;

6) Be appropriate to the prevailing environmental circumstances and conditions including the need for removal of vegetation;
7) Be consistent with NMAC accredited SOPs;
8) Enhance the efficiency of DDS operations.

#### 9.4.6 Operational Testing of MDDs

Testing that takes place outside the confines of accreditation test and licensing is termed operational testing. Operational testing of DDS shall take place in accordance with the requirements of Annex A to this SNMAS. As a minimum operational testing shall take place:

1) As required to maintain operational accreditation, especially after a leave period;
2) Each day prior to the conduct of MDD search;
3) When there is change in operating conditions, the local environment or the target type, after reaccreditation, if required;
4) As minimum, twice a week after the operational hours by the organization to maintain confidence in consistent reliability of the DDS; and
5) Whenever a handler, supervisor, quality assurance officer or other authorized persons, has reason to doubt the reliability of the performance of a MDD or its handler.

If a MDD fails an operational test, all land searched by that MDD since it last passed an operational test, shall be subject to review, and where necessary re-search by other MDD that has passed the operational test. To achieve this, the daily search of DDS shall be properly recorded and documented.

#### 9.4.7 Conduct of Operations

Sites where DDS operations take place shall be managed as demining worksites in accordance with relevant standards (SNMAS 05, 06 and 08 series). DDS operations shall be conducted in accordance with NMAC approved and accredit SOPs of the DDS using organization.

### 9.5. Outputs of DDS Operations

#### 9.5.1 Land

Land released as a result of the use of DDS shall be defined and managed in accordance with the definitions and requirements specified in 05.01 and 05.03 Land Release and Technical Survey (TS).

#### 9.5.2 Data and Information

Data relating to the release of land shall fulfil the minimum requirements set out in SNMAS 05.01, 05.03 and SNMAS 06 series of clearance requirements and SNMAS 10.01 of Information Management. DDS performance data shall be collected, recorded in the right format, reported and analyzed in order to:

1) Support ongoing land release decisions;
2) Maintain confidence in the quality of DDS operations;
3) Enhance understanding of EO relevant to subsequent land release planning, prioritization and operations;
4) Enhance understanding of DDS operational performance; and
5) Support improvement in the performance of DDS.

The following specific information relevant to DDS shall be recorded and be traceable to the worksite:

1) Unique identification of individual MDDs;
2) Unique identification of handlers, traceable to related MDDs;
3) Identification of DDS supervisor;
4) Details of worksite and locations searched by DDS;
5) False and positive indications, and the period of operations;
6) Number of EO discovered and their locations;
7) Role of DDS, survey or and clearance;
8) Operational testing results;
9) Health check and treatment record;
10) Environmental and weather data.

#### 9.5.3 DDS Outputs as Inputs to other Land Release Processes

Where land searched using DDS is subject to further processing by manual or mechanical assets, DDS supervisors shall ensure that the detailed information about the status of land and any items discovered, are handed over to follow-on asset supervisors. Such information may include DDS used in a TS role before full clearance or DDS used for clearance, but spots or parts of the land may have been deemed unsuitable for DDS search; including excessive explosive scent, slopes, anthills, puddles, trenches or bushes that may prevent MDD sniffing activity.

### 9.6. Measurement, Monitoring, Analysis and Improvement of DDS

Monitoring of DDS operations and activities including administrative, accommodation, medical, training and work sites aspects, should be carried out in accordance with the requirements of SNMAS 07.03.

#### 9.6.1 Identification and Traceability

DDS using organization shall collect, record and document data relating to:

1) MDDs;
2) Handlers;
3) Supervisors; and
4) Procedure used.

And their traceability to:

1) Specific operational worksites;
2) Operating period and times;
3) Specific locations within worksites as required for quality management purposes.

#### 9.6.2 QA Monitoring

Monitoring of DDS operations shall be carried out in accordance with the requirements of SNMAS 07.03.

Focus shall be applied to survey and clearance activities. Monitoring shall include appropriate effort to confirm the suitability and effectiveness of all aspects of the DDS including, but not limited to:

1) Management capability of DDS using organization;

2) Logistic, support and health and veterinary aspects of the DDS;

3) The quality and validity of training;

4) Internal quality management including operational testing;

5) Conduct of field operations;

6) Use of information to support ongoing risk, quality and environmental management decisions;

7) Quality of information; and

8) The identification and management of nonconformities and opportunities for improvement.

#### 9.6.3 Output and Monitoring

Outputs of DDS operations including land and information that shall be subject to inspection and monitoring in accordance with the requirements of SNMAS 07.03 and SNMAS 10.01.

The quality of land searched by DDS, whether released directly through MDD clearance or reduced after TS, or in conjunction with follow-up clearance using another mine action asset, should be monitored by:

1) Internal and external QC sampling inspection by other search and clearance assets;

2) Analysis of the findings of follow-on land release assets; and

3) The results of long-term monitoring of the land following its handover.

Additional outputs of DDS, including data, reports and records, shall be subject to proper quality check in accordance with the requirements of SNMAS 10.01.

#### 9.6.4 Managing Nonconformity

Nonconformities associated with DDS shall be managed in accordance with SNMAS 07.03. DDS using organization shall implement effective measures to ensure that nonconformities are identified, analyzed, assessed, corrected and appropriate preventive measures are taken to ensure continual improvement.

DDS using organization shall make information relating to nonconformities, and their management response, available to NMAC and UNMAS.

#### 9.6.5 Managing Improvement

NMAC and DDS using organization shall implement effective measures to ensure that opportunities for improvement are identified, assessed and acted upon.

Opportunities to improve DDS operations shall be properly pursued, which can be identified through:

1) Root cause analysis of a nonconformity;

2) Regular review and analysis of performance data;

3) Recommendations from the field, including team members and customers;

4) Operations management review; and

5) Internal or external monitoring reports.

## 10. Responsibilities

### 10.1 National Mine Action Centre (NMAC)

As national mine action authority in Sudan, NMAC is responsible to:

1) Develop, maintain up to date and implement national mine action standards that include requirements for training, testing, accreditation and use of DDS in land release operations in Sudan;
2) Accredit mine action organizations and their DDS;
3) Ensure transparent sharing of DDS performance information;
4) Facilitate provision of appropriate training and test areas to DDS using organizations;
5) Facilitate provision of training targets to the DDS using organizations for their training areas;
6) Establish training, test and accreditation area with required number targets and test boxes to undertake test and accreditation there;
7) Undertake regular monitoring of DDS activities, and maintain records;
8) Investigate in DDS related incidents and major nonconformities, as required.

### 10.2 Mine Action Organizations

DDS using mine action organizations shall:

1) Develop and maintain SOPs up to date for the use of DDS in land release operations, in compliance with SNMAS;
2) Gain accreditation from NMAC for the management and use of DDS in Sudan;
3) Undertake operational testing of MDD teams as required by SNMAS and to maintain confidence in operations and outputs of DDS;
4) Ensure that the competence of MDDs, handlers and supervisors are maintained and improved through proper and effective training, monitoring and regular performance review;
5) Make DDS performance data and information available to NMAC and UNMAS;
6) Establish systems, processes and procedures and facilities to ensure the occupational and general health care of MDDs and handlers;
7) Ensure the quality of DDS operations.

### 10.3 Donors and Clients

Contracting or funding entity of mine action operations shall:

1) Specify and agree their service and output requirements to DDS using mine action organizations in clear and unambiguous terms;
2) Assist the development and implementation of SNMAS relating to the training, operational testing, accreditation and use of DDS within Sudan.

# Sudan National Mine Action Standards – SNMAS 07.01

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# Quality Management System in Mine Action

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**Contents**

## 1. Introduction

This standard covers the requirements of Quality Management System (QMS) in mine action including activities associated with all pillars of mine action in Sudan. Application of QMS in mine action can helps the Sudan National Mine Action Centre (NMAC) and mine action organizations to improve the overall performance of the programme to achieve the goals and objectives of the Government of Sudan (GoS) with regard to its international obligations of ratified Anti-Personnel Mine Ban Convention (APMBC) and national mine action strategies and plans. Application of QMS can also help the programme to provide a safe living environment for the people of Sudan, and to establish a sound basis for the sustainable development initiatives within the country. The potential benefits of implementing QMS for mine action organizations are:

a) The ability to consistently provide mine action products and services that meet customers, stakeholders and applicable statutory and regulatory requirements including the requirements of international conventions;
b) Facilitating opportunities to enhance customers' and stakeholders' satisfaction;
c) Addressing the risks and opportunities associated with mine action context in Sudan and the overall goals and specific objectives to be achieved;
d) The ability to demonstrate conformity to specified quality management system requirements.

This standard sets out principles of quality management, and the minimum requirements for a mine action QMS, and draws on the principles and requirements set out in ISO 9001:2015, but does not replace ISO 9001 within the mine action context. Mine action organizations are encouraged to consider the adoption of formally certified systems such as ISO 9001 as part of their own management systems.

It also follows the process approach, which incorporates the Plan-Do-Check-Act (PDCA) cycle and risk-based thinking. The quality management relies upon the availability of information; to inform the planning process, direct implementation, check the performance against requirements and to take action to improve the quality and safety of processes, services and products. As principle of quality management; there is an increased emphasis on the use of information as evidence to support decision making.

In the ISO series, the quality is defined as "the degree to which a set of inherent characteristics fulfills requirements". In the context of mine action quality is defined as "the degree to which a mine action service, product or output fulfills requirements". In order for a mine action organizations to be able to achieve quality, and release high quality mine action products and services; it is necessary that the requirements are specified and clearly stated in mine action standards, contract documents, statement of work and memorandum of understanding. The operating procedures shall detail how to achieve those specified requirements.

### 1.1. Relationships to other Management Systems

Environmental and safety management are closely associated with quality, particularly in relation to technical mine action activities such as survey and clearance, EOD and stockpile destruction. Existing

occupational health and safety management systems, such as ISO 18001, and environmental management systems, such as ISO 14001, exhibit many of the same features as QM systems.
Mine action organizations can gain and obtain certification against safety and environmental management standards to make extensive use of tools (such as management review, response to nonconformity, control of documents) found within the QMS. Mine action organizations shall address safety and occupational (S&OH) and environmental management requirements within their SOPs. SOPs constitute a key part of the mine action QMS. SNMASs 08 series detail the requirements for mine action safety and occupational health (S&OH) and the requirements in relation to protection of the environment.

It is important that the QMS is consistent with the higher level goals and objectives of the Sudan mine action programme and the goals and objectives of the individual organizations. At the same time, principles of QM are applicable when developing a strategic plan. Whether using the PDCA cycle to drive the development, implementation, evaluation and improvement of a strategic plan or in ensuring that strategic documentation satisfies stakeholders' requirements, QM is an important feature of a good strategic management process.

### 1.2. Quality Management and Result Based Management

In addition to customers and stakeholders' satisfaction about the quality of mine action services, the outcomes and impacts arising from mine action processes, products and services form an important part of the mine action context. The results, outcomes and impacts of previous mine action products and services should inform current and future requirements and directly influence the improvement of mine action processes, products and services. The expected results should be assigned as requirements to be achieved. The findings of Post Demining Impact Assessment (PDIA) and other Result Based Monitoring and Evaluation can be used to specify and assign certain requirements.

QM and RBM are mainly treated as separate; however, they are closely associated functions within the mine action context. The two approaches to management are closely related and rely upon each other, the management team of mine action organizations should remain constantly aware of the implication of decisions in one system upon the other.

Quality is often defined as the satisfaction of customers' requirements, but it is also important to be confident that the requirements fit into the wider strategic goals, policy and direction of the Sudan mine action programme. Satisfying as a given and stated requirement may meet a definition of quality, but it has little merit in the wider context if that requirement is not associated with a result, outcome or impact. One of the characteristics of quality products and services is that they are 'fit for purpose'. RBM focuses on questions of purpose and how top management knows that a purpose has been effectively fulfilled and the customers are satisfied. It is through the interactions between RBM and QM that mine action top management ensures that both 'purpose' and 'fitness for purpose' are well understood and reflected in every aspect of a mine action organization's processes, products and services.

### 1.3. Risk Management and Quality Management

The mine action sector is making more use of structured risk management principles and tools across all activities, at all levels within the programme and at organizational level. The ISO 9001:2015 QMS makes more explicit use of risk management approaches and terminology and expects organizations seeking certification and or applying ISO 9001 requirements to follow the risk management approach. Quality management like environmental and safety management is a risk management process. It involves identifying aspects of an organization's processes and products that could fail to satisfy requirements and then developing procedures, checks and monitoring systems to reduce the chances of failure.

Risk and opportunity are closely associated. Mine action organizations encounter opportunities to improve the services and products they offer, and to improve the extent to which they satisfy stakeholders' requirements. Principle of continual improvement helps mine action organizations respond to opportunities to improve at every level.

Risk is defined as 'the effect of uncertainty on objectives' (ISO Guide 73:2009). It is typically expressed through reference to the 'combination of the probability of occurrence of harm and the severity of that harm' (IMAS 04.10 and ISO Guide 51:1999). The primary means of reducing uncertainty, in any situation or circumstance, is the systematic collection and analysis of sufficient, relevant information.

## 2. Reference

IMAS 07.12 and ISO 9001:2015

## 3. Terms and Definitions

A mine action organization is "any organization (government, military, commercial or NGO/civil society) responsible for implementing mine action projects and conducting mine action activities.

Quality in Mine Action is 'the degree to which a mine action service, product or output fulfills requirements.

Quality management is "Management with regard to quality". Quality management can include establishing quality policies, quality objectives, and processes to achieve these quality objectives through quality planning, quality assurance, quality control and quality improvement." (ISO 9000:2015)

Quality Assurance is "part of quality management focused on providing confidence that quality requirements will be fulfilled" (ISO 9000:2015). QA is a confidence-building process, based on evidence, that the quality requirements are likely be met. QA encompasses all proactive processes and activity undertaken by an organization to increase confidence in the likelihood that requirements will be met.

Quality Control is "part of quality management focused on fulfilling quality requirements" (ISO9000:2015). QC addresses the question "did we get what we wanted?"

Competence is the "ability to apply knowledge and skills to achieve intended results" (ISO 9000:2015).

The term improvement is "activity to enhance performance*". (*ISO 9000:2015)

Conformity is "fulfillment of a requirement". (ISO 9000:2015)

The term "conformity" refers to fulfillment of a requirement, in terms of mine action; it refers to fulfillment of a mine action requirement that stated in standards and or other documents including terms of contracts, statement of work and MoU.

The term "Nonconformity" refers to non-fulfillment of a **requirement.**

The term "Observation" refers to a situation or performance that is felt to be a weakness in a process or procedure to improve upon, but not strong enough and have no reference to warrant nonconformity. An observation is not nonconformity at the time identified, but may become or give raise to nonconformance, if no action is taken.

The term "Verification" refers to confirmation, through the provision of **objective evidence**, that specified **requirements** have been fulfilled.

The term interested party refers to "a person or organization that can affect, be affected by, or perceive itself to be affected by a decision or activity" (ISO9000:2015). In mine action an interested party is often called a *stakeholder.* The term stakeholder is used in this standard.

The term "Product" refers to output of an organization that can be produced without any transaction taking place between the organization and the customer. Products of processes may consist of matter, information and/or energy. Mine action products include, but are not limited to:

a) Information including all documentary products;

b) Released land;

c) Hardware including training aid materials, mechanical ancillaries, hazardous items models and artificial limbs as part of victim assistance.

d) Qualified and competent people.

## 4. Principles of Quality Management (QM)

QM is based on seven principles which are closely interrelated to each other and shall be applied consistently across an organization's activities. QM principles that are important to the management of mine action quality are described below:

### 4.1. Customer Focus

Sustained success is achieved when a mine action organization understands, builds and retains the confidence of customers and interested parties. Every aspect of customers' interaction provides an

opportunity to create more value for the beneficiaries, customers and stakeholders. Understanding current and future needs of customers and interested parties contributes to sustained success of mine action organizations.

In the context of mine action, the term 'customer' includes a range of organizations, groups and individuals that pay for, receive, use or have an interest in mine action products, outputs and outcomes. They include:

a) Organizations, groups and individuals and their families that receive and use mine action services, products and outputs; including beneficiaries, land users and land owners, and local, regional and national governmental bodies.

b) Entities responsible for the coordination, programming, oversight and management of mine action activities, projects and programmes; including NMAC and UNMAS.

c) Organizations that pay for mine action services including donors, government ministries and commercial clients.

The aim of QM in mine action is to build the confidence of different customers, stakeholders and interested parties about the mine action services, products and outputs; through fulfillment and or exceeding their requirements. The actions that Mine Action Organization can take and implement to improve Customers' Focus include but not limited to:

a) Identifying and taking into consideration the direct and indirect customers who receive value from the organization.

b) Understanding customers' current and future needs and expectations, and plan, design, develop, produce and deliver products and services to meet customers' needs and expectations;

c) Linking its objectives to customers' needs and expectations, and communicate those needs and expectations throughout the organization;

d) Assessing and monitoring customers' satisfaction and taking appropriate actions;

e) Determining and taking actions on relevant interested parties' needs and expectations that can enhance customers' satisfaction;

f) Properly managing relationships with customers to achieve sustained success.

### 4.2. Leadership

Leaders at all levels establish unity of purpose and direction and create conditions in which people are engaged in achieving the quality objectives of the organization. Creation of unity of purpose, direction and engagement enable an organization to align its strategies, policies, processes and resources to achieve its objectives.

A mine action QMS only succeeds if there is a commitment to quality from the highest level of the

programme management, and within the mine action organizations. Mine action senior management and leaders formally communicate their focus on customers' needs and expectations through the Quality Policy, Quality Objectives, QMS documentation including the scope of quality, related operating procedures, and through continual improvement reviews.

### 4.3. Involvement of People

In addition to the top management commitment, effective QMS also requires involvement of people in all levels of mine action programme and organizations. People within mine action organizations are the essential assets; they are managing processes, implementing mine action projects through following standard procedures, and conducting activities to achieve the goals and objectives. Involvement of employees makes them able to understand their roles and responsibilities, and acquire the capacity, skills and knowledge necessary to fulfill their functions effectively and consistently. Recognition, empowerment, and improvement of skills and knowledge facilitate the engagement of people in achieving quality objectives of the mine action organizations.

The QMS makes use of the experience, knowledge and skills of the people who implement the system in identifying key processes, developing procedures and setting objectives. Involvement of people in the design, development, implementation and review of the QMS encourages a sense of collective ownership and helps maintain staff confidence in the suitability and value of the QM system.

#### 4.3.1. Gender and Diversity

Gender and diversity consideration is one of the main requirements of the mine action sector. In order to provide more inclusive, effective, and efficient programming, the mine action sector should have sufficient inputs from gender and all diverse groups of its customers and stakeholders. A lack of gender and diversity awareness and capacity across the sector can compromise the quality of mine action services.

The gender and diversity consideration can help mine action organizations in their decision-making processes and programme development, so that the needs and expectations of gender and diverse groups of people are taken into account. This includes considering the priorities and needs of women, girls, boys, and men, their mobility patterns, different roles and responsibilities.

In addition to considering the needs and expectation of men, women, boys and girls within affected communities, mine action QMS also emphasizes on their involvement in different stages of the management of mine action operations including planning, prioritization, implementation, release and delivery of mine action services and during the impact assessment and evaluation after the release of mine action services. Gender and diversity consideration in mine action also covers employment opportunities for persons of all genders and diversity groups.

### 4.4. Process Approach

The process approach is based on recognition that, in order to have confidence in the quality of a product or output from a process, it is necessary to have confidence in the inputs and the series of activities within that process. The quality management system is composed of interrelated processes. Understanding how the results are produced by this system or interrelated processes,

resources, controls and interactions, allows the organization to optimize and continually improve its performance. As minimum the following actions can be taken by the mine action organizations:

a) Define objectives of the processes that are necessary to be achieved;

b) Establish and assign authority, responsibility and accountability for managing processes;

c) Understand the organization's capabilities, determine and allocate resources to each process;

d) Determine interactions between processes and analyze the effects of changes to individual process in the system.

When considering process approach as part of the QMS in mine action, the following are necessary:

a) Assessment of suppliers, service providers and implementing partners; *Mine action accreditation is crucial and shall be considered*.
b) Quality control of inputs to a process; test and trial of the mine action tools and equipment are important and shall be considered;
c) Monitoring of mine action processes and activities;
d) Quality control of outputs prior to release; including control of land release completion process; and
e) Post release assessment and survey of mine action customers, which includes Post Demining Impact Assessment and other related assessments.

### 4.5. Improvement

The concept of continual improvement is at the center of effective QMS. It also reflects basic principles of professional commitment and an underlying desire to perform a proper and a right job. Improvement does not only relate to identifying existing problems within a system and applying required solutions, but also to identify opportunities and make use of them for further better steps to be taken in a continual basis. The driver behind continual improvement processes is the PDCA cycle (Plan Do Check Act). PDCA cycle occurs at every level and within every mine action activity continually. The most important for mine action organizations is to undertake periodic and systematic review planned and performed activities, identify areas for improvement and implement required actions.

All the suggestions, recommendations, feedbacks and observations about aspects of the management system that can bring improvement, should be accepted. The top management and leaders shall motivate, encourage and listen to those who identify areas for improvement; top management should also recognize the professionalism of the staff, and other stakeholders.

Improvement takes place every time when a PDCA cycle is closed, when the loop is left open mostly due to lack of follow up to ensure required action are taken, an opportunity to improve is missed and a shortcoming in the management system is left unaddressed. Mine action organizations shall ensure that those aspects that justify an active response are identified, captured within the system and appropriate actions are taken.

### 4.6. Evidence Based Decision Making

Using evidence to support decision-making is fundamental to QMS in mine action. The same principles apply to all mine action activities such as Survey and Land Release, Risk Education and Victim Assistance. Land Release, a process that collects data and evidence to support an iterative and dynamic process of decision-making based on which the land that is potentially hazardous, can be safely released.

SNMAS 05 series of Survey and Land Release require a constant focus on the collection and analysis of data and evidence to support valid and efficient land release decision-making. The concept of 'all reasonable effort' is based upon the use of evidence to show that further actions at a land release site are not reasonably and logically justified.

Whether mine action managers are deciding how best to target and deliver risk education, are identifying appropriate actions to reduce casualties, or are engaged in planning and implementing other mine action activities, they should be using available evidence to inform their decisions. Where there is no evidence, the managers shall take steps and seek to obtain them.

Monitoring of Mine Action Organizations focuses on the collection and analysis of evidence to support decision-making in relation to the performance of mine action organizations, and the continual improvement of mine action activities, processes and products.

Recording and utilization of data and evidence to support mine action decisions is not only a good practice in QMS. It also plays an important role in management of liability, by providing objective evidence to demonstrate compliance with related legislations, policies, standards and SOPs.

### 4.7. Relationship Management

Mine action involves people and organizations as customers, stakeholders and other interested parties[1]. They influence the performance of an organization, and sustained success is more likely to be achieved when an organization manages relationships with its interested parties to optimize their impact on its performance. Relationship management with its suppliers and partners is often of particular importance especially to mine action sector. Quality is best managed when people and organizations communicate their expectations and requirements, and understand those expectations.

Relationships may be managed through formal means, such as contracts and agreements, and informally during normal working interactions. Stakeholders who have the opportunity to participate, at an appropriate level, in mine action planning, implementation, monitoring and decision-making, tend to be motivated and supportive in realization of the mine action goals.

[1] *Interested Parties: Person or organization that can affect, be affected by, or perceive itself to be affected by a decision or activity (ISO 9000:2015). In context of mine action the customers and different stakeholders can be counted as interested parties.*

## 5. Scope

This standard provides guidelines and requirements for establishing and implementation of a Quality Management System (QMS) in mine action in Sudan mine action programme. It is applicable to NMAC as mine action coordination and regulating body in Sudan, and all mine action organization accredited by NMAC. The decision, by NMAC to adopt and apply a QMS for the mine action programme of Sudan, does not remove from mine action organizations the responsibility and requirements to manage the quality of their own services and products. The internal QMS of mine action organizations shall be consistent with the QMS of the NMAC that is established and implemented. This standard should be used in conjunction with SNMAS 07.02 Accreditation, SNMAS 07.03 Monitoring and Quality Control.

## 6. Purpose

The overall aim of Quality Management System (QMS) in mine action is to provide confidence to the customers and beneficiaries, the mine action organizations, NMAC and UNMAS, donors, GoS and other stakeholders that the quality requirements have been met or exceeded, and that mine action activities and products are 'fit for purpose.

## 7. Context

NMAC with technical support of UNMAS, and mine action organizations working in Sudan under the auspice of NMAC, shall identify and assess internal and external contexts that are relevant to the Sudan strategic direction that may influence the activities, outputs and intended outcomes of mine action activities, products and services:

a) The internal mine action context relates to the activities, resources, structure, values, culture, knowledge and performance of the mine action organization. This also includes the strategic directions of the Sudan National Mine Action Strategic Plan (NMASP).
b) The external mine action context relates to political, economic, social, technical, environmental and legal aspects relevant to the mine action programme and organization at local, regional, national and international levels, including international convention's obligations that GoS has ratified.

Analysis of the mine action context should include an assessment of key trends of significance to the organization and the programme as a whole.

## 8. Needs and Expectations

The needs and expectations of customers, stakeholders and interested parties shall be identified, analyzed, assessed and appropriately reflected in the QMS; the mine action customers, stakeholders and interested parties included, but not limited to:

a) The government of republic of Sudan;
b) Ministry of Defense;
c) Sudan National Mine Action Centre (NMAC);
d) United Nations Mine Action Services (UNMAS) Sudan;

e) United Nations Agencies working in Sudan;
f) Donors of the Sudan mine action programme;
g) Mine and ERW affected communities, and the beneficiaries of mine action services;
h) Mine action organizations working in Sudan;
i) Government ministries and agencies;
j) International institutions, including Geneva International Centre for Humanitarian Demining (GICHD);
k) Development and commercial investors;
l) Mine and ERW victims;
m) Local communities, society and the general public including men, women and children.

## 9. Scope of the QMS in Mine Action

The scope of the QMS in mine action shall be determined and documented in light of:

a) The context of the mine action in Sudan, context of mine action organizations;
b) The needs and expectations of customers, stakeholders and interested parties; and
c) The products, services and outputs of the mine action organization.

In determining the scope of QMS, the leadership and senior management of NMAC and mine action organizations should take into account the need for connectivity between the QMS and Results Based Management (RBM) including intended results, outcomes and impacts arising from mine action activities and services. The scope of the NMAC and mine action organization QMS shall be documented, readily available and be maintained as documented information.

## 10. Mine Action Processes

The mine action organizations shall identify, define and document processes relevant to their operations. As a minimum the QMS shall include processes relating to:

1) Delivery of mine action products and services including:
    a) Management of mine action operations;
    b) Land release including non-technical and technical survey and clearance;
    c) Monitoring of mine action activities and operations;
    d) Quality control sampling of mine action products and services;
    e) Risk education including development of related materials;
    f) Victim assistance including its components.
2) Direct support to processes that deliver product and services including:
    a) Planning and prioritization;
    b) Recruitment, training and capacity development;
    c) Procurement and equipment management;
    d) Management of operations;
    e) Information management;
    f) Management reviews and improvement.
3) Other significant aspects of the organizations' operations, activities, outputs and objectives as determined by the mine action organizations.

Each process within the QMS shall be documented including:

1) An identifying title/reference for the process;
2) The inputs and outputs associated with the process;
3) Sequence of activities within the process and decision points;
4) Interaction between processes;
5) Associated effectiveness and efficiency performance indicators; and
6) Identification and assigning responsibility and authority for implementation of the process.

Each process should be documented as SOP and properly mapped for easy tracking and understanding.

## 11. Leadership and Commitment

Successful development, adoption, implementation and continual improvement of QMS are depending upon leadership and their continued commitment within the mine action organizations.

The leadership and senior management of mine action organizations shall:

a) Establish, document and maintain a quality policy, and ensure that the policy is properly communicated within organization.
b) Establish, document and maintain quality objectives;
c) Monitor and review the progress and performance of the QMS and take action as necessary to ensure that quality objectives are achieved;
d) Integrate the QMS into the organization's and program's wider strategic goals and objectives; and
e) Ensure that adequate resources are available to maintain the QMS.

The senior management shall ensure that the organization is focused on identifying, understanding and satisfying the needs and expectations of customers, beneficiaries and the stakeholders.

### 11.1. Quality Policy

A mine action quality policy shall be established, documented and communicated by each mine action organization. The mine action quality policy shall:

1) Be appropriate to the purpose, functions and strategic objectives of the mine action organization and the programme;
2) Include a commitment to satisfying applicable requirements including:
   a) Sudan National Mine Action Standards (SNMAS), which are in compliance with International Mine Action Standards (IMAS);
   b) International Ammunition Technical Guidelines (IATGs), where applicable;
   c) Anti-Personnel Mine Ban Convention obligations, signed and ratified by Sudan.
3) Include a commitment to the continual improvement of mine action processes, products and services, as well as the QMS; and
4) Provide a framework for setting quality objectives.

The policy shall be communicated to, and be understood by, all those with functions and responsibilities within the programme/organization's activities. The Quality Policy shall be made available to all stakeholders.

## 12. Planning of the QMS

When planning mine action QMS relevant authorities/managers shall take action to ensure that the QMS can achieve its intended results including:

a) Preventing and reducing nonconformity; and
b) Enhancing performance.

Planning of the QMS shall include:

a) What will be done;
b) What resources will be required;
c) Who will be responsible;
d) When the actions will be completed; and
e) How the performance of the QMS will be monitored and evaluated.

When changes are made to the QMS, authorities/managers shall:

a) Specify the purpose of the changes;
b) Identify potential consequences of the changes;
c) Ensure the continued integrity of the QMS;
d) Ensure that adequate resources are available to implement the changes; and
e) Communicate any changes to responsibilities and authorities.

### 12.1. Objective Setting

NMAC and mine action organizations shall specify relevant and achievable quality objectives, the objectives should be specified to functions and the division of responsibility in each section or functional unit, the following shall be considered:

a) Relevant to the scope of the organization's mine action processes, products and services;
b) Consistent with the organization's quality policy;
c) Specific, Measurable, Achievable, Realistic and Time-bound;
d) Monitored;
e) Communicated; and
f) Include relevant aspects of stakeholder satisfaction.

## 13. Mine Action Resources

Provision of adequate resources to perform functions is crucial in any mine action organization. The NMAC shall ensure that all mine action organizations have provided adequate resources to perform all including quality management functions that are necessary to maintain confidence in the safety, efficiency and effectiveness of mine action services and products, and satisfy the requirements of mine action customers and stakeholders.

### 13.1. People

NMAC with technical support of UNMAS, and mine action organizations shall:

a) Determine the competence requirements of job functions affecting the performance of mine action processes and products;
b) Confirm the competence of workers on the basis of appropriate education, training and/or experience;
c) Where necessary, take action to ensure the competence of workers through recruitment, transfer or additional training;
d) Monitor the effectiveness of training;
    i. Retain appropriate records of training and competence.
e) Mine action workers shall be made aware of:
    i. The quality policy;
    ii. Quality objectives relevant to their job functions;
    iii. The significance of their roles and responsibilities in relation to the quality of mine action processes, services and products; and
    iv. The quality and safety implications of not conforming to the QMS.

### 13.2. Equipment

NMAC with technical support of UNMAS, and also mine action organizations shall:

a) Determine equipment requirements necessary to operate and deliver safe, efficient and effective mine action processes, products and services;
b) Specify and communicate requirements to suppliers and implement procurement processes;
c) Ensure that equipment are checked on receipt and tested, to confirm that they satisfy the requirements;
d) Establish maintenance schedules in accordance with manufacturer's recommendations and as required by prevailing circumstances and conditions;
e) Ensure that adequate training of equipment is undertaken to the operators;
f) Implement operational controls and checks to confirm the continued suitability and functioning of equipment during the field operations, confirmation test of metal detectors shall be the routine during demining operations;
g) Ensure that non-conforming equipment are marked and segregated to avoid their inadvertent use. Specific attention shall be paid to metal detectors and safety equipment;
h) Ensure that appropriate repair or disposal action is carried out on non-conforming equipment; and
i) Maintain and retain equipment documentation appropriate to the type, value and significance of the equipment.

### 13.3. Information

NMAC with technical support of UNMAS and consultation with mine action organizations shall:

a) Determine information requirements necessary to deliver safe, efficient and effective mine action services;

b) Ensure that necessary information is collected, reported, recorded, analyzed and disseminated by competent staff in accordance with requirements (standards, policies, SOPs, forms, templates).

It is the responsibility of NMAC to:

c) Establish policies and procedures as required to ensure that mine action information is collected and accessed by mine action organizations and stakeholders;
d) Manage mine action information in accordance with requirements of SNMAS10.01;
e) Retain, secure, protect and back up mine action information;
f) Ensure that mine action information is available to stakeholders in a timely form as per their requirements;
g) Identify and respond to continual improvement opportunities relating to mine action information and its management; and
h) Seek feedback from mine action information users to determine levels of satisfaction.

NMAC should determine and implement appropriate policies, procedures and practices in relation to mine action information that increase transparency and accountability and that make it easier for stakeholders to access information 'on demand' as well as 'on request'.

### 13.4. Infrastructure and Working Environment

NMAC shall ensure that working space, equipment, software and transport are suitable for safe and efficient mine action activities. Senior management shall also ensure that the mine action working environment is suitable for the safe, efficient and effective implementation of mine action processes. The working environment should be:

a) Safe;
b) Non-discriminatory and non-confrontational;
c) Stress-reducing; and
d) Comfortable.

The nature of mine action is such that work may take place under difficult conditions. Mine action senior managers in NMAC and mine action organizations shall, at all times, take all reasonable measures to satisfy the requirements of this standard with respect to working environment.

As a minimum NMAC and mine action organizations shall ensure that mine action operations comply with SNMAS 08 series (Mine Action Safety and Occupational Health). Under certain circumstances where there is reason to believe that working conditions may adversely influence the safety and quality of mine action processes and products; NMAC and mine action organizations should implement additional measures to address the situation, or suspend operations until more appropriate conditions prevail.

## 14. Mine action Operations

### 14.1. Requirements for Mine Action Products and Services

NMAC with technical support of UNMAS and mine action organizations working in Sudan shall determine the requirements for the mine action products and services within the scope of operations. In determining requirements the followings shall be considered:

a) Sudan National Mine Action Standards;
b) Accreditation requirements and agreements;
c) APMBC requirements including its work-plan;
d) Sudan National Mine Action Strategic Plan;
e) Sudan national regulations and legislation;
f) Contracts, Memorandum of Understanding and other relevant agreements;
g) Annual operational work-plan, task orders and other operational direction; and
h) Requests and preferences expressed by donors, beneficiaries and other stakeholders.

### 14.2. Planning of Mine Action Processes, Products and Services

Mine action operations shall be planned and controlled to a level necessary to satisfy the requirements and to maintain confidence amongst customers and stakeholders in the safety and quality of mine action processes, services and products. Mine action operational planning shall:

a) Be based on up to date and relevant information;
b) Reflect the requirements of agreed objectives;
c) Be consistent with quality and other mine action policies, including land release policy;
d) Define intended activities;
e) Identify resources;
f) Specify roles and responsibilities;
g) Reflect gender and diversity considerations;
h) Reflect environmental considerations;
i) Set target milestone and completion dates;
j) Describe how results will be monitored and evaluated; and
k) Be documented.

Mine action organizations under the coordination of NMAC shall take effective actions to access and obtain information necessary for planning purposes. It is the responsibility of NMAC to take appropriate and effective actions to ensure that all information necessary for effective and efficient mine action planning is made available to relevant organizations.

### 14.3. Control of Mine Action Processes, Products and Services

NMAC shall ensure that mine action processes, products and services are in conformance with the requirements of SNMASs, plans and strategic objectives. Methods to check conformity include, but are not limited to:

a) Accreditation of mine action organizations (in accordance with SNMAS 07.02);

b) Assessment of accredited mine action organizations through questionnaires and or visits to their premises;
c) Review of mine action organization's previous performance;
d) Monitoring of mine action organization performance (in accordance with SNMAS07.03); and
e) Inspection and sampling of mine action organizations released land (in accordance with SNMAS 07.03).

The level of checking shall be determined by NMAC based on:

a) The safety and quality importance of the process, services or product being provided; and
b) The effectiveness of the organizations' internal QMS.

The same level of conformity shall be ensured in relation to externally provided processes, services and products. Externally provided processes, services and products are those that:

a) Will be incorporated into the organization's own mine action products and services, including marking materials, training aids, advocacy and communication materials and artificial limbs in case of VA activities;
b) Are provided directly to beneficiaries on behalf of the mine action organization.

Mine action processes, services and products relating to the survey, demining searches, destruction of hazardous ordnance, management and handling of explosives shall be subject to accreditation by NMAC in accordance with the requirements of SNMAS 07.02. NMAC shall retain the documented information necessary to demonstrate conformity of externally provided processes, services and products.

### 14.4. Identification and Traceability of Mine Action Products and Processes

It is the responsibility of NMAC to ensure that mine action products and materials are identifiable and traceable to a level necessary to:

a) Maintain stakeholders confidence in the safety and quality of mine action services and products;
b) Identify nonconforming product;
c) Support root cause analysis in the event of nonconformity;
d) Allow operational analysis of the effectiveness and efficiency of mine action processes and products; and
e) Support continual improvement of mine action processes, products and services.

The following mine action products and resources shall, as a minimum, be identifiable and traceable:

a) Released land: properly documented, mapped and recorded;
b) Survey and clearance teams, and the members of those teams: properly identified and traceable to tasks and sites;
c) Survey and clearance equipment and assets including detectors, locators, mine detection dogs, mechanical demining machinery: properly identified, documented and recorded and traceable to tasks and sites;

d) Explosive ordnance discovered, destroyed, transported, managed: properly identified by type and quantity and located in accordance with requirements of SNMAS 10.01;
e) Prosthetic devices provided to mine/ERW victims: properly identified, documented and recorded, and traceable to users.

Additional or more detailed identification and traceability procedures should be implemented where stakeholders' requirements justify that.

### 14.5. Process Controls

NMAC shall ensure that appropriate controls are applied to mine action processes to ensure their conformity to requirements, including:

1) Human resource: Check and control to confirm the competencies of staff, their fitness for the job and availability in adequate numbers;
2) Equipment maintenance: Check and control to confirm required level of performance of equipment, this includes:
    a) Test, trial and acceptance/accreditation;
    b) Completeness;
    c) Serviceability;
    d) Tested prior to, during and after the use, there shall be proper confirmation test of detectors;
3) Documentation: Check and control to ensure procedures, work instructions and forms are available on site and are at the current issue level (last versions); and
4) Measurement: Check and control to ensure effectiveness and efficiency performance indicators, deadlines and targets are established and understood on site.

Process controls shall, in the first instance, be applied by mine action organizations in relation to their own processes using appropriate supervisory and internal monitoring functions.
Additional monitoring of process performance should be conducted by NMAC in accordance with SNMAS 07.03.

### 14.6. Release of Product and Services

It is the responsibility of NMAC to ensure and implement procedures to verify that mine action quality requirements have been met before mine action services and products are released to recipients, and shall retain documented information on the release of mine action services and products including evidence of conformity to stated requirements. The documented information shall be traceable to:

a) The organization delivering mine action service and product;
b) The organization conducting quality assurance and quality control of mine action services and products; and
c) The responsible person authorizing the release of mine action services and products.

Specific requirements relating to release of land are detailed in SNMAS 05.01.

### 14.7. Control of Nonconforming Mine Action Products and Services

In case of any doubt about the conformity of mine action service and or product; NMAC shall ensure that such product or service is not released. NMAC and mine action organizations shall ensure that Nonconforming product and service are identified and their unintentional release is prevented.

In the event that mine action service or product is found or suspected to be nonconforming to the stated requirements, NMAC shall ensure that required and appropriate actions are taken in accordance with SNMAS 07.03. Reflecting the nature of the nonconformity, its importance for customers and stakeholders' confidence and safety, and its implications within the QMS, the following actions shall be taken:

a) Segregate and mark nonconforming service and product to ensure it is not inadvertently released;
b) Correct the nonconforming service and product;
c) Ensure prevention of recurrence of the similar nonconformance in the future;
d) Inform the customers and stakeholders about the issue, not use the service and product before correction.

### 14.8. Activities Required after the Delivery of Mine Action Services and Products

NMAC should ensure that the following activities are undertaken after the delivery of mine action services and products:

a) Assessment of meeting the quality requirements and satisfaction of customers and stakeholders;
b) Assessment of any undesirable or adverse consequences after land release; and
c) Review and analysis of mine action organizations' performance to support continual improvement processes.

Customers and stakeholders' feedback shall be obtained as part of the assessment process of mine action services and products after being released and used. There should be long term monitoring of mine action services and products after the delivery to the customers and beneficiaries, to assess and evaluate their impact. Such monitoring can be carried out through:

a) Analysis of data recorded in IMSMA;
b) Analysis of data from information management systems external to IMSMA, such as national health systems (HMIS);
c) Through proactive surveys and data collection of the localities and states where mine action services and products have previously been released to customers. This will also help and provide valuable data to Sudan mine action programme on management of residual risk.

## 15. Communication and Participation

Communication is one of the important aspects of mine action and shall be considered by all mine action organizations working in Sudan. Communication enhances participation of staff, beneficiaries,

UNMAS, donors, government authorities and other stakeholders including state parties to APMBC, communication of information is necessary:

a) To provide information relating to mine action products and services;
b) To ensure awareness and understanding necessary for proficient mine action;
c) When planning and reviewing the QMS;
d) As required by conventions;
e) As required by standards, SOPs, agreements and contracts;
f) When handling enquiries, contracts, tasking including changes; and
g) In order to obtain and responding to customers and stakeholders' feedback.

It is important to consider customers and stakeholders' requirements of mine action information. The form, contents and frequency of communication shall be determined on the basis of each stakeholder's requirements and relationship with NMAC, UNMAS and mine action organizations. NMAC with technical support of UNMAS shall gather directly and through mine action organizations and share relevant information, expertise and resources with mine action stakeholders. Transparency and accountability shall always be considered in information sharing in order to ensure compliance with any legal and policy limitations. Mine action planning, implementation and monitoring shall include participation of relevant staff and stakeholders.

NMAC shall ensure that all mine action organizations have collaborative relationships within the sector, service providers and stakeholders. The improvements and achievements made by mine action organizations and stakeholders should be recognized.

## 16. Documentation

The mine action QMS shall be documented in accordance with this standard and shall include additional documentation as necessary for the safe, efficient and effective implementation of mine action processes and delivery of mine action services and products. In determining the level of documentation, the following shall be taken into account:

a) The size of the mine action organization;
b) The scope of quality and quality policy and objectives;
c) The processes carried out and their complexity;
d) The complexity of interactions between the processes within the organization and with external stakeholders; and
e) The competencies of the staff.

As minimum, the mine action QMS documentation shall include:

a) Scope of Quality;
b) Quality policy;
c) Quality objectives;
d) Internal audit and management review outputs and results;
e) Standard Operating Procedures appropriate to the scope of the organization's activities;
f) Quality, safety and environmental management procedures, as part of the SOPs;

g) Operational records and documented evidence, as required by Sudan SNMASs and accredited SOPs;
h) Records or documented evidence of customers and stakeholders' feedback;
i) Other documented evidence or records required to satisfy stakeholders' requirements.

Mine action documentation required by QMS, shall be:

a) Uniquely identified and described including issue and revision date;
b) Appropriately formatted including language, template and medium; and
c) Reviewed and approved by an appropriate authority within organization.

NMAC and mine action organizations' top management shall ensure that:

a) Mine action documentation is available for use when and where it is needed;
b) All the documentation including those externally provided are kept up to date;
c) Changes to documents are controlled to ensure that only the current version is in use; and
d) Mine action documentation is appropriately protected, stored and preserved.

The purpose of mine action documentation is to communicate information. When assessing the quality of mine action documentation ensuring its fitness for purpose, NMAC and mine action organizations' top management should take into account:

a) Clarity of documentation, and the appropriate language;
b) Completeness;
c) Conciseness, to ensure avoiding unnecessary materials.

Mine action documentation shall be retained for a period consistent with:

a) Applicable legislation;
b) Sudan National Mine Action Standards;
c) Donor, customer and other relevant stakeholders' requirements.

Documentation relating to the release of land including cancelled, reduced and cleared, is of particular importance and should be subject to formal long-term archiving in IMSMA and as hard copies in NMAC archive.

## 17. Performance

### 17.1. Monitoring, Analysis and Evaluation

Monitoring of mine action activities and performance is a critical function in any QMS. NMAC with technical support of UNMAS, and in consultation with mine action organizations shall determine and document as SNMASs requirements:

a) What needs to be monitored and measured;
b) Methods for monitoring, measurement, analysis and assessment;
c) When monitoring of mine action processes, services and products shall be performed;
d) How and when results from mine action monitoring will be analyzed.

Monitoring in a mine action QMS should be carried out in accordance with the requirements of SNMAS 07.03. The results of monitoring shall be used to assess:

a) The extent to which mine action services and products meet requirements;
b) The degree of customers and stakeholders' satisfaction;
c) The performance of the QMS both NMAC's and organizational internal QMS;
d) The effectiveness of planning, prioritization and tasking processes;
e) The effectiveness of risk management process and functions; and
f) The performance of externally supported processes, (if applicable).

Evaluation of mine action interventions should be carried out in regular basis and the results of evaluations should be considered during management reviews of the QMS.

### 17.2. Quality Audit

A quality audit is crucial in ensuring appropriate QMS, similar to monitoring activity, but it implies a degree of formality that may be less evident during routine monitoring activities. NMAC with technical support of UNAMS, and mine action organizations should implement a process of internal audits of the QMS based on a documented procedure to assess the compliance of QMS with this standard. NMAC, donors and funding bodies may require additional programme of external audits on mine action organizations.

## 18. Improvement

There is always possibility of arising opportunities to improve the performance and could be identified by any staff member. NMAC and mine action organizations should implement measures to encourage staff members, managers and stakeholders to identify and report actual and potential issues and nonconformance for improvement purpose. This will help in identifying areas for improvement, in-depth analysis and selection of appropriate and suitable course of actions, to be implemented for continual improvement.

NMAC and mine action organizations shall establish processes to identify, analyze, assess and take action on opportunities for continual improvement to the QMS and to mine action processes, services and products. Improvement through corrective and preventive actions, and reducing the chance of occurrence of nonconformities and other undesirable events shall be managed in accordance with the requirements of SNMAS 07.03.

### 18.1. Management Review

Regular management reviews should be undertaken by the senior management of NMAC and mine action organizations, to ensure the continued effectiveness, suitability and alignment of the QMS with the strategic objectives and goals of the Sudan mine action programme.

Management reviews should be conducted at least six-monthly, in light of the findings of internal audits, monitoring and evaluation results, and other prevailing circumstances and conditions. It is important to consider the following aspects when conducting management reviews:

1) The status of actions arising from previous reviews;
2) Changes in the mine action context relevant to the QMS;
3) Performance of the QMS including:
    a) Stakeholders' satisfaction;
    b) Extent to which quality objectives have been met;
    c) Performance of processes, products and services;
    d) Nonconformities and corrective, preventive actions;
    e) Monitoring, measurement, audit and evaluation results;
4) Performance of resources; and
5) Opportunities for improvement.

Management reviews shall include decisions and actions related to:

a) Opportunities for improvement;
b) Changes to the QMS; and
c) Resource needs, suitability and competence.

The decision on improvement actions outlined in management reviews, shall clearly state:

a) What action will be taken;
b) Who will be responsible;
c) When actions will be completed;
d) How to check the effective implementation of actions.

The results of management reviews shall be documented and communicated to all staff and related stakeholders.

## 19. Responsibilities

### 19.1. National Mine Action Centre (NMAC)

NMAC with technical support of UNMAS shall:

a) Establish, communicate and maintain a quality policy;
b) Specify the national standards and provide guidelines for the quality management of mine action organizations and activities;
c) Establish a quality monitoring section to conduct monitoring of mine action activities in accordance with the requirements of SNMAS 07.03;
d) Review the quality performance of mine action programme regularly on six-monthly basis;
e) Ensure appropriate follow-up actions are taken in light of the recommendations the quality management reviews.
f) Establish and maintain an effective and documented QMS;
g) Establish a quality policy appropriate to the scope if its own activities and consistent with program direction;
h) Establish quality objectives in line with its own quality policy;
i) Monitor mine action organizations, including sub-units, in accordance with NTS 07.03;

### 19.2. Mine Action Organizations

Mine action organizations shall:

a) Establish and maintain an effective and documented QMS;
b) Establish a quality policy appropriate to the scope of the organization's own activities and consistent with NMAC quality policy;
c) Establish quality objectives in line with the organization's quality policy;
d) Apply management practices, and quality management and operational procedures which lead to mine action activities that meet or exceed Sudan SNMASs requirements and the requirements specified in the contract;
e) Maintain and ensure the accuracy and validity of information and make all documentation including SOPs, reports, records and other data on their activities available to stakeholders.

Those organizations contracting or funding mine action operations should as also specify and agree on their requirements relating to mine action services, products and outputs, to mine action organizations, through contracts, MoUs or other specific templates.

# APPLICATION FORM FOR ACCREDITATION

Notes to applicants

1. Answer all questions (if not applicable, clearly mention N/A).
2. Reply in the following format.
3. Retain a copy of your complete submission.
4. If a joint venture is proposed, all mine action organizations involved are to submit the required information.
5. Project financial data is to be given in US Dollars ($US) unless otherwise requested.



## 1. Structure and organization

1.1 Mine action organization details

| | |
|---|---|
| Name of organization: | |
| Mailing address: | |
| Telephone: | |
| Telefax: | |
| E-mail: | |
| Website URL: | |
| Mine action organization Registration Number: | |

1.2 Structure

*Insert details and organizational diagram, including names.*

1.3 Proposed in-country representation

*Include details of proposed mine action organization structure in-country, including arrangements for sub-contractors or joint ventures.*
*Do not include full details of Joint Venture organizations. Complete Section 3 with this information.*

1.4 Technical information

*This refers to the experience of the mine action organization and not any individuals employed by it.*

| AREA | DETAILS |
|---|---|
| Years experience in mine action | |
| Specific areas | |
| Survey (Impact & Technical): | |
| Manual clearance: | |
| Mine detection dogs: | |
| Mechanical clearance: | |
| Explosive Ordnance Disposal (EOD) & Battle Area Clearance (BAC): | |
| Mine Risk Education: | |
| Victim Assistance: | |
| Others: | |

1.5 Project management capability

*Explain the organization's background capability and methodology for project management.*

1.6 Logistic planning procedures

*Explain the organizations policy and methodology for logistic planning. This should include details of procurement, equipment evaluation, maintenance and repair schedules.*

1.7 Standard Operating Procedures

*Provide copy of organization's SOPs.*

1.8 Quality management policy

*Provide a copy of organization's quality policy as per the requirements of IMAS 07.12 and Sudan SNMAS 07.01*

1.9 Gender policy and related requirements

*Explain and provide evidence of the organization's gender and diversity policy and procedures. .*

1.10 Safety and occupational health

*Describe and provide evidence to support the organization's safety and occupational health policy.*

1.11 Existing accreditation

| | |
|---|---|
| ISO: | |
| National: | |
| National Mine Action Authorities: *(List current and/or past accreditation with other NMAA)* | |
| Others: | |

## 2. Financial Statement

2.1 Capital ($US)

| | |
|---|---|
| [1]Capital | |
| Authorized | |
| Issued | |

2.2 **Annual value of recent mine action work ($US)**

| COUNTRY | PROJECT | 201- | 201- | 201- | REMARKS |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |

2.3 Insurance

*Provide details of insurance coverage, for staff life, medical and third party liability insurance. If self-insured then provide financial evidence of compliance with SNMASs.*

2.4 Litigation record

*Provide the organization's history of litigation or arbitration from contracts executed in the last five years or currently under execution. Please indicate for each case year, name of employer, cause of litigation, matter in dispute, disputed amount and whether the award was for or against the organization.*

## 3. Joint Venture Proposals

*If the organization intends to enter into a joint venture for the project, please provide the following information, otherwise state "not applicable".*

3.1 Mine action organization details

[1] Authorized capital refers to the amount allocated to be used in intended investment and issued refers to the amount used so far.

| | |
|---|---|
| Name of organization: | |
| Mailing address: | |
| Telephone: | |
| Telefax: | |
| E-mail: | |
| Website URL: | |
| Mine action organization Registration Number: | |

## 4. Resources - Personnel

4.1 Proposed Personnel / Management Experience

*Describe the formal qualifications and experience of the HQ management team and technical staff.*

| POSITION | STATUS (INT/NAT) | NAME | QUALIFICATIONS | EXPERIENCE |
|---|---|---|---|---|
| Project/Programme Manager | | | | |
| Operations Manager | | | | |
| Technical Supervisor(s) | | | | |
| Quality Manager | | | | |
| Admin, Human Resource Manager | | | | |
| logistics Manager | | | | |
| Medical Manager | | | | |
| Others | | | | |

4.2 Management training programmes

*Describe and provide evidence to support any organizational management training programmes.*

4.3 Employees skills development programmes

*Describe and provide evidence to support the organization's employee skills development programmes.*

## 5. Resources - equipment and facilities

*Indicate the mine action and or demining equipment and facilities considered by the organization to be necessary for the undertaking of mine action activities in Sudan. Indicate whether this is already in the mine action organization's ownership or will be purchased, leased (based on the right of use) or receive as donation. Specify the name donor and confirmation of donation.*

## 6. Resources - Others

*If it is foreseen that any part of the contract will be sub-contracted, state the type of work to be undertaken by the sub-contractor(s) and, if known, give the name and address of the sub-contractor(s) to be used.*

### 6.1 Mine action sub-contracted organization details

| | |
|---|---|
| Name of organization: | |
| Mailing address: | |
| Telephone: | |
| Telefax: | |
| E-mail: | |
| Website URL: | |
| Mine action organization Registration Number: | |

## 7. Experience - geographical

*List all countries in which mine action work has been undertaken. The name of the Contracting & Donor/Funding Body Reference shall be included in the Remarks column:*

| COUNTRY | PROJECT/PROGRAMME | YEAR | VALUE ($USD) | REMARKS |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## 8. Experience - ongoing relevant mine action projects and activities

*List all countries in which mine action activities are currently being undertaken:*

| COUNTRY | PROJECT/PROGRAMME | YEAR | VALUE ($USD) | REMARKS |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## 9. Other relevant information (optional)

I certify that all information stated in this application is true and complete to the best of my knowledge. I authorize NMAC to verify the information provided in the application. I understand that any misstatements may lead to not processing of organizational accreditation.

Signed:

Appointment:

Date:

# ORGANIZATIONAL ACCREDITATION

**Formal Registration No:**

1. This certificate indicates that the organizational accreditation process of **XXX** has been completed and is deemed competent and is authorized to plan and manage the following mine action activities[1] in Republic of Sudan:

   - ☐ Non-Technical Survey
   - ☐ Technical Survey
   - ☐ Manual Clearance
   - ☐ Mechanical Clearance
   - ☐ Mine Detection Dogs
   - ☐ Explosive Ordnance Disposal
   - ☐ Battle Area Clearance
   - ☐ Mine Risk Education
   - ☐ Victim Assistance
   - ☐ Others (specify)

2. This certificate authorizes **XXX** to bid for mine action contracts in Sudan.

3. Government Registration Details:

4. Expiration Date of Accreditation: dd/mm/yyyy

5. Validation of Accreditation:

Authorized by:

Director NMAC Sudan

Date: dd/mm/yyyy

Signature:

[1] This certificate **does not** authorize the organization to conduct mine action activities. Should it be awarded the contract the organization and its sub-units shall ultimately complete relevant training in the mine action activities they are intended to be employed in and undergo operational accreditation.

# OPERATIONAL ACCREDITATION

**Formal Registration No:**

1. This certificate indicates that the operational accreditation process of **XXX** including on-site assessment of its sub-units and teams have been completed and is authorized to undertake and conduct the following mine action activities in the Republic of the Sudan:

   ☐ Non-Technical Survey
   ☐ Technical Survey
   ☐ Manual Clearance
   ☐ Mechanical Clearance
   ☐ Mine Detection Dogs
   ☐ Explosive Ordnance Disposal
   ☐ Battle Area Clearance
   ☐ Mine Risk Education
   ☐ Victim Assistance
   ☐ Others (specify)

2. Mine Action Contract (s) Reference Number (s) and duration:

A) Xxx
B) Xxx
C) Xxx

3. Government registration reference number and expiration date:

4. Expiration Date of Accreditation: dd/mm/yyyy

5. Validation of Accreditation:

Authorized by:

Director NMAC Sudan

Date: dd/mm/yyyy

Signature:

# Sudan National Mine Action Standards – SNMAS 07.02

Second Edition: October 2018
Version 02

## Mine Action Accreditation

Sudan National Mine Action Centre (NMAC)
Block 21, Building 241, Mekka Street, Riyadh, Khartoum – Sudan
Website: www.su-mac.org

**Contents**

## 1. Introduction

Mine Action Accreditation is a process of formally assessing and recognizing a mine action organization to be able to plan, manage and operationally conduct mine action activities. The aim of accreditation in Sudan mine action programme is to confirm that a mine action organisation is properly established, staffed, and equipped, and has the required processes, procedures and supporting structures in place, before starting any mine action activities.

Accreditation process results in an agreement of Sudan National Mine Action Centre (NMAC) with a mine action organization on the standards to which mine action activities are to be carried out. This accreditation agreement forms the basis for monitoring of mine action activities that the organization is accredited for.

The important aspects of accreditation are to ensure that the mine action organization is competent and able to carry out mine action activities as per the requirements of Sudan National Mine Action Standards (SNMAS) and the terms of mine action contracts. The competencies required for accreditation include but not limited to technical, financial, administrative and organisational and the availability and skills to use required tools and equipment.

Accreditation of mine action organisations and monitoring of their activities in Sudan mine action programme need to be extended from demining to all activities of mine action, including non-technical survey, mine and Explosive Remnants of War (ERW) Risk Education and Victim Assistance. It is important to apply an inclusive regime of accreditation to cover all activities undertaken in mine action, in Sudan.

Accreditation and Monitoring in mine action are parts of Quality Assurance (QA). QA activities are "focused on providing confidence that quality requirements will be fulfilled" (ISO9001:2015). Accreditation is usually completed before mine action work starts. Monitoring, covered in SNMAS 07.03, takes place as work starts and progresses.

Accreditation together with monitoring can ensure the important quality considerations of efficiency and effectiveness in mine action. Both need to ensure that the mine action works have been carried out correctly, based on the requirements of SNMAS, IMAS and terms of the contract, by competent and skilled operators. In addition, as a quality requirement, this is of greater importance for Sudan mine action programme to focus on carrying out the right works in the right place to achieve the overall goals. It is required to focus QA efforts on the relevance, effectiveness, and prioritisation of mine action activities as well. The aim of this standard is to provide a national framework for the accreditation of mine action organisations intend and want to carry out mine action activities in Sudan.

Prior to any mine action organisations conducting mine action operations in Sudan, they shall be accredited by NMAC. The accreditation process is conducted by the NMAC appointed accreditation board. The board shall assess the mine action organisations' competence and ability to plan, manage and conduct mine action operations and activities safely, effectively and efficiently in compliance to the requirements of Sudan SNMAS. On completion of the accreditation process, the accreditation board shall recommend whether or not the mine action organisation should be issued accreditation to conduct mine action activities in Sudan.

## 2. Scope

This SNMAS provides requirements, specifications and guidelines for the accreditation of mine action organizations in Sudan and shall be applied to organisations working in any of the components of mine action. Accreditation is not a stand-alone activity but forms part of overall the Quality Management System (QMS) in mine action, in Sudan mine action programme.

## 3. References

IMAS 07.12, IMAS 07.30 and SNMAS 07.01

## 4. Terms and Definitions

A mine action organisation is “any organisation including government, military, commercial or NGO or civil society, responsible for implementing mine action projects or tasks.

A ‘sub-unit' is part of a mine action organisation which is operationally accredited to conduct one or more defined mine action activities, such as Technical and Non-Technical Surveys, Clearance, Explosive Ordnance Disposal (EOD) and Mine Risk/ERW Education.

An ‘accreditation board' is a team of suitably qualified mine action experts within the structure of NMAC technically sported by UNMAS, and responsible for the management and implementation of national accreditation process in Sudan mine action programme.

Monitoring is “systematic collection of data on specified indicators to provide management and the main stakeholders of an on-going project, programme or policy with indications of the extent of progress and achievement of objectives, and progress in the use of allocated funds.” IMAS 04.10 based on the OECD/DAC definition. For details on terms and definitions to QMS, refer to SNMAS 07.01 of QMS in Mine Action.

## 5. Accreditation General Principles

Accreditation is the process by which a mine action organisation is formally recognised as competent and able to plan, manage and operationally conduct and implement mine action activities in Sudan. This competence includes the ability of the organisation to establish, maintain and implement effective internal Quality Management System as per the requirements of SNMAS 07.01. It is a proactive approach of assessing the capability and competencies of mine action organizations to manage and undertake mine action activities and shall therefore; focus on prevention of possible problems to be avoided, and to ensure safety, efficiency and effectiveness of mine action activities, operations and outputs.

The output of the accreditation process is an accreditation agreement between NMAC and the mine action organisation as a certificate of authorization to the mine action organization to plan, manage and operationally conduct mine action activities in Sudan. It shall specify which activities can be carried out by mine action organization, and based on relevant SNMAS, quality requirements and SOPs. The agreement forms the basis for monitoring activities to be carried out by NMAC.

Accreditation shall be processed by accreditation board which shall be comprised of suitably qualified mine action experts within the structure of NMAC and with technical support of UNMAS Sudan. The accreditation board shall process accreditation; considering integrity, impartiality, fairness and professionalism, without any personal interest and or personal conflicts.

## 6. Steps in Mine Action Accreditation

Accreditation of mine action organizations encompasses the following steps:

### 6.1. Organisational Accreditation

The NMAC accreditation board assesses and evaluates the organizational capacity of mine action organisations which includes but not limited to organizational structure, administrative, financial, logistical, management, quality, and occupational health, technical SOPs, and legal aspects. The office setting up and facility may also be assessed in this step, however, the accreditation can be granted on the basis of documents, documented procedures and policies provided by the organisation. The organisational accreditation confirms that the mine action organisation and its staff are competent and able to **plan and manage** mine action activities in Sudan.

Organizational accreditation requires compliance with SNMAS, policies, regulations, and quality requirements issued and ascertained by NMAC with technical support of UNMAS. Following a successful assessment by NMAC accreditation board, an organizational accreditation should be issued to the organisation to allow it **to bid for mine action contracts** and prepare for operational accreditation and implementation of mine action activities in Sudan. Accreditation is granted on the basis that the organisation will maintain the stated capacity for the duration of the accreditation. The duration of organizational accreditation is one year and is renewable based on the request of mine action organization and evidence of maintenance of accreditation agreement.

### 6.2. Operational Accreditation

The mine action organisation demonstrates that it has mine action contract(s) and the practical and operational ability and competence to undertake the specified mine action activities in Sudan. The proposed implementation is evaluated on the basis of documents supplied and practical aspects.

On successful assessment and completion of this step the organization is subject to on-site assessment and practical demonstration to the accreditation board members or NMAC regional office in related region; in order to ensure that the subunits and operational staff of the mine action organization have the required competencies and abilities to implement mine action activities in the field, on completion of successful on-site assessment, the organization shall be issued with operational accreditation for the duration of the mine action contract; if there are more than one contract, the longer contract should be considered for the duration of operational accreditation. Operational accreditation authorizes mine action organization to **plan, manage and operationally conduct** mine action activities in Sudan.

A copy of accreditation certificate shall be provided to NMAC related departments and UNMAS for planning and undertaking of follow-on monitoring of mine action activities during the implementation period; the results of which provide evidence to decide on extension of organizational accreditation.

#### 6.2.1 On-Site Assessment

As per the completion of documentation review as part of the operational accreditation and when the organisation is ready to start mine action activities; the on-site assessment shall be conducted by NMAC accreditation board members or QM officers in related regional office on behalf of accreditation board. The on-site assessment is crucial part of operational accreditation and aims to confirm that the field staff and supervisors of the organization are competent and skilful to manage

and undertake mine action tasks, develop and implement site operations plan, establish and set up a worksite, deploy the team, utilize the equipment, maintain communication, manage supporting elements including medical, transportation and logistics, and security and liaison with community, elders and local authority.

## 7. Accreditation Requirements

### 7.1. Basic Considerations

To obtain mine action accreditation a mine action organisation shall demonstrate competence to apply the Sudan National Mine Action Standards, and any specific provisions of the NMAC, including national laws and regulations, financial and insurance requirements. The organisation shall also demonstrate the ability to implement the agreed standards and other provisions in practice.

### 7.2. Accreditation Process

#### 7.4.1 Length of Accreditation Period

Accreditation should be for a fixed period; organizational accreditation for one year and operational accreditation should be linked to the length of the contract.

#### 7.4.2 Application for Accreditation

The NMAC shall provide accreditation requirements in writing to the mine action organisation. The requirements shall include a list of the documents to be supplied, the mine action organisation should submit an application in accordance with the accreditation requirements.

#### 7.4.3 Organisational Accreditation

The purpose of organisational accreditation is to confirm that the organisation has competence and ability to operate as a mine action organisation, and to ensure the organization is established, staffed, settled and have the required policies, procedures and processes to plan and manage mine action activities in Sudan.

NMAC shall confirm receipt of the application and supporting documents, after an initial review, NMAC accreditation board may, if necessary, ask the applicant to provide supplementary documents as needed by accreditation requirement list. NMAC shall provide a deadline in writing for the receipt of such documentation from the organization. Documents from the following list should be included in the assessment as appropriate, together with any further national requirements agreed by NMAC:

1) Organisational structure and proposed representation in Sudan;
2) Formal qualifications and relevant practical experience of the management team;
3) Financial planning and control procedures;
4) Recruitment, training and promotion procedures with provision of gender and diversity considerations;
5) Arrangements to use sub-contractors, and joint ventures, if any. Including the use of non-discriminatory and gender-sensitive procedures by sub-contractors;
6) A statement of freedom from any outstanding or pending legal action, or any pending disputes with the contracting authority;
7) Insurance cover, both staff medical insurance and third-party liability;
8) Planning capacity, including logistic planning procedures;

9) Technical mine action procedures;
10) Capacity to prioritise mine action works and select tasks based on humanitarian and development outcomes and standard criteria that are part of SNMAS and Sudan national development plans and requirements;
11) The internal quality management system including procedures corrective and preventive actions, for continual improvement;
12) Information management systems, GIS competence and capacity, and mapping;
13) Employee training and skills development programmes, management training schemes;
14) Intended staff composition (functions and gender);
15) Quality policy, gender and diversity policy, environmental protection policy;
16) Safety and occupational health policy and procedures; and
17) Any additional NMAC and legal requirements.

In assessing the mine action organisation, recognition should be given to other existing accreditations held by the organisation, such as current ISO 9001 or ISO14001 compliance, or accreditation for similar activities in other countries.

If NMAC accreditation board is not satisfied that the relevant requirements for accreditation have been met, the mine action organisation shall be informed in writing as soon as possible. Whenever possible, the applicant should be given the opportunity to provide required documentation and documented information within a deadline agreed by NMAC. The accreditation board shall then start processing organizational accreditation. If the mine action organisation is unable to satisfy the accreditation requirements within the agreed deadline then the application shall be terminated and the mine action organisation informed of the decision in writing.

When the accreditation requirements of the first stage desk assessment have been achieved, the mine action organisation shall be informed in writing. The accreditation board shall convene the board meeting and if the board agreed issue organizational accreditation to the organization to make them able to bid for mine action contracts.

When an organisation is applying for renewal of existing accreditation, the results of monitoring during the current and previous mine action activities and the contracts should be taken into account. If the results show that the organisation is consistently reaching a good quality standard and there are no substantial changes to the accreditation agreement and SNMAS, then NMAC should consider a simplified accreditation process and renewal.

In assessing the mine action organisation, recognition should be given to other existing accreditations held by the organisation, such as current ISO 9001 and ISO14001 compliance, or accreditation for mine action in other countries.

#### 7.4.4 Operational Accreditation

The result of operational accreditation is an accreditation certificate that specifies implementation in detail, which forms the basis for future monitoring of the mine action organisation's operations.

Operational accreditation is a document based and practical assessment process, the mine action organization shall be able to satisfy the accreditation board members on their ability to operationally conduct and actively implement mine action activities based on the requirements of SNMAS, SOPs, Terms of Contracts and the Statement of Work. The operational accreditation process shall be undertaken by accreditation board through assessing the following aspects:

1) Mine action contract's requirements or terms of contract; that is awarded to the mine action organization;
2) Organizational accreditation; to ensure that organization is accredited for those activities that are required by mine action contract;
3) Training plan and the mine action training management packages;
4) The training capacity including trainers' competencies, their CVs and certificates;
5) The field staff structure including the CVs and certificates of key staff;
6) Internal QMS aspects of the organization and as part of contracted activities including maintenance of records in the field level and in the head office;
7) Internal operational review plan for continual improvement;
8) Occupational health and safety procedures and incident prevention plan;
9) Emergency and medical evacuation plan and procedures;
10) Details of tools and equipment to be used, their suitability for use as part of contracted activities, including their maintenance and supply of spare parts, and any relevant test reports;
11) Mine action operational plan based on the terms of contract, SNMAS and national priority and prioritization criteria;
12) Land release procedures to meet national land release policy;
13) Field risk assessment procedure and related format;
14) The IMSMA reporting forms and organization's reporting procedures;
15) Test and licensing of specialized tools, if required as part of the contract; including MDD and Mechanical units;
16) Insurance coverage of the staff, medical and third-party liability; and
17) Logistical support including supply to the field office and the sub-units.

All above listed requirements shall make part of accreditation procedures to be applied by NMAC accreditation board. The requirements should also be uploaded to NMAC website to be publicly available for the mine action organizations intend to get accreditation from NMAC and work in Sudan mine action programme.

When an organisation is applying for extension or modification of existing operational accreditation; the results of monitoring during the current and previous mine action activities should be taken into account. In addition, any changes in management and procedures shall be assessed properly by the accreditation board and then the required actions should be taken to extend or modify the operational accreditation.

If the accreditation board assumes that the requirements for accreditation and the documentation are not enough, the organization shall be notified to provide required documentation and documented evidence within a specific deadline agreed by NMAC and organization. As per the completion of required documentation; NMAC shall then start processing operational accreditation.

When the requirements of the operational accreditation have been achieved, the mine action organisation shall be informed in writing to move forward with practical steps of on-site demonstration which is the assessment of the organization's ability in implementation of SNMAS, SOPs and terms of the contract. However, this shall also include monitoring and assessment of the training programs and evaluation thereof. NMAC should not delay the start of operations of the mine action organisation by delaying the proposed date for an on-site assessment.

### 7.4.5 Test and Licensing of Mine Detection Dogs and Demining Machines

Test and licensing of specialize demining tools include accreditation of Mine Detection Dogs (MDD) and Demining Machines. See Annexes D and E for the operational accreditation of MDD and DM respectively.

### 7.4.6 Assessment of On-Site Demonstration

The purpose of assessing on-site demonstration is to confirm that the proposed activities are carried out and managed in accordance with NMAC approved and documented procedures (SOPs), SNMAS and the Terms of Contracts. NMAC accreditation board members or QM staff on behalf of the accreditation board shall assess the on-site demonstration, the accreditation board shall clearly communicate the required fields to be monitored and assessed during the demonstration of the activities, and any other special issues to be taken into account. The demonstration should include all mine action activities that the organization has applied for. In case of risk education, victim assistance and NTS, the actual activity shall be monitored and accepted as on-site demonstration.

The assessment of on-site demonstration shall include:

1) Monitoring of the training program and the trainees evaluation results;
2) Inspection of all relevant parts of the site, including offices and support areas, to verify that they are in accordance with the organizational accreditation agreement and requirements of SNMAS and SOPs;
3) Establishment of worksite in accordance with the requirements of SNMAS and SOPs;
4) Admin area, parking area, equipment area, explosive storage point, debris pit, waste pits and other necessary aspects;
5) Baseline in accordance with site operational plan;
6) Personal Protective Equipment as part of occupational health and safety;
7) Medical support and emergency evacuation plan in the site;
8) Deployment of the team to the working site, supervisory elements and control point;
9) Control markers and temporary marking in the site;
10) Communication within the team and with organization HQ;
11) Demonstration of the activities including use of technical tools and demining drills;
12) Detectors test practices including establishing test box and balance boxes;
13) Field Risk Assessment practices and communication of the risks and mitigation measures to the team members;
14) Confirmation that staff composition is the same as presented for operational accreditation;
15) Confirmation that the SOPs, the organization instructions and guidelines, and relevant quality management processes, have been disseminated, are understood by team leaders, and are the same as presented for the organisational and operational accreditation.

The accreditation board should also address the following issues:

1) The quality of data gathering and record keeping;
2) The degree to which the following are understood and actively implemented by the field operations staff:
    a) Safety and occupational health;
    b) Standard Operating Procedures;
    c) Logistics management;
    d) The quality management system in the field;
    e) The information management system.

Any shortfalls shall be immediately communicated to the organization; the organization shall take required and agreed corrective and preventive actions and demonstrate evidence to NMAC accreditation board that actions are implemented. A further partial or full on-site demonstration may be necessary, according to the scope and category of nonconformity identified. The on-site demonstration should then be accepted by the accreditation board and the issuance of operational accreditation is recommended.

### 7.3. Extending or Modifying Accreditation

a) Modification or changes in the management system:

Proposed changes to the mine action organisation's management structure, which could impact on its management capability, may require an extension or revision of the accreditation by NMAC. The accredited mine action organisation shall inform NMAC of any such changes. NMAC shall determine whether the changes require re-assessment of the accreditation, either desk or on-site.

b) Modification or changes to operational procedures:

The accredited organisation shall inform NMAC of any intended modification to the operational procedures including the introduction of new or modified equipment or techniques. NMAC shall determine if the proposed changes require a re-assessment. If the changes are minor and are consistent with SNMAS, then no further action should be necessary.

If the changes are significant, then NMAC should conduct an operational accreditation process as appropriate, and amend the accreditation certificate.

c) Increasing the number of sub-units using the same SOPs:

If the additional sub units will use the same equipment, techniques and operational procedures then no further action is necessary, provided that the existing management and administrative structures have sufficient capacity to manage the larger operation. This applies to all types of mine action activities.

### 7.4. Suspension and Termination of Accreditation

#### 7.4.1 Suspension

The NMAC may suspend the accreditation of a mine action organisation or one of its sub-units for a limited period in the following cases:

a) If monitoring shows non-compliance with the requirements of SNMAS and SOPs; which is of a nature that would not warrant termination of the accreditation; or
b) In the case of improper use of the accreditation agreement; or
c) If monitoring shows that non-critical non-conformities, which have been previously notified, have not subsequently been properly addressed in a timely manner;
d) If there is a failure to disclose major and significant management or operational changes.

#### 7.4.2 Termination

NMAC may terminate accreditation in the following cases:

a) If the accredited organisation stops mine action business in Sudan or closes down;

b) At the written request of the accredited organisation; or
c) If the requirements or provisions of SNMAS or laws are changed, and the accredited organisation cannot or will not ensure compliance with the new requirements or provisions within a reasonable period; or
d) If monitoring and or investigation reveals that noncompliance with the accreditation agreement and or terms of contract is of a serious nature, and corrective action has not been made in a timely manner; or
e) If adequate measures are not taken in a reasonable time following the suspension of accreditation.

Examples of serious noncompliance include:

a) Repeated failure to apply accredited management systems or operational procedures;
b) Refusal to allow monitoring or inspection to take place;
c) Interference with monitoring or inspections;
d) The application of processes known to place staff or the local population at unacceptable risk including missed hazardous ordnance;
e) Falsification of data and records.

## 8. NMAC's Obligations as Accreditation Body

### 8.1. General

The NMAC shall establish an accreditation board with written description of its responsibilities, the methods to be used in the accreditation process, and the technical scope of its activities. The accreditation board members shall be suitably qualified mine action experts and trained in accreditation process.

### 8.2. Independence, Impartiality and Integrity

The NMAC accreditation board members shall be free from political, commercial, financial and other pressures that might affect their judgement. Policies and procedures shall be implemented to ensure that persons or organisations external to NMAC cannot influence accreditation board members.

NMAC and its staff shall not engage in any activities that may conflict with the independence of their activities. In particular they shall not become directly involved in organisations that carry out any mine action activities, or that design, manufacture, supply, install, use or maintain services or equipment for organisations operating in the mine action sector in Sudan.

### 8.3. Confidentiality

NMAC accreditation board shall ensure confidentiality of information obtained in the course of its activities. Proprietary rights shall be protected; the procedures, policies and other documentation of a mine action organization shall not be copied and or used by other organizations.

### 8.4. Organisation

The NMAC accreditation board shall have a technical manager, however named, who is qualified and experienced in the operation of the accreditation process and who has overall responsibility for ensuring that the accreditation activities are carried out in accordance with SNMAS and IMAS. UNMAS should provide technical support throughout the accreditation process. The technical manager should if possible be a permanent employee.

### 8.5. Management System

NMAC shall develop and maintain documented procedures and shall implement an internal quality management system, preferably based on a recognised system such as current ISO 9001. The management of NMAC shall designate a person who, irrespective of other duties, shall have defined authority and responsibility for quality management system within NMAC. This person shall have direct access to the most senior executive of the NMAC for quality related issues. For more details refer to SNMAS 07.01.

### 8.6. Personnel

NMAC shall have a sufficient number of permanent qualified personnel with the range and level of expertise required to carry out its normal functions. NMAC shall have access to technical expertise of UNMAS.

### 8.7. Accreditation Methods and Procedures

NMAC shall establish and maintain mapped process and written procedures for accreditation and make it available to all mine action organizations and mine action stakeholders.

### 8.8. Records

NMAC shall prepare and maintain records of all assessments and inspections as part of accreditation process. All records shall be safely stored for a period of at least five years, held secure and in confidence to the applicant.

### 8.9. Appeals

The NMAC shall establish a fair and impartial process to enable mine action organisations to appeal against decisions of NMAC accreditation board that the organisation considers unfair, or when new evidence comes to light. The appeals should include the use of independent arbitration from the other mine action organizations present in Sudan and that is acceptable to both parties.

## 9. Responsibilities

### 9.1. National Mine Action Centre (NMAC) Sudan

The NMAC shall:

a) Establish process and procedures for the accreditation of mine action organisations and operations;
b) Specify SNMAS and provide written guidelines for the accreditation of mine action organisations and operations;
c) Monitor the work of accreditation board, ensure that the accreditation process is being applied in a fair, equitable, non-discriminatory, gender and diversity sensitive manner;
d) Ensure that accreditation does not unnecessarily interrupt or delay mine action projects; and
e) Ensure appropriate follow-up action is taken on accreditation board's recommendations.
f) Conduct internal audit on accreditation process to ensure it is working in accordance with the requirements of SNMAS and accreditation approved procedure.

### 9.2. Accreditation Board

As part of NMAC structure, the accreditation board shall:

a) Accredit mine action organisations, including their sub-units;
b) Process accreditation applications promptly so that delays do not impact on the operational effectiveness and efficiency of the applicants;
c) Work with mine action organisations to resolve any issues arising during the accreditation process;
d) Establish and maintain an effective and documented Terms of Reference (TOR) for accreditation board; and
e) Publish current accreditation requirements and make them available to all interested parties.

### 9.3. Mine Action Organisations

All mine action organization undertaking mine action activities in Sudan, shall:

a) Apply management practices, and quality management and operational procedures which lead to mine action activities that meet or exceed the requirements of SNMAS, the mine action contracts and accreditation agreement;
b) Maintain and make available documentation including SOPs and other written procedures, reports, records including internal monitoring and quality reports to NMAC;
c) Provide NMAC with access to all sites, buildings and other facilities, which need to be visited as part of the accreditation requirement.

### 9.4. Donors

When a contract or other formal agreement has been written by a donor organisation, the donor organisation shall be responsible for including a requirement that the implementing partner(s) will comply with the national accreditation requirements established by the NMAC and that the applying organizations at minimum have organization accreditation obtained from NMAC.

Annex A – Accreditation Application Form

Annex B – Organizational Accreditation Certificate

Annex C – Operational Accreditation Certificate

Annex D – MDD Accreditation

Annex E – Mechanical Accreditation

**Annex A to SNMAS 07.03 Mine Action Monitoring Completion Form**

*Monitoring Reference Number:*

## 1. General information

**Date: /----/----/20--**

| | | | |
|---|---|---|---|
| Task reference number | | | |
| Hazard Area | ☐ | IMSMA ID ( ) | |
| Hazard Type | MF ☐ | BF ☐ | S.ERW ☐ ASP[1] ☐ |
| Monitoring of: | Land Release | NTS ☐ TS ☐ | Clearance ☐ |
| EOD | ☐ | Standalone NTS | ☐ |
| Internal QA[2] | ☐ | Training | ☐ |
| EORE | ☐ | Victim Assistance | ☐ |
| Project Management | ☐ | Explosive Management | ☐ |
| Completion QA Monitoring | ☐ | Product Performance or QC | ☐ |
| Inspector name | | Inspector title | |
| M.A organization | | Sub Office | |
| Project Donor | | Team name/number | |
| State | | Locality | |
| City | | Community | |
| Date of Last Internal Monitoring and QC | | Re-audit | ☐ YES ☐ NO |

### 1.1. Conclusion and Recommendation by QM Inspector ([3]Ref. to Component)

**Conformity** ☐ **Observation** ☐ **Minor NC** ☐ **Major NC** ☐

(Date & signature)

### 1.2. Acknowledgement by auditee

(Name, date & signature)

[1] ASP Means Ammunitions Storage Point

[2] Internal QA monitoring should also cover indicators outlined in this form and external monitoring shall verify effective conduct, application of internal QA/QC procedures and management of internal QA/QC records.

[3] Add the copy of related component with this general part of the form once the specific monitoring completed.

**1.3. Comments/instruction(s) by Head of NMAC Sub Office**

| |
|---|
| (Name, date & signature) |

**1.4. Corrective and Preventive Action/Plan by Organization**

| |
|---|
| (Name, date & signature) |

**1.5. Follow up by NMAC Sub Office Manager**

**1.5.1** **Agreed with CAPA[4] Plan?** ☐ **Yes** ☐ **No (Resend for appropriate CAPA)**

**1.5.2** **Report closed by NMAC Sub Office?**

☐ 15.2.1 YES ☐ 15.2.2 NO (Re-audit)

**1.6. Level of confidence**

☐ 1.6.1 HIGH ☐ 1.6.2 MEDIUM ☐ 1.6.3 LOW

Reason:

[4] CAPA means Corrective Action and Preventive Action

## 2. Monitoring of Mine Action Activities

### 2.1. Monitoring of Operations Management

**2.1.1 Number of Staff, Resources and Level of Preparation for the Implementation:**

1) Availability of staff members as per project proposal.
2) Staff members' relevant qualifications.
3) Availability of tools, equipment, materials, facilities, and SOPs as per proposal.
4) Availability of teams in the field with required tools and equipment as per proposal.
5) Operations staff understanding of the scope of problem, including land right and land dispute issues.
6) Availability and appropriateness of operational plan on task basis.
7) Evidence of community involvement and consideration of their needs including men women and children.
8) Availability and appropriateness of internal monitoring plan.
9) Operational plan tracking process and analysis of progress.
10) Communication with operational teams.
11) Communication with communities' elders, local government, development interventions (if any) and the NMAC-UNMAS Sub Office.

**2.1.2 Project Team Performance:**

1) Number of site visits conducted by operations officer or sub officer.
2) Analysis of visits results, recommendations and actions taken for improvement.
3) Number of monitoring visits conducted by internal QM staff.
4) Analysis of monitoring findings and reports.
5) Availability of corrective, preventive actions records.
6) Availability of records of inspected land.
7) Availability of progress record.
8) Analysis on achievements whether on target, behind or ahead and causing factors.
9) Number of incident investigation conducted.
10) Number of lessons learned summaries shared with demining teams.
11) Number of internal meeting held, minutes.
12) Number of refresher trainings conducted, records;
13) Number and type of FFE items/training aid item/inventory and records;
14) Number of meetings held with communities, local authority and NMAC Sub Office.
15) Status of Control and security of explosives.
16) Evidence of reporting monitoring data to NMAC in timely manner.
17) Accuracy and completeness of documents and records.

**2.1.3 Contract Completion, Handing-over of Completed Tasks and Reporting:**

1) Number of tasks completed and handed over to the communities and end users.
2) Number of tasks not completed due to land dispute issues.
3) Available reports and records including (Completion report, monitoring records, community, local authority acceptance).
4) Accuracy and completeness of documents and records.
5) Status of NMAC, government, and community involvement in handover of completed tasks.
6) Availability and appropriateness of post demining impact assessment (PDIA).
7) Contract completion document submitted to organization HQ.
8) Recorded information in IMSMA standard formats.

9) Record of daily reports from the teams.
10) Timely submission of tasks completion reports.
11) Rate of accuracy per report, (delay & error).

### 2.2. Monitoring of Land Release Operations:

**2.2.1 Preparation for Land Release Operations**

**A. Training Management before Deployment of the Teams:**

1) Available training plans;
2) Capability of trainers;
3) Training delivery method;
4) Availability and list of participants;
5) Classroom facilities;
6) Teaching aids and handouts;
7) Practical training and tests;
8) Pass/fail scores;

**B. Team Structure, Skills & Qualification in the Worksite:**

9) Available team staff/approved structure;
10) TL Basic leadership, instruction techniques, supervision/command and control technical knowledge;
11) Deminers, DC and DPDC course certificate or other evidences;
12) Task or site operational plan;
13) Field Risk Assessment.

**C. Site Briefing (Specific information):**

1) Mine or ERW history and background;
2) Land right/dispute issues;
3) Type of mine / ERW;
4) Identification of the most probable location of contaminated parts on the map;
5) Size of most probable contaminated area;
6) Task planning to show TS, clearance parts and deployment of assets appropriately;
7) Task relevant information:
    a) Hazard density in the task (1-mine or ERW per X sqm);
    b) Fragment density in the task (no of frag / per 1sqm);
    c) Achievements Vs task planned or set target;
    d) Depth of mines found;
8) Safety brief by team command group;
9) Record of communities involvement and their priorities;

**D. Site Set up:**

1) Control markers;
2) Control point;
3) Base line and starting point;
4) Access lanes (if required);
5) Test box/ balance box;
6) MDDs warm up area;
7) Explosive/accessory storage area and onsite CDS;
8) Equipment storage area;
9) Rest area;
10) Parking area;

11) Toilets and restroom;
12) Wastage disposal area;

**E. On Site Documentation:**

1) Task dossier including tasking order;
2) Attendance sheet;
3) TL /SL daily operations log;
4) Visitors log and QA monitoring and QC record;
5) Explosives usage record;
6) CASEVAC drill record;
7) Team members blood group record;
8) Medical/casualty evacuation plan/map;
9) Community request, liaison record;
10) SOPs and organization's instructions;

**F. Command and control:**

1) Provision of daily briefing by command group and appropriate deployment of deminers;
2) Communication between team members and office;
3) Management of site set up and availability of required tools and equipment in the site;
4) Shortage of equipment reported to office;
5) Visibility of team members from the control point;
6) Availability of medical/emergency support as per standards;
7) [5]Availability of ambulance in reasonable proximity;
8) Practice of CASEVAC;
9) Updated team attendance and site logs;
10) Suitable transportation facilities and appropriateness of legal documents (vehicle, driver);
11) Effective deployment and utilization of demining assets to accomplish the task;
12) Use of PPE and visor by team members and visitors;
13) Deminers' discipline and application of directive of SL/TL;
14) Control of unsafe acts and behavior of the deminers/operators;
15) Call out of command group in case of breach of safety;
16) Level of supervision;
17) Appropriate use of demining assets and tools, Manual, MDD and Machine;

**2.2.2 Task Execution and Operations:**

**A. Non-Technical Survey (NTS)**:

1) Source of Information;
2) Validity of Information;
3) Impact of presence of mine and ERW on the community;
4) Priority of the task in consultation with communities, stakeholders and NMAC SO;
5) Size of Task;
6) Difference between previous NTS report and fresh NTS;
7) Reporting of fresh NTS to NMAC;
8) Nature of contamination, depth and pattern of mines, any obstacles;
9) Community liaison, considering the priorities of the communities with gender

[5] Reasonable proximity is defined as the ambulance arriving at the administration area for casualty evacuation, after alert of the accident, within a maximum of 5 minutes.

consideration;
10) Land right/dispute issues;
11) Classification of area to High and Low threat;
12) Direct and indirect evidences;
13) Cancellation of area, size sqm;

**B. Worksite Safety**

1) Use of approved PPE and visors;
2) Serviceability of PPE and visors;
3) Safety distance between deminers during operations;
4) Medical/emergency support;
5) Communications within the team and HQ;
6) Presence of medic equipped with standard medical kit;

**C. Technical Survey and Clearance:**

1) Control markers;
2) Base line marking;
3) Boundary, cross lane, clearance lane marking;
4) Other necessary markings; (start of clearance lane, demolition, QC, close of lane)
5) Cross lanes/investigatory lanes, targeted or systematic investigation;
6) Use of appropriate demining assets;
7) Classification of HTA, size and possible location of hazards;
8) Classification of LTA and size of the area, justification;
9) Reduction, size and location, Verification area, size and location;
10) "No evidence of" hazards;
11) Appropriateness and reasonability of classification of the area and the type of TS undertaken (targeted or systematic);
12) Use of detectors;
13) Detector capability as per found/anticipated mine/ERW and depth of hazards;
14) Detector battery and power;
15) Detector calibration and ground compensation and usage of standard test piece;
16) Detectors confirmation test and record;
17) Demining tool kit;
18) Prodding/excavation tools and usage;
19) Method of clearance drill (signal picking, metal free, full excavation)
20) Vegetation removal;
21) Dealing with obstacles;
22) Pulling drill;
23) BAC surface clearance;
24) BAC sub-surface clearance and use of appropriate detectors;
25) Control demolition, onsite, CDS;
26) ERW items categorization as safe to move and unsafe to move;
27) Appropriateness of CDS;
28) CDS management before, during and after demolition;
29) Mechanical Operations:
    a) Machine accreditation license and armoring situation;
    b) Type and use of machine;
    c) Type of operations, processing, verification, preparation;
    d) Suitability and appropriateness of machine to the work site;
    e) Appropriate follow up system;

f) Clearance depth of machine attachment as per the depth of mines;
g) Removal of obstacles;
h) Operator control of machine and communication with command group;
i) Output of machine as per SoW;
j) Deployment of machine as per SOPs;
k) Suitable control point for supervision of mechanical operations;

30) MDD Operations:
a) License of MDD and its handler;
b) Wind strength (at ground level) and temperature;
c) MDD Medical checkup;
d) MDDs drinking water and shadow;
e) Relation of handler with MDD;
f) Warming up at the beginning of operations and used items as per standards;
g) Suitability of area for MDD operations, vegetation, obstacles and slope;
h) Type of operations (reduction, verification, QC, creating cross lanes);
i) Type of search (long/short leash);
j) Sniffing and detection capability;
k) Ground disturbance during indication;
l) Indication marking and processing;
m) Post operations daily training record;
n) Daily training area after operations and type of targets;
o) Health and hygiene in the kennels;
p) Record of medical checkup;
q) Available veterinary support;
r) Knowledge of MDD limitations;

31) EOD Operations:
a) Search Method, Visual or Instrument use;
b) Use of machinery;
c) Hazard ordnance classification skills of EOD operators, Safe/un-safe to move;
d) Loading of hazardous items into vehicle;
e) CDS and final disposal operations;
f) Bulk demolitions;
g) EOD qualification level of authorized staff for demolition;
h) Communication with HQ, NMAC SO, UNMAS and local authority;
i) Post demolition procedures;

32) Explosive Management:
a) Handling and transportation;
b) Explosive records;
c) Storage in worksite;
d) Storage in temporary bunker at base camp or sites;
e) Explosive storage in field bunkers, bunker condition, explosive conditions;
f) Warning signs and guards;
g) Management of FFE mines/UXO, inventory and records;

33) Environmental Aspects.
a) Watercourse contamination or barriers;
b) Vegetation burning procedure and preparations;
c) Solid waste management at the sites;
d) Base camp and waste management (toxic waste, human waste and excess water);

e) Fuel storage and handling;
f) Protection of livestock and wildlife;
g) Preservation of cultural resources aspects;
h) Human remains and mass graves;
i) Noise and dust to the communities and neighbors;
j) Environmental awareness of the staff;

**D. Task completion, handing over and reporting:**

1) Marking of completed task as per SNMASs and SOPs requirements;
2) Mapping and navigation;
3) Site documentation including IMSMA standard forms;
4) Photographs before, during and after the operations;
5) Progress analysis and reporting;
6) Conduct and record of QC;
7) Involvement of communities, NMAC SO and local authority;
8) Acceptance of the whole task by the communities and beneficiaries;
9) Ensuring that the land release has not contributed to land dispute issues;

### 2.3. Explosive Ordnance Risk Education

**2.3.1 Structure, Availability of Resources and Level of Preparation for M/ERW RE Delivery:**

1) Availability of staff as per the project proposal and their technical knowledge.
2) Availability of EORE standard training package (Trainers' Kit).
3) Availability of plan of EORE delivery as per project proposal and organization SOPs, including communities list.
4) Availability and use of required teaching aid materials[6].
5) Availability of adequate EORE materials for distribution.
6) Availability of health facilities' list and/or knowledge of their locations.

**2.3.2 Accountability and Involvement of Affected Communities and Target Audience:**

1) Community and audiences' involvement and consultation before and during the EORE delivery.
2) Pre EORE-Assessment through the community mapping.
3) Are the pre EORE assessment findings addressed through EORE sessions?
4) Community and audiences' feedback about EORE delivery.
5) Community and audiences' understanding about the risk of EO in their village and nearby areas.
6) Do they understand where and to whom they will report, if they will face EO?
7) Is the EORE matching with community's and audiences' priority and needs?
8) Is the EORE needs assessment conducted?
9) Are the findings of EORE needs assessment considered in EORE sessions?
10) Is the at-risk group of people identified and educated?
11) Are the community people and audiences happy or satisfied or dissatisfied or provide no feedback or comments about EORE delivery?
12) What are the main changes in people understanding of EO comparing to findings of Pre-EORE-Assessment.

**2.3.3 M/ERW RE Delivery and reporting:**

1) Communication skills of EORE trainer in terms of speaking local language, voice tone, listening and ability to answer questions.
2) EORE team understanding about their related EORE SOPs.
3) Appropriateness of EORE session venue in terms of ventilation, weather condition and noise.
4) Participation and encouragement of audiences by trainer.
5) Available audience from at risk group and targeted beneficiaries.
6) Covering necessary topics during EORE session:
    a) Introduction and objective of the session.
    b) Dangers and effects of Mine and ERW.
    c) Types of Mine and ERW with different colours, shapes and sizes.
    d) Difference between mine and ERW.
    e) Safe and Risky behaviours.

[6]Audio/video, posters, activity cards, loudspeaker, leaflets and EORE notebooks

f) Action on come across a mine/ERW?
g) What to do in case of mine/ERW incident?

7) Ability to link lessons with community situation.
8) Appropriateness of the duration of session, time balance and sequence of topics.
9) Use of appropriate methodology[7] as per project proposal and IPs SOPs.
10) Available mine/ERW official and local danger signs and marking samples in encashment centres.
11) Appropriate layout of encashment centre including venue for lecture and direct presentation, exhibition of mock hazards, TV room with adequate seats.
12) Familiarity to use standard IMSMA forms and geo-tag pictures for reporting.
13) Record and evidence of visits to health facilities for victim data collection.
14) Awareness and liaison with communities about other mine action interventions.
15) EORE trainer asks audience about any new mine ERW incident and casualty.
16) EORE trainer asks audience about suspected hazardous area/device.

### 2.4. Victim Assistance

#### 2.4.1 Number of Staff, Resources and Level of Preparation for VA Services Delivery:

1) Available staff and facilities as per project proposal.
2) Available plan of VA services delivery, specification and type of the project.
3) Liaison with government, Public Health state ministries and other stakeholders.
4) Identification of EO victims and survivors, number and types of disabilities within communities, identification of target beneficiaries.
5) Level of communication with target beneficiaries and service providers.

#### 2.4.2 Execution of VA Projects:

1) Survey and Assessment of Civilian Accidents.
   a) Date and time of accidents and response by related organization.
   b) Number of people/families affected and surveyed properly.
   c) Appropriate response plan and implementation.
   d) Referral for follow up Assistance.
2) Physical Rehabilitation:
   a) Physiotherapy services.
   b) Provision of Orthotics, Prosthetic, movement aids.
3) Psychological counseling and peer support.
4) Social inclusion:
   a) Community acceptance of the EO survivors.
   b) Integration of EO survivors in the community.
5) Inclusive Education (IE):
   a) Integration of RE messages in schools;
   b) School based IE for school teachers;

[7] Lecture and direct presentation, question/answer, Focus Group Discussion, Brainstorming, Small Group Activity, Role Play, use of audio/video.

c) School based IE for parents.

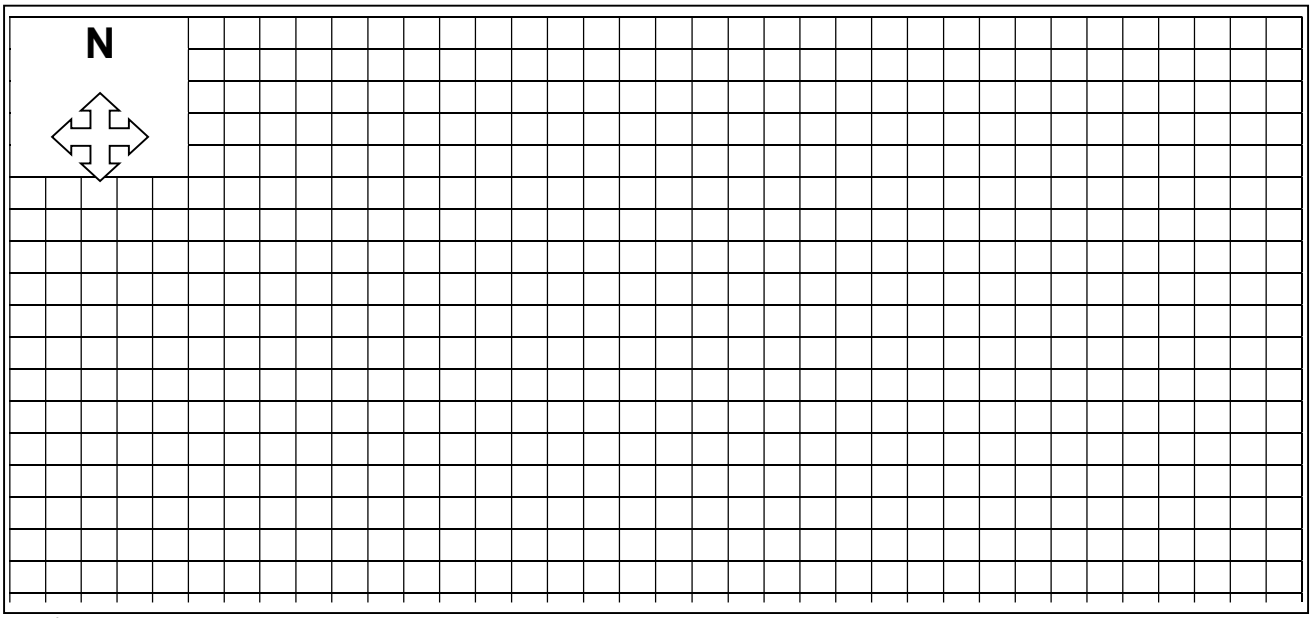
6) Special Education:
   a) School based brail training for teachers.
   b) School based sign language training for teachers.
7) Economical reintegration:
   a) Are the vocational training courses designed in accordance with the needs of EO survivors and victims'?
   b) Are the training courses on marketing appropriate to the needs and requirements?
   c) Are the EO victims and survivors consulted about the microeconomic integration packages?
   d) Are they happy with the commodities delivered to them?
   e) Are the micro-finance/credit, revolving loan appropriate and accepted by the beneficiaries?
8) Advocacy for the Rights of EO Victims and Survivors:
   a) Workshops, Meetings, Round table discussions.
   b) Are they effective?
9) Physical accessibility
   a) Ramps construction
   b) Adaptation of doors and toilets for the use of Persons with Disabilities.

**2.4.3 Accountability and Involvement of VA Beneficiaries:**

1) Are the VA beneficiaries involved and consulted before and during the VA project implementation?
2) VA beneficiaries' feedback about the VA project and MEI assistance package delivery.
3) VA beneficiaries' understanding about the VA assistance MEI assistance packages.
4) Are the assistance packages matching with priorities and needs of EO survivors and victims'?
5) Are the needs of EO victims and survivors assessed?
6) Are the assistance packages designed according to their needs?
7) Are the VA beneficiaries satisfied or dissatisfied with the quality and quantity of assistance they received?

### 3. Quality Control (Sampling) of Cleared/Released Land:

1) Type of Sampling:
   a) Post Clearance;
   b) Progressive;
   c) Targeted;
2) Type of asset used in sampling:
   a) Manual;
   b) MDDs;
   c) Mechanical;
3) Size of lots sampled; _____sqm % of sampled per cleared area;
4) Sampled area size/SOP requirement;
5) Location and map of lots sampled within the task; Bearing and distance from nearest TP.
6) Marking of sampled area;
7) Clearance depth;
8) Result of sampling:
   a) Passed;
   b) Failed[8]: (Type, name and quantity of items discovered);
9) Sketch map of inspected lot:




[8] Where any sample in the lot is found to contain one or more mines/ERW or a missed signal or undisturbed metal fragment with a weight equal to or greater than the metal content of the mine, in any 1.0 sqm unit of sampled land, shall be counted as a 'critical non-conformity, and that lot shall be declared as failed. Organization shall require the lot to be cleared again. There can be situation where the whole cleared area within a task is subject to re-clearance, if previous lots have not already passed the QC.

## 1. Level of Internal QA/QC Coverage:

| |
|---|
| 1) Available record with the team;<br>2) Identification of issues and recommended solution;<br>3) Record of corrective and preventive actions; |

# Sudan National Mine Action Standards – SNMAS 07.03

Second Edition: October 2018
Version 02

## Mine Action Monitoring

Sudan National Mine Action Centre (NMAC)
Block 21, Building 241, Mekka Street, Riyadh, Khartoum – Sudan
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Contents

## 1. Introduction

Monitoring of mine action activities forms a crucial part of mine action, it includes visiting mine action worksites and understanding of the wider scope and practice through the collection and analysis of data and information about the performance of mine action management processes and their products, and application of monitoring principles and processes to all aspects of mine action. This standard also addresses Quality Control (QC) as monitoring of mine action product performance and provides specific guidance on actions to check the quality of cleared land and other mine action products.

### 1.1. Monitoring and Quality Management

Monitoring is an essential element of any effective quality management system (QMS) as well as within strategic, operational, project, programme, safety, environmental and results-based management systems.

At the heart of quality management (QM) is the concept of continual improvement, captured in the Plan – Do – Check - Act cycle. Monitoring is integral to the 'check' stage of the cycle. Monitoring represents the primary means of 'closing the loop' to ensure that needs and opportunities for improvement are identified and addressed, and that authorities and managers have the information they need to take timely and effective, evidence-based decisions to support the achievement of strategic and operational objectives.

Definitions of monitoring emphasize that it is a continuing function, that it relies on systematic collection of data in relation to specified indicators, and that its purpose is to provide management with information about progress, achievement of objectives and compliance with policies, strategies and SNMAS. Monitoring is also described as determining the status of a system, a process or an activity; what is to be monitored, the methods for monitoring, measurement and analysis, when monitoring should be performed and how results will be analyzed and evaluated all need to be defined. This standard addresses all aspects of establishing, implementing and using a mine action monitoring system.

### 1.2. Monitoring, Quality and Results-based Management (RBM)

QM focuses on the products and services delivered by mine action organizations. The results, outcomes and impacts associated with delivery of those products are equally important. This SNMAS addresses the monitoring of processes and products, NMAC and mine action organizations shall make use of similar principles to determine the extent to which mine action projects and programmes lead to desired results, outcomes and impacts. SNMAS 03.01 for planning and prioritization should be used to monitor the extent of meeting national planning and prioritization requirements in Sudan, which emphasizes on the desired results to be achieved and the impact of mine action interventions. Donors increasingly want to understand the difference that their funds have made to the lives of beneficiaries; RBM provides a way to do this.

## 2. Scope

This SNMAS describes the implementation of a process of monitoring mine action organizations and their activities by NMAC. Mine action organizations shall also adhere to the requirements of this SNMAS and the principles of monitoring for conducting internal monitoring of their management system and activities.

## 3. References

IMAS 07.40, IMAS 07.12, SNMAS 07.01 and SNMAS 07.02

## 4. Terms and Definitions

*The term monitoring refers to:*

"Systematic collection of data on specified indicators to provide management and the main stakeholders of an on-going project, programme or policy with indications of the extent of progress and achievement of objectives, and progress in the use of allocated funds." IMAS 4.10 based on OECD/DAC definition.

Monitoring means "determining the status of a system, a process or an activity" to determine the status, there may be a need to check, supervise or critically observe." ISO 9001:2015.

The term Observation refers to:

Observation is used in reference to Quality Management System. Observation is the identification of area for improvement, mostly addressed through preventive actions. The observation is raised where a QM Inspector or auditor encounters or identifies a situation or performance that is felt to be a weakness in a process or procedure, or situation to improve upon, but not strong enough and have no reference to warrant nonconformity. An observation is not nonconformity at the time of the monitoring, audit or inspection, but may become or give raise to non-conformance, if no preventive action is taken. Mine Action organizations shall take action on observations in order to prevent occurrence of potential nonconformities.

The term Nonconformity refers to:

Nonfulfillment of requirement, in terms of mine action it refers to nonfulfillment of a requirement or requirements of Standards, policy, procedures terms of contracts and other applicable regulations and agreements.

## 5. Monitoring within the Context of Mine Action

### 5.1. General Context

The overall responsibility for external monitoring rests with the NMAC as a regulating, coordinating and external Quality Management body for the mine action programme in Sudan. The responsibility for internal monitoring rests with the mine action organizations.

The context of mine action includes all aspects of the external and internal factors, circumstances, conditions, obligations, expectations and environment relating to mine action in Sudan. For detailed requirements about mine action context; refer to SNMAS 07.01.

### 5.2. Monitoring within the Quality Management System (QMS)

The overall aim of mine action quality management system (QMS) is to provide confidence to the beneficiary, the mine action organization, the NMAC, the donors and to other interested parties that quality requirements have been met or exceeded, and that mine action activities, products and services are fit for purpose.

Monitoring is a mandatory function within quality management system and is the primary means by which mine action senior management, stakeholders and interested parties receive information about the performance of mine action organizations, the processes that they use, the products and services they deliver, and the results of their activities. **The information provided by monitoring process supports corrective action, preventive actions, management review processes and continual improvement.**

Monitoring of processes is an important part of the quality assurance (QA) function, which includes all proactive actions taken to increase confidence that requirements will be met. Monitoring of products performance is a quality control (QC) function; checking that the product requirements have been met.

Monitoring shall address the effectiveness, efficiency and relevance of mine action activities which includes the extent to which they achieve planned purposes and objectives, the relationship between achievement of objectives and use of resources, and likelihood of delivering the desired results for beneficiaries, respectively.

As stated in SNMAS 07.02 of mine action accreditation; the results of monitoring shall also be used to inform the process of accreditation, in particular the renewal and extension of accreditation of an organization.

Mine action monitoring process shall focus on, and address the following aspects of mine action in Sudan:

a) The requirements of Sudan strategic goals and objectives; the structure and implementation of monitoring should be informed by Sudan National Mine Action Strategic Plan (NMASP), APMBC extension request and have the capacity to deliver information relevant to strategic decision-makers and shall also include assessment of performance, achievements and progress against strategic goals, objectives and targets.

b) Safety and environmental protection aspects, as directed by the NMAC with technical support of UNMAS.

c) The extent to which the requirements of APMBC and Sudan NMASP, national land release policy and quality policy are satisfied.

d) Provision of information on the application of mine action standards and procedures, and provide inputs for any changes and amendments.

e) Understanding the requirements of mine action stakeholders about the monitoring information, and that monitoring appropriately and effectively satisfies those requirements. Provide feedback to the mine action organizations that is necessary for their senior managers to understand the performance of their organizations.

f) Gender and diversity consideration; as an important aspect in success of mine action sector and as the stakeholders' requirement. Monitoring process should include the collection, analysis and reporting of data relating to gender and diversity aspects of the Sudan MAP.

g) Integrated into an effective and efficient information management system (IMS).

h) Risk management; including identification, analysis, evaluation, treatment and review functions.

## 6. Mine Action Monitoring Requirements

### 6.1. General

NMAC with technical support of UNMAS, and mine action organizations as part of their internal monitoring process shall determine through separate procedures:

1) What needs to be monitored;
2) Methods for monitoring, and analysis as necessary to ensure valid results;
3) When and how monitoring shall be performed;
4) When and how the results of monitoring shall be analyzed; and
5) How monitoring results will be displayed and disseminated.

As minimum the NMAC external monitoring shall address and focus on the following aspects of mine action organizations in Sudan:

a) Management processes and procedures; including the capacity of mine action organizations to manage mine action operations in the field;

b) Support services including logistics, finance and administrative arrangements and processes;

c) Safety measures including explosive storage areas, medical facilities, equipment maintenance and communication;

d) Training programs and capacity building;

e) Planning and prioritization process in line with the requirements of SNMAS, national plans, strategies and international obligations;

f) Community liaison and involvement of people including men, women and children in land release process, including considering their priorities;

g) Information gathering, recording and reporting;

h) Demining worksites and supporting workplaces;

i) Field risk assessment and mitigation measure in each land release task;

j) Survey and land release operations and practical activities in the worksite;

k) Practical skills and performance of the demining staff;

l) Performance of demining tools and equipment;

m) Emergency evacuation drills and casualty evacuation plan;

n) Internal monitoring and QC records, and action on NCs;

o) Controlled demolitions and explosive management and record in the field;

p) Use of IMSMA standard forms, related records and reports;

q) Product performance and conduct of sampling.

r) Daily, weekly and monthly reports.

As minimum the following aspects shall be monitored in Mine/ERW Risk Education:

a) The progress of MRE activities against stated objectives;

b) MRE sessions and activities to ensure they are consistent with SNMAS, organization's SOPs, plan and the national strategy for programme activity;

c) The level of community involvement including women, men and children within activity and assessing its impact on behavior changes;

d) Identification of at risk group in each community in accordance with their involvement and planning and undertaking MRE sessions objectively to address the risk to the target group;

e) Documentation, including Action plan, update MRE Kit and materials and MRE guidelines approved by NMAC;

f) MRE Personnel and volunteer training activities;

g) Safety of the field staff and the level of their training in field safety procedures;

h) Perception of community of the MRE activities and programs by at risk communities and behavioral change;

i) Changes in the make-up of the target risk group; and

j) Recording and reporting of MRE progress and achievements.

The monitoring process shall mainly be focusing on physical observation of all the aspects listed above. Monitoring can be announced and unannounced, or combination of both, but unannounced monitoring should be a preferred method to be undertaken by NMAC QM officer. The sampling should be part of monitoring as inspection of the outputs of the mine action activities including but not limited to measuring product performance or sampling of cleared area, reports, final result of trainings, and interview with communities and trainees. Mine action products are detailed in section 8 of this standard.

The results of monitoring shall be entered to IMSMA on monthly basis and analyzed by NMAC QM department and communicated to all NMAC departments, regional offices and senior managers. QM statistics shall be developed by QM department and shared with NMAC senior management, regional offices, departments, UNMAS and related stakeholders and donors as requested; on quarterly basis.

### 6.2. Purpose of Monitoring

Monitoring is conducted to provide senior management of Sudan mine action programme with reliable evidence-based information; the analysis and statistics about the performance of organizations; regarding the strategic and operational goals and objectives. Monitoring is used to inform decisions about future planning and the continual improvement of mine action, including:

a) The extent of compliance with the requirements of SNMAS, policies, SOPs and terms of the contracts;
b) The performance of mine action organizations in terms of the efficiency and effectiveness of processes, the outputs of the processes and the results, outcomes and impacts;
c) Progress towards achievement of Sudan NMASP goals and annual operational plan's objectives within the boundaries of financial budgets;

d) The degree to which Sudan strategic and operational planning and prioritization are likely to achieve the desired results for beneficiaries;
e) The performance of the mine action organizations in relation to gender and diversity.

### 6.3. Conduct of Monitoring

Mine action monitoring shall be comprehensive and deliver sufficient information to satisfy the needs of mine action stakeholders within the Sudan mine action programme. Monitoring shall encourage initiative and innovation within Sudan MAP and remove burdens from organizations that affect their efficiency. Efficient monitoring, as part of NMAC and organizations' QMS, should enhance the overall success and efficiency of the mine action plans and strategy.

NMAC shall ensure that the monitoring process is:

a) Independent, objective and fair;
b) Systematic and evidence-based;
c) Implemented with due professional care and effort;
d) Producing valid information on which senior management at NMAC and organizations can decide and take actions to improve operations and performance;
e) Follow the PDCA concept for continual improvement;
f) Properly planned and managed;
g) Appropriately recorded and stored for future reference;
h) Providing facts and evidence to satisfy decision-making;
i) Well communicated to the stakeholders.

NMAC QM and Operations officers should be competent, free from bias and conflict of interest and maintain confidentiality and discretion with organizations subject to monitoring. NMAC QM and Operations staff those conduct monitoring on mine action should be competent in following:

### 6.4. Collection, Analysis, Reporting and Recording of Data

Effective monitoring relies upon access to consistent, reliable and comprehensive data about the performance of mine action organizations and the processes and outputs for which they are responsible. NMAC and mine action organizations shall:

a) Identify indicators relevant to the effectiveness and efficiency of mine action activities;
b) Specify information requirements in relation to indicators for the performance of process and outputs;
c) Ensure consistency of data and information;
d) Ensure data and information are properly stored in IMSMA for future feasible access; and
e) Ensure that data and information are made available to interested parties.

See Annex A to this SNMAS about the indicators relevant to the effectiveness and efficiency of mine action activities.

#### 6.4.1 Collection of Monitoring Data

It is the responsibility of QM Officers in regional offices to collect and report monitoring data to NMAC QM department which should be checked and submitted to IMSMA for recording in national database on monthly basis. This data shall include internal monitoring and sampling data submitted by mine action organizations to related regional offices. There should be clear indication of internal and external monitoring data that is subject to check and recording in IMSMA.

Additional information about the collection of data through site monitoring visits is provided in Annex A to this SNMAS.

#### 6.4.2 Analysis, Reporting and Recording of Monitoring Data

The results of monitoring should be analyzed by NMAC QM department and shared with NMAC and mine action senior management. As a minimum, monitoring shall deliver results that indicate:

a) Conformity of mine action services and outputs to the requirements of SNMAS, Policies, SOPs and Terms of Contracts;
b) Customers and stakeholders' satisfaction;
c) Consideration of gender and diversity requirements;
d) Conformity and effectiveness of the established QMS within NMAC and mine action organizations;
e) Successful implementation of planning, and progress towards strategic goals and operational objectives;
f) The performance of mine action processes and their outputs;
g) The performance of mine action assets; and
h) Opportunities for improvement.

Monitoring process shall include adequate detail and sufficient records to identify and trace relevant performance measures to each mine action organization. There should be a comprehensive report of monitoring data as QM statistics, properly communicated to all mine action stakeholders on quarterly basis. Monitoring data shall be recorded in IMSMA and made available for analysis, reporting and communicating with relevant stakeholders as needed.

### 6.5. Key performance indicators (KPIs)

Key performance indicators (KPIs) are measurable values used to demonstrate how effectively mine action organizations are achieving operational objectives.

Relevant indicators include:

a) Nonconformity rates by process, output in relation to defined requirements;
b) Compliance rates in relation to SNMAS, Policies and SOPs;
c) Progress rates against defined deadlines, targets, budgets and benchmarks as per the terms of contract;
d) Asset performance;
e) Productivity rates;
f) Missed rates; and
g) Efficiency rates in relation to the results achieved.

Mine action senior management in Sudan, should identify KPIs relevant to their own functions and responsibilities. The KPIs can be part of Balanced Scorecards for assessing and measuring the performance of mine action organizations. KPIs should be properly communicated and understood by QM and Operations staff of NMAC to ensure the consistency, comparability and validity of KPIs.

### 6.6. Communication of Monitoring Results

The results of monitoring should be displayed through tables, graphs or charts and descriptions. This will allow and help senior management in NMAC and mine action organizations to identify and understand trends, draw comparisons in performance over time, and identify needs or opportunities for continual improvement.

As stated above, the QM statistics should encompass all the requirements and communicated to mine action stakeholders in Sudan.

### 6.7. Competence, Training and Awareness

The primary purpose of monitoring is to provide required and reliable data and information to senior management of NMAC and mine action organizations to maintain confidence, identify areas for continual improvement. All the decisions for continual improvement shall be based on reliable data and information as valuable facts and evidence to support decision making and the continual improvement should follow the cycle of Plan-Do-Check-Act.

#### 6.7.1. Competence

In order to carry out their functions effectively and efficiently, mine action QM and Operations Officers conducting monitoring shall be competent in following aspects:

1) Mine Action Standards:

    a) Understand Sudan NMAS and make references to them during monitoring and sampling process.
    b) Review and recommend fact-based changes to the SNMAS.
    c) Communicate SNMAS to the mine action organizations.
    d) Assess compliance of organizations' SOPs to SNMAS and provide feedback.
    e) Present and describe the requirements of SNMAS on certain technical issues during the operations coordination and QM related meetings with mine action organizations.
    f) Understanding International Mine Action Standards.

2) Mine Action Management:

    a) Understanding vision, mission, quality policy, core process, NMASP, and Sudan's extension request to the state parties as part of the APMBC.
    b) Making fact-based decisions;
    c) Leading teams to achieve expected results.
    d) Effectively negotiating needs and requirements with a range of internal and external customers and stakeholders.
    e) Identifying areas for improvement in NMAC processes.
    f) Effectively building working relationship within and outside the organization.
    g) Negotiating effectively to gain agreement and commitment to ideas and actions for realizing results of mine action activities and operations.
    h) Effectively articulating and communicating key messages about the functions and performance of NMAC.
    i) Communicating and responding appropriately to internal and external stakeholders.

3) Planning and Prioritization:

    a) Oversight of mine action plans including regional operational, monitoring and QC and site operational plans; based on national and communities' priorities.
    b) Management and oversight of the implementation of mine action plans and reporting on the progress to the senior management.
    c) Evaluating organizations plans based on approved proposals, statement of work and available resources.

4) Mine Action Operations:

    a) Understanding the application of land release standards in operations.
    b) Conduct, apply, monitor and evaluation of non-technical and technical survey operations.
    c) Provision of advice to the field operators regarding application of combined assets for land release operations.
    d) Management and oversight of the implementation of non-technical and technical survey operations in the field.
    e) Provision of advice on efficiency and effectiveness of land release operations based on analysis of NTS and TS information.
    f) Understanding the application of all reasonable effort as part of land release operations, within the context of Sudan mine action programme.
    g) Application of MRE and VA SNMAS and Procedures in operations.
    h) Monitoring and evaluation of RE and VA activities.
    i) Assessment and identification of at risk group for RE activities.
    j) Provision of inputs to the evaluation that may take place.
    k) Understanding the needs and expectation of PWD and assess the response provided.
    l) Assessment of promotion of safe behavior within communities, through data collection and analysis.

Depending on the specific activities and areas subject to monitoring, QM and Operations Officers should have knowledge of:

1) National laws and regulations;
2) Mine action contracts;
3) Worksite safety and working conditions requirements including Field Risk Assessment (FRA);
4) Quality concepts and terminology used in mine action;
5) QM principles and their application; and
6) Quality tools and their application.

### 6.7.2. Training

QM and Operations Officers should receive training and demonstrate adequate aptitude, skills and knowledge, in monitoring processes, procedures, techniques and recording, prior to conducting monitoring activities. Additional training should be provided to when there are changes in the monitoring process, when there are significant changes in applicable standards, and at appropriate intervals, to ensure that their competence to perform monitoring tasks is maintained.

### 6.7.3. Awareness

The NMAC should ensure that there is adequate awareness of the monitoring process, its purpose, methods and principles. The awareness should be raised to ensure that the sole purpose of monitoring is to continually improve mine action activities, outputs and stakeholders satisfaction. Mine action organizations and their teams should be open and consistent in their provision of information and access of NMAC QM and Operations staff, to the worksite locations.

## 7. Monitoring of Mine Action Processes

Mine action comprises of different processes; as such appropriate data shall be collected and analyzed to allow senior management of NMAC to:

1) Understand the extent of relevance, effectiveness and efficiency of key processes;
2) Identify and respond to those parts of processes that can be improved;
3) Compare process performance between organizations; and
4) Reflect the results of process monitoring in future planning.

### 7.1. Identifying and Describing Key Processes

NMAC and mine action organizations shall identify, map and document key processes with appropriate performance indicators. Key processes are those that are delivering mine action services and product to the customers and end users, or directly support processes that deliver final outputs and products to mine action customers.

Mine action services and outputs that are released to the customers and users should be subject to product monitoring or QC sampling.

### 7.2. Processes and Key Performance Indicators

KPIs should be established for key processes to indicate:

1) Process effectiveness; the extent to which the process achieved stated results successfully;
2) Process efficiency; the resources used within the process in relation to the results achieved.

### 7.3. Compliance with SNMAS, Policies and Procedures

Monitoring should be established in such a way that the compliance or non-compliance can be referred to SNMAS, Policies, SOPs and terms of contracts.

### 7.4. Progress Monitoring

Progress of mine action activities against operational planned deadlines and targets shall be monitored. The deadlines are mainly set within the annual operational plan, based on the terms of contact and site operational plans approved by NMAC sub-offices and Operations department.

### 7.5. Working Environment

Monitoring process should include appropriate actions to confirm that the working environment remains suitable for the implementation of efficient and effective mine action activities in compliance with SNMAS, Policies and SOPs.

### 7.6. Methods of Process Monitoring

As minimum the following methods should be considered during the monitoring of process monitoring:

1) Review of a mine action organization’s documentation including SOPs relating to the processes, plans of implementation, reports of progress and completion and records of outputs of the processes;

2) Analysis of nonconformity records including references to related SNMAS, SOPs and other regulatory documents in relation to the application of the processes;
3) Analysis of data provided by mine action organizations relating to their processes; and
4) Site visits to observe mine action activities, related practices and techniques.

### 7.7. Frequency of Monitoring

In order to build and maintain the confidence of mine action senior management, customers and stakeholders in the performance of mine action organizations and mine action products and services; monitoring of mine action activities should be conducted in reasonable intervals. Monitoring activity shall not be so interfering that places such demands on a mine action organization to affect operational efficiency.

Identification of nonconformities as part mine action activities may reasonably justify frequent observation of the activities, processes and their outputs, but any nonconformity shall always be addressed through appropriate management action with allocating required time.

The frequency of on-site monitoring may be adjusted in light of results of previous monitoring findings and the experience of the mine action organization in relation to mine action activities. The following applies:

1) As minimum on-site monitoring visits shall not be less than three visits in each single task with duration of up to one month; at the start, middle and at the end;
2) Each land release task shall be subject to completion monitoring;
3) The teams with identified nonconformities shall be monitored frequently; there should be re-audit as per the intervals agreed for corrective and preventive actions between NMAC and mine action organization.

The following regimes of monitoring should be applied:

Tightened monitoring regime, when:

1) A mine action organization is newly accredited;
2) There have been significant changes in the management or structure of a mine action organization;
3) There are identified nonconformities; or
4) As re-audit to ensure appropriate correction to an identified nonconformity.

Tighten regime of monitoring should be covering all aspects of mine action operations management and practical activities, at least three times a month.

Normal monitoring regime:

1) As minimum, the operations management should be monitored once two month and the on-site activities twice a month.

Normal monitoring regime should be considered, when a mine action organization has demonstrated a consistent level of acceptable performance over a period of monitoring and there is no changes in the scope of activities of the mine action organization.

## 8. Monitoring of Mine Action Product Performance

### 8.1. General

Monitoring of mine action products performance refers to the quality control of mine action products and services. Quality control is the process of checking, inspection or measuring of the mine action products to ensure that they are produced as per the requirements of SNMAS, SOPs and terms of contract.

Quality control or monitoring of product performance shall not only be limited to the inspection, checking or measuring cleared land; rather it should cover all mine action products, which include, but are not limited to:

1) Information:

As one of the important products of mine action, information plays crucial role in product realization, and without accompanying information many products of mine action including the release of land will not be verified and accepted as mine action products. Information is a product in its own right and is being delivered to mine action customers, stakeholder and other interested parties through records, reports and other mediums as required by public information campaigns.

It is therefore, important to quality check all mine action data, report and records to ensure they are in the right format, correct, reliable and based on the requirements of SNMAS, SOPs and other agreed regulations. NMAC Operations and QM staff at HQ and Sub-Offices shall ensure that all the data, reports and records are properly checked, verified and approved before processing and entry to IMSMA and further analysis and dissemination.

2) Released Land:

Mine action processes deliver cancelled, reduced and cleared land. All are required to meet the same basic quality requirement as specified in related SNMAS to ensure the land that is release through NTS, TS and Clearance is safe for intended use.

The output and product of land release process should be properly inspected and measured against the requirements of SNMAS, SOPs and agreed regulations.

3) Hardware:

Hardware mine action products encompass prosthetic limbs, training aids materials “Free From Explosive (FFE)” ordnance, exhibition materials for awareness, demining tools and equipment including ancillaries for demining machines, hazards marking materials including fencing and warning signs used to delineate hazardous areas. All should have clearly specified and defined quality requirements.

All are subject to quality check, measurement and monitoring before they are being delivered to the customers, utilized and used for the purpose they are produced; against the set criteria and predefined quality requirements.

4) Competent Staff:

Mine action engages in a wide variety of training processes and programs which deliver trained and competent personnel as their product. Requirements against which their performance can be monitored should be defined in Job Descriptions or Terms of Reference and the Training

Management Packages (TMPs). The trainees evaluation criteria shall be part of the TMPs approved by NMAC, based on which the competent personnel should be assessed.

Every product should be designed and delivered to fulfill specified and predefined requirements, most of which are already covered in SNMAS, however, the requirements for the rest of the products shall be covered in related SOPs and documents.

### 8.2. Methods of Product Monitoring and Measurements

Methods for monitoring the performance of products include:

1) Physical inspections and sampling, in case of cleared land, the physical inspection could be:

    a) Progressive QC;
    b) Targeted QC;
    c) Post completion QC;
    d) Combination of all, however the first two should mainly be considered.

2) Field testing of the products to ensure they are fit for purpose;
3) Customer feedback, through interviews and based on specific questionnaires; and
4) Long term monitoring which also includes Post Land Release Assessment.

#### 8.2.1 Physical Inspection and Sampling

Physical inspection and sampling are useful where products are produced by the same process or activities, and from the same materials using the same process, and where inspection can identify defects that can be traced back to the causes of nonconformity. Examples of mine action products that may be suitable for physical inspection and sampling include:

1) Cleared land as part of the land release process;
2) Prosthetics limbs for the mine or ERW survivals;
3) Mine action tools and equipment, including mechanical ancillaries;
4) Mine action records, data and other documentary products; and
5) FFE items and other training aid materials.

The outputs of land release activities can be cancelled land through NTS and/or reduced land through TS and or cleared land through Clearance activities, as such all shall not be subject to the same process of product measurement or QC. However, the contaminated area may be cleared through different methodologies. The QC sampling of cleared land should be undertaken as sampling from different parts of the cleared area, through different methods to obtain objective confidence that no contamination left behind. Sampling supplements accreditation and monitoring and provide additional confidence that clearance requirements have been met.

All mine action organizations working in Sudan shall implement internal QC that accurately records all internal QC carried out, that allows immediate identification of the following factors should it be necessary:

a) Details of the individual/asset that conducts QC on a specific area;
b) The exact areas that has been subjected to QC;
c) The date/time that QC was conducted; and
d) The method of QC and sampling plan.

Sampling should be incorporated into day to day activities of the demining teams so that progressive inspections are carried out. Samples shall be randomly selected and carried out in accordance with the methodology and acceptance criteria specified in this standard and as part of contract agreement.

External QC process should be conducted by NMAC monitors and may be linked to the findings of process performance monitoring. NMAC monitors can decide based on their findings of monitoring that resulted in conformity and high confidence level. Otherwise, NMAC monitors can conduct sampling of cleared area as part of their monitoring visits as progressive or targeted QC sampling.

Sampling should be conducted in line with the sampling procedures developed by NMAC which include acceptance criteria. Records of such inspections and results shall be included in monitoring form, the annex A to this SNMAS.

If a sampling lot fails inspection, the NMAC shall require the lot to be cleared again. The NMAC may then decide to suspend accreditation of the organization for a pre-determined period until such time the requirements for more extensive corrective action are identified and addressed. Failed lot shall not be offered for re-inspection until the organization has taken remedial action as agreed between NMAC monitors and related mine action organization.

A 'lot' should be considered as 'cleared' if all the samples in the lot are found to be free of mines and ERW to the depth specified in the contract and or extent of risk found during technical survey and clearance. Where any sample in the lot is found to contain one or more mines or ERW, this shall be counted as a 'critical nonconformity, and that lot shall be declared to have failed the inspection. Cleared land may contain other indicators of potential nonconformities, such as residual metal fragments following detection by metal detectors, or residual traces of explosives following detection by MDDs. The presence of one or more undisturbed pieces of metal fragment with a weight equal to or greater than the metal content of the mine with the least metal content in any 1.0 Sqm unit of sampled land shall be considered as nonconformity and that lot shall be declared to have failed the inspection.

The QC sampling of land that is released through NTS and through TS may require different approaches; however, the main focus shall be on monitoring of process performance rather than product performance or QC sampling. For measuring product performance of cancelled and reduced land within the context of Sudan, should be review of the level of all reasonable efforts applied during the cancellation and reduction activities, review of documentation including NTS reports, TS reports and completion reports, review of confidence of the communities and land users and the review of internal and external monitoring data conducted on NTS and TS activities. However, some specific parts of the cancelled area and reduced area may be checked as targeted QC sampling.

### 8.2.2 Mine Action Product Testing

The hardware products that are produced for utilization in demining operations, including detectors, locators and mechanical systems, shall be tested prior to be used in Sudan. The criteria and procedure for test, evaluation and acceptance of mine action such products shall be developed by NMAC and introduced to the mine action programme of Sudan. At minimum NMAC shall ensure the following are applied:

a) The detectors and locators are effectively capable to detect the hazards ordnance in a depth or extent that normally found in Sudan, from the original ground surface;
b) The detectors and locator are safe and suitable for intended use;
c) They are suitable to the geography and climate of Sudan;

d) They are user friendly, not complicated to require specialized operators, and easily portable to the worksite for operating;
e) Availability of spare parts and maintenance by producing company or their representative;
f) The machinery is suitable for demining operations and do not have environmental impact;
g) The ancillary of machine can effectively reach to the required clearance depth;
h) Availability of spare part and maintenance in country;
i) The machinery is suitable for geography and climate of Sudan; and
j) Easily transportable to the operational sites.

All other hardware products should also be based upon clear criteria reflecting the intended use of the equipment and the specific circumstances and conditions associated with that intended use. Mine action organizations and their operators should be included in testing as their skills may affect the results of the testing.

All mine action field personnel including Deminers, surveyors, EOD operators and their command and control group, supervisor and emergency medical support providers should be subject to testing through written and practical examinations and practical demonstrations of competence. The test results should be recorded as part of the monitoring records within QM department of NMAC and made available as required.

### 8.2.3 Customer Feedback

NMAC as part of its monitoring process shall ensure that the customers and users of different mine action products and services are identified and their feedback with regard to the mine action services and products are collected. The feedback shall include their satisfaction of fulfillment of their requirements and expectation. The mine action customers and product user include but not limited to land users, mine/ERW survivals and victims as users of prosthetic limbs and other services, mine action information users, affected communities received MRE, government, humanitarian aid assistance agencies and development investors.

The results of customer feedback should be analyzed and made available to mine action senior manager and decision-makers. Such feedback should feed-in to continual improvement process.

### 8.2.4 Long Term Monitoring of Mine Action Products

Long term monitoring should be undertaken especially about the land release outputs, it can also be referred to “Post Land Release Monitoring or Post Demining Impact Assessment (PDIA)”. It is important in building confidence about a large volume of mine action products that are used over extended periods. The main indicator of quality in released land is that the land is used safely, productively and continually without evidence of any incident, for long periods, after being handed over.

Long term monitoring of mine action products can be undertaken through:

a) Analysis of IMSMA data and information;
b) Analysis of data from such as national health systems;
c) Analysis of data from government entities working in victim assistance; and
d) Through survey and data collection interventions as part of PDIA.

Long term monitoring of mine action service and products helps in building the confidence of mine action customers and stakeholders that any nonconformity of product will come to the attention of NMAC to take required actions.

PDIA should be undertaken once a year or as agreed as part of the contract agreement. As general at minimum the PDIA should be conducted a year after the land is released and handed over to the user to allow enough time for land users to productively use their land. A percentage of released land should be focused in regional level and the type of land that is released for productive use.

### 8.3. Nonconformity Identification and Response

Real or potential nonconformity in process or product performance can be identified by monitors. A key part of mine action QMS is to respond to nonconformity; properly documents it with clear problem statement, investigates it to the root causes and effectively implement corrective and preventive actions.

Nonconformities (NC) that are identified during monitoring shall be addressed by relevant mine action organization, using its own QMS. There shall be agreed corrective and preventive action plan between NMAC monitors and the organization in response to the identified actual or potential NC.

#### 8.3.1 Types of Nonconformity (NC)

Nonconformities should be categorized as:

a) Real NC that has already occurred; or
b) Potential NC that has not yet occurred, but there is a significant risk that it will occur.

NC should also refer to the part of the management system to which they relate, including safety, environment, quality and others.

#### 8.3.2 Severity of NC

The monitors shall clearly identify the severity of NC in monitoring form and document it with clear statement of work, the following shall be considered in relation to NCs:

1) Major or critical NC:

A serious situation usually associated with serious problems including but not limited to:

a) A major element of the QMS is not being implemented;
b) A significant breach of SNMAS, or a major part of SNMAS is not being adhered to during mine action operations;
c) Significant breach of terms of contract;
d) Safety breach during mine action activities that affects mine action personnel and will pose significant risk to the land users after the land is being handed over for its intended use;
e) A situation which will lead to mine action project failure;
f) Serious problem in management practices and lack of required supports to the operations;
g) Lack of appropriate medical support.

2) Minor NC:

Less serious situations including, but not limited to:

a) A minor breach of QMS that does not lead to the failure and can be corrected immediately;

b) A minor breach of SNMAS that does not pose risk to the personnel and customers;
c) An isolated instance of not meeting SNMAS and SOPS;
d) Incorrect or missing pieces of non-critical information; and
e) Problems where the consequences are limited to internal inefficiency, but the products, customers and end users will not be affected.

NC should be categorized once the full extent of the problem is known. Additional information may come to light during analysis of the root cause of the NC or throughout the discussion with related mine action organization. Root cause analysis may need convening a Board of Inquiry (BOI) or independent investigation undertaken and authorized by NMAC management.

#### 8.3.3 Observations

Mine action monitors may also identify weaknesses in processes or products that do not constitute nonconformity, but which can be improved upon. Such circumstances may be categorized as observations and recorded within monitoring documentation. Although an observation is not nonconformity at the time of recording, but it may become one; if appropriate preventive action is not taken by related organization. Monitors should also review the status of previous observations.

#### 8.3.4 Responses to NCs

All identified NCs shall be properly documented in monitoring forms, reported and recorded. Actions in response to NCs shall include corrective action to eliminate the cause of a detected nonconformity and preventive action to eliminate the cause of a potential nonconformity.

The response to NCs should include:

1) Description of NC with clear and concise problem statement;
2) Assessment of impact of the NC on the process and or product performance;
3) Analysis of root causes of the NC;
4) Consensus and agreeing on the most appropriate plan of remedial actions;
5) Implementation of the agreed action plan;
6) Follow up to ensure all agreed corrective and preventive are taken; and
7) Assessing the appropriateness and effectiveness of the actions taken.

The mine action monitoring records shall include, but not restricted to the following especially when NCs are identified and remedial actions are taken:

a) A description of the NC;
b) The aspect of the QMS to which the NC relates;
c) The date of monitoring conducted and the NC identified;
d) The category and severity of the NC;
e) Root cause analysis and identification of the root causes that resulted in NCs;
f) Agreed corrective actions with related mine action organization, including action to prevent reoccurrence of the NC;
g) Assessment of appropriateness of planned remedial actions
h) Assigned staff member that made responsible to implement agreed actions;
i) The deadline for implementation of agreed actions;
j) The follow up action which should include re-audit visit, and the assessment of effectiveness of actions; and
k) Additional information as required to allow monitors and senior management of NMAC and mine action organizations to track the improvement of performance.

In case of major NCs that resulted in harm to personnel or beneficiaries, a formal investigation or Board of Inquiry (BOI) shall be conducted to undertake further analysis of the problem and come up with practical and appropriate recommendations to be used as lessons learnt and support liability issues.

#### 8.3.5 Implications of Nonconformity on Accreditation

Depending on the results of monitoring or investigation, and the severity of NC within the process or product performance of mine action organization, NMAC QM and Operations staff or investigation team may recommend suspension and termination of the organization's accreditation. For more details refer to SNMAS 07.02 of accreditation.

### 8.4. Review and Improvement of Monitoring Process

As part of QMS, NMAC and mine action organizations shall review the monitoring process and improve upon it. For more details refer to SNMAS 07.01 of Quality Management System in Mine Action.

## 9. NMAC Obligations in Relation to Monitoring

NMAC shall ensure that the mine action monitoring is undertaken by competent staff having written TORs and job description of conducting mine action monitoring. A detail procedure and process shall be developed by NMAC that is well communicated to its staff and sub offices.

### 9.1. Independence, Impartiality and Integrity

As principles of monitoring for all mine action monitors it is essential to consider independence, impartiality and integrity throughout the monitoring process. Mine action monitors shall consider freedom from such influences that might affect their judgment during monitoring activities. The main focus of NMAC QM, Operations and other related staff should adhere to NMAC quality policy, and their main aim should be continual improvement without any personal interest or conflict.

NMAC should also ensure that all relevant stakeholders and customers have or can have access to mine action monitoring data, when required.

### 9.2. Confidentiality

As part of its mandate and as external monitoring body for mine action in Sudan NMAC shall ensure appropriate confidentiality of information obtained in the course of its monitoring activities. The records of monitoring maintained by NMAC shall not normally be released publicly, rather communicating monitoring information should be managed in a way that build the confidence of mine action customers and stakeholders in terms of transparency, accountability, improvements and performance of mine action organizations. The record should be made available and traceable to NMAC management and for informing individual mine action organizations and related mine action stakeholders needing access to the information of the results of monitoring of the activities of their interest. The NMAC should make use of anonymous data to encourage and allow wider dissemination of the results of monitoring.

### 9.3. Management System

The management of NMAC shall designate a person with defined authority and responsibility for quality management within its structure. For quality related issues, this person shall have direct access to the most senior executive of the NMAC.

### 9.4. Personnel

NMAC shall have a sufficient number of competent personnel with the range and level of expertise required to carry out mine action monitoring function and should have access to technical expertise on all the activities that will be monitored.

### 9.5. Appeals

The NMAC shall establish a fair and impartial system to enable mine action organizations to appeal against decisions of the monitors that it feels are unfair, or when new evidence comes to light.

## 10. Responsibilities

### 10.1. Sudan National Mine Action Centre (NMAC):

NMAC as coordinating, regulating and external QM body for mine action programme in Sudan shall:

1) Establish monitoring process and procedures for monitoring mine action activities of the accredited mine action organizations in Sudan;
2) Ensure monitoring process verifies compliance with SNMAS, Policies, SOPs and agreed regulations, including terms of contracts;
3) Ensure that the monitoring process is being applied in a fair, equitable and gender aware manner;
4) Ensure that monitoring does not unnecessarily interrupt or delay mine action activities, processes and operations;
5) Ensure appropriate follow up actions are taken as part of the monitoring process;
6) Monitor mine action organizations, including their sub-units;
7) Provide documentation on monitoring activities and inspections as required;
8) Analyze the results of monitoring and properly communicated to mine action stakeholders;
9) Recruit appropriately qualified and experienced monitoring staff and ensure they are trained to conduct monitoring visits in a way that minimizes disruption to the mine action activities being monitored;
10) Inform and direct monitors in their responsibilities and authority in the event of observing a critical non-conformity.

### 10.2. Mine Action Organizations

All accredited mine action organizations in Sudan, shall:

1) Apply management practices, and quality management system and operational procedures which lead to meeting or exceeding the requirements of SNMAS, contracts and other relevant formal agreements and applicable rules and regulations;
2) Establish monitoring process as part of their QMS, based on the requirement of this SNMAS and SNMAS 07.01;
3) Maintain and ensure the accuracy and validity, and make available documentation including monitoring reports, records and other data on their activities to NMAC;
4) Provide NMAC monitors with access to all sites and facilities that need to be visited as part of the monitoring requirement;
5) Fully and promptly comply with instructions of monitors in the event of critical NCs requiring an immediate cessation of activities.

### 10.3. Donors and other Mine Action Stakeholders

It is crucial that when a mine action contract has been written by a donor or other stakeholders, the requirement of compliance with SNMAS and the monitoring process as part of the mine action QMS established by NMAC, are included in contract agreement, and mine action organizations shall comply with the requirements, as part of the implementation of the contracted mine action projects.

# Environmental Impact Assessment (EIA)

## 1. Introduction

Environmental Impact Assessment (EIA) in mine action is a process that aims to improve the environmental management of mine action projects including considering environmental requirements in design of a mine action projects. EIA also provides the Sudan mine action programme with sufficient information about the environmental effects of mine action activities and operations.

## 2. Use of EIA

The conduct of EIA is important in understanding of potential environmental impacts of certain mine action activities and operations and making informed decisions about protection and mitigation measures. EIA facilitates engagement of mine action personnel with local communities and other stakeholders regarding protection of environment and collecting information about significant environmental aspects.

EIA is a comprehensive, formal process providing stakeholders with confidence that relevant environmental aspects have been fully identified, properly assessed and that effective mitigation measures have been determined. While a detailed EIA may only be used in occasions when the scale, value, duration or proximity of mine action operations to locations of known environmental sensitivity, justifies it, the same core principles are valid at every mine action worksite. Mine action organizations should familiarize themselves with the EIA requirements and adopt appropriate principles whenever it is appropriate to conduct it in any mine action worksite.

## 3. Stages Involved in Conduct of EIA

This section briefly presents an overview of the stages involved in EIA to help place them in the context of mine action.

### 3.1. Screening

The EIA process should begin from the very start of mine action project identification. When priority mine action hazards have been selected to be implemented, two important questions shall be asked:

1) What will be the effects of the mine action intervention on the environment?
2) Are those effects significant?

If the answer to the second question is 'yes', an EIA is required. Answering this question is a process known as **screening** and can be an essential first step into a formal EIA.

### 3.2. Scoping

When it is decided that a formal EIA is required to be undertaken, the next stage is to define the environmental aspects of mine action activities and operations that need to be addressed, which can have significant impacts on the environment. This stage is known as **scoping** and is essential for focusing the available resources on addressing relevant environmental aspects.

### 3.3. Baseline Study

Pursuing to scoping, it is essential to collect all relevant information on the current status of the environment of the mine action project sites. This study is referred to as a **baseline study** as it provides a baseline against which change due to implementation of mine action activities can be measured.

### 3.4. Impact Prediction

Upon completion of baseline study and preparing information, the important task of **impact prediction** should commence. Impact prediction involves forecasting the likely changes in the environment that will occur as a result of the implementation of mine action projects and operations. All the likely changes should be listed and used in next stage.

### 3.5. Impact Assessment

The impact assessment stage involves the assessment and evaluation of the identified impacts. Impact assessment requires interpretation of the importance or **significance** of the impacts of mine action operations and activities on the environment.

This is the important stage which can provide a conclusion that should be used by the mine action managers and decision-makers to take decision on project implementation, and selection and application of appropriate mitigation measures.

### 3.6. Mitigation

The assessment of impacts will reveal the effects of mine action activities on environment which shall be alleviated by **mitigation** measures. Mitigation involves taking appropriate measures to reduce or remove environmental impacts of mine action operations, and it can be seen that the iterative nature of the EIA process is well demonstrated. Proper design of mine action projects and inclusion of mitigation measures within project proposal and plan could possibly result in the removal of all significant impacts, therefore, a new screening exercise would reveal that there might have been no need to carry out a formal EIA had the mitigation measures been included from the start.

### 3.7. Environmental Impact Statement

The output of an EIA is usually a formal document, known as **Environmental Impact Statement** (**EIS**) which sets out factual information relating to the mine action activities' impact on environment, and cover all the information relating to screening, scoping, baseline study, impact prediction and assessment, mitigation, and monitoring measures. It is important that a requirement of an EIS is a non-technical summary of facts. This is very important, as EIS is crucial document intended to inform NMAC and UNMAS of the nature and likely consequences of mine action activities and operations to be considered during the proposal review process.

### 3.8. EIS Review

Once the EIA is completed by the mine action organization, the EIS of the project shall be developed and submitted to UNMAS for review and NMAC for endorsement or disapproval of the mine action project due to inadequate measures proposed and planned. UNMAS should play advising and consultative role in this particular aspect.

Basically, the review process will enable NMAC to decide whether the EIS is adequate, legally compliant and the information is correct without bias, based on which the EIS should be used as essential information in determining whether the project should receive consent or the implementing organization should come up with additional measures to further mitigate the environmental impact.

### 3.9. Follow up

Follow up relates to the post approval phase of EIA and encompasses monitoring of environmental impacts, the continued environmental management of a project, and impact auditing. Without any form of follow up, EIA may not be effective and may not add any value.

Follow up provides opportunities of assessing environmental effects and also to learn from the process and apply the knowledge in future mine action projects. Practically, the data generated by monitoring and other aspects of follow up, should be compared with the original predictions and mitigation measures in the EIS; to determine:

a) The accuracy of the original predictions;

b) The degree of the deviation from the predictions;

c) The possible reasons for any deviation; and

d) Whether mitigation measures have achieved their objective of reducing or eliminating impacts on environment.

Information generated by this process can contribute to the improvement of future EIA practices and enabling more accurate predictions to be made.

# Annex B
# Protection and Mitigation Measures Against Adverse Environmental Impacts

## 1. Introduction

This Annex ascertains the nature of different mine action environmental impacts and their mitigation measures that should be taken into account to reduce adverse impacts of mine action activities and operations on the environment. Mine action organizations should assess each situation, using an EIA where appropriate, before determining appropriate mitigation and appropriate response measures.

One of the primary methods by which direct impacts upon soil and vegetation are mitigated is through the effective implementation of land release principles; to reduce the number of square meters processed.

## 2. Erosion and Soil Degradation

Natural processes can also cause soil erosion that can move or deposit especially the upper sediment of the soil. The sediment on the surface of ground can be dislodged by wind, water or slope instability; however, the erosion can be initiated by human activities in terms of destabilizing the surface, one of human activities of such nature can be demining operations, if not properly managed.

Soil degradation includes loss of the nutrient-rich topsoil through erosion, loss of organic matter and loss of structural stability, and it occurs when the changes in the depth of soil or its physical or chemical properties reduce its quality.

Environmental management and protection, as part of demining activities requires that the mitigation measures shall assure that survey and clearance operations do not lead to further erosion or soil degradation. If the area is already exposed to erosion, measures should aim to mitigate this effect. These measures may include:

a) Minimizing the area subject to direct intrusive technical investigation using manual or mechanical methods through well targeted survey and clearance operations;

b) Re-seeding and re-planting (grass, trees, ground cover) after mine action operations or when appropriate, if mine action contract permits that, otherwise, mine action organizations should seek the support of other related agencies to support environmental protection;

c) Construction of terracing as part of the site handover process, after consultation with local beneficiaries, especially after the clearance of areas with slopping profile;

d) Preparation of drainage systems where appropriate, to avoid erosion;

e) 3 to 4 meter wide strips of vegetative cover across the site horizontal to the likely route of erosion, if mine action contract permits that;

f) A schedule for land release operations that allows cultivating the site as soon as possible after such operations are completed;

g) Land release takes place at a time when the climate does not contribute further to erosion and when the soil and vegetation is less vulnerable;

h) Deep tracks or detonation craters are filled out, to reduce erosion or left unfilled to be used as habitat for local wildlife, if deem necessary, but this should be communicated with NMAC and UNMAS;

i) Return of processed soil to the affected sites;

j) Soil is stored in areas where it is not subject to erosion, while it is processed;

k) Topsoil structures are not broken over large areas;

l) Local communities are involved in the process of implementing mitigation measures;

m) The natural flow of watercourses is not permanently obstructed or diverted by mine action operations;

n) If it is necessary to divert or dam a watercourse, the landowner, communities and local authorities are consulted and their agreement obtained;

o) Regular community liaison and consultation regarding mechanical operations, including advice to property owners, communities and local authorities about any possible damage to the environment, should be considered. If necessary, advice to minimize damage should be given to property owners of the land adjacent to mine action worksites.

p) The land right issues shall also be considered, mine action operations should not destroy the natural boundaries of the land that may cause conflict between communities on land ownership.

**3. Pollution of Air, Water and Soil by Toxics and Hazardous Chemicals**

Mine action organizations shall consider and take care of the possible contamination of the surrounding area including vegetation and wildlife by fragmentation, toxic or hazardous substances. Provision shall be made for eliminating or minimizing any contamination and disturbance of humans, wildlife and vegetation.

Different chemical components from mines and ERW could dissolve and enter watercourses and crystallize into new components in the soil or be incorporated into existing soils and minerals. Being planted on the surface or just below the surface of land, the most direct impact of landmines is on soil quality and composition. Soil can be affected by the casing, explosions or leaking of toxic substances as a consequence of corrosion or decomposition.

Consequences of the corrosion of fragments and leakages may include the release of various chemical elements to the soil. A number of toxic and hazardous elements may appear as a pollutant after utilization of high explosive weapons. In agricultural regions, toxic elements can penetrate the human food chain. Therefore, as toxic elements penetrate the soil, processes of bioaccumulation can start and affect human health. To mitigate these processes the following should be considered:

a) Land release operations do not contribute to an increase of toxic components in soil, watercourses or air;

b) If degradation and corrosion have already taken place, investigate the composition of explosives in order to assess potential adverse impacts on watercourses, soils and vegetation and identify possible mitigation measures to limit such impacts.

## 4. Pollution from Disposal of Mines, ERW and Hazardous Waste

Mines and ERW shall be disposed off in a way that minimizes adverse environmental impacts. If mines or ERW must be destroyed in situ and there is a risk to the environment including noise, ground shock and damage to infrastructure, protective works shall be undertaken in accordance with SNMAS 06.03 EOD Operations and Demolition of Mines and ERW. If there is still a risk of adverse impacts to the environment, the NMAC sub office, local authorities, property owners and communities shall be consulted. As minimum the followings shall be considered by mine action organizations:

a) Conduct mine and ERW demolition at a Central Disposal Site (CDS) with due care and consideration of environmental protection around CDS.

b) Highly consider the possibility of contamination of surrounding areas with toxic and hazardous substances such as spread of white phosphorus and others, and required mitigation measures are planned and applied.

c) Restore EOD task area upon the completion of EOD operations, in accordance with requirements of the local communities. Refurbishment of the EOD task area can include recovering and filling of pits and craters made as a result of demolitions.

d) All parts of heavy metals and explosives should be removed after demolition, so that they will not dissolve and end up in watercourses.

e) Ensure that previously safe areas are not contaminated during transportation of safe to move landmine and ERW.

Toxic waste products of mine action operations shall not be buried at the work site but collected and removed to a government approved disposal area.

## 5. Pollution from 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 minimized. These should include:

a) All materials to be transported in containers that will minimize or prevent spills or leakage;

b) Materials to be securely loaded in the transport;

c) Fire precautions to be taken relevant to the materials being transported;

d) Vehicles carrying hazardous material to be driven in a safe and careful manner; and

## 6. Degradation of Air Quality

Mitigation measures shall be put in place when conducting technical survey and clearance operations that can have an adverse impact on air quality. In this case, mine action organizations should remain aware of the location of communities, the prevailing wind conditions in the area and the ability of prevailing winds to carry smoke, dust and toxic fumes to local communities. Mine action organizations should ensure that the adverse impact on local communities of any degradation of air quality is minimized.

When degradation of air quality is likely to affect local communities, Mine action organizations should liaise with local communities and authorities to explain the scope, scale, duration of any likely air degradation and any evacuation requirements.

When ground shock or noise is likely to affect local communities, measures should be taken to minimize these affects. These measures may include:

a) Sitting disposal areas well away from inhabited areas;

b) Limiting the size of individual disposal serials;

c) Using pits to suppress noise;

d) Using protective works to limit the effects of ground shock and noise; and

e) Restricting the conduct of disposal activities when certain meteorological conditions, for example low cloud, may increase the effects of noise.

## 7. Impact on Wildlife and Vegetation

### 7.1. Wildlife

Wildlife should not, as reasonably practicable, be impacted by mine action operations. Exceptions may be made towards invasive species.

Mine action organizations shall enquire how protected nature may be influenced by the survey and clearance operations and consider:

a) Scare off actions should take place before demolition.

b) Whether demolition pits should be filled in or left open after clearance/destruction, considering their potential value as habitats for some species, as well as any increased erosion risk they may present;

c) Limiting mine action operations to specific hours of the day during breeding/nesting periods in order to not disturb wildlife; and

d) Limiting the timing of detonations to influence wildlife the least.

### 7.2. Vegetation

Removal of vegetation and deforestation may be necessary to allow detectors/locators to get close enough to the soil so that detection and removal of mines and ERW can take place. This process may also be linked to erosion. Clearing of vegetation may have a beneficial impact, since it can remove invasive species and improve the conditions for natural occurring plants and trees. In contrast, it can remove trees, which create shade or act as wind barriers for crops or it can remove slow growing vegetation used by the local population. Mine action organizations should consider the following:

a) Slow growing vegetation used by the local communities should not be removed/cut during clearance, as appropriate and possible;

b) Vegetation that stabilizes the soil and prevents erosion should be left alone especially on steep slopes and along streams and irrigation channels;

c) For the removal of vegetation it should be considered that for what purpose the site will be used, after release (housing, grazing, agriculture or industry);

d) The area may be subdivided into fields, leaving trees on boundaries. This will give shade and lead to decreased wind erosion;

e) Clearing of vegetation may remove invasive species and improve the condition for natural occurring plants;

f) If possible, turn over the wood to communities; and

g) Introducing new crops that would grow better or adapt towards climate change.

### 7.3. Impacts from Burning of Vegetation

Burning of vegetation should generally be avoided. However, the condition of some vegetation is improved when burned. This should be identified before burning. When Mine action organizations and relevant stakeholders agree that vegetation burning is to be carried out, the following procedures and control measures should be applied:

a) Plans for burning vegetation should be discussed with and approved by the landowners/users, local authorities and local communities;

b) Burning of vegetation should take place after wildlife scare off actions and not during breeding periods;

c) Ensure that the landowners/users and local authorities are aware of the type of mines/ERW and their likely hazards including fragments, shocks, toxic and smoke, in the event of burning vegetation;

d) Burning should not to be carried out at night or continue into the night;

e) No burning should be started unless there are sufficient personnel and firefighting equipment on site to control, and if necessary, stop the burning;

f) Wind and moisture conditions should be considered before any burning operations;

g) All personnel involved in the burn should be briefed on the burning plan, including any safety procedures;

h) Consideration of the direction of the prevailing wind should be made when determining the direction of the burn; both as a means of controlling the burn and of minimizing the effect of smoke and ash on local communities;

i) Access areas should be available around the complete perimeter of the burn area for control purposes; and

j) Burning should only be carried out towards natural firebreaks such as roads and tracks etc. However, if this is not possible and the perimeter of an area to be burned is vegetated, the vegetation should be dampened before the burn is started and personnel should be positioned there with firefighting equipment to control the burn.

## 8. Pollution from Waste in Worksite Facilities

Protection of the environment should be considered during site selection and when planning the layout of worksites and temporary accommodation facilities.

The establishment and operation of worksites and temporary accommodation facilities should be carried out in a manner that minimizes any contamination of the land or water systems (including ground water systems) and has minimal effect on flora and the natural habitats of wildlife.

Where applicable, the location of temporary accommodation facilities should be selected in consultation with men and women in the local communities to ensure that the demining teams do not adversely affect local conditions, economic activities or social and cultural values.

Temporary accommodation facilities should comply with all national or local regulations.

### 8.1. Toilets

Human waste should never be discharged into watercourses or onto the soil surface.

Where possible, temporary toilets should be established and used in all mine action worksites and temporary accommodation facilities. Temporary toilets should be equipped with holding tanks that can be pumped to sewage trucks for disposal or connected to septic tanks and safe drainage. Sex-segregated facilities should be made available taking into consideration the needs of both men and women.

Where latrines are used, there should be at least one for every 15 persons. They should be located at least at 30 meters distance from any accommodation or food preparation area and from any watercourses or wells.

### 8.2. Domestic Rubbish

Rubbish removed from the site should be disposed off at approved rubbish dumping sites. Any rubbish spilled during the removal process shall be cleaned up.

Rubbish should only be buried with the approval of the local communities/authorities and in the locations agreed to by them.

Rubbish pits should be located away from watercourses and wells and be located and constructed so as not to contaminate groundwater. Pit bottoms should be at least 2m above the water table. Rubbish pits should be deep enough to allow 1m of earth cover over the rubbish when they are filled in.

Consideration should be given that no hazardous wastes like petroleum products, hazardous metals are buried.

### 8.3. Wastewater

Wastewater from washing, bathing or kitchen areas should be drained into soak pits large enough to take the amount of wastewater generated. Soak-away pits should be at least 75cm x 75cm and 1m deep.

### 8.4. Domestic Water Supply

The supply of domestic water should be carried out in a manner that does not affect the supply of water to the local communities; unless the local communities have been consulted on this matter and have agreed to any arrangements made.

### 8.5. Fuel, Oil and Lubricant (FOL) Areas

The operation, repair, maintenance and servicing of mine action equipment should be carried out in a manner that minimizes the adverse impact on the environment and in accordance with the requirements of the EIA.

Mine action organization should ensure that procedures are in place to contain and quickly clean up any spills of FOL. Contaminated materials containing spilled FOL should be collected and disposed off at controlled landfill. Where it is necessary to establish fuel storage facilities, precautions should be taken to ensure that FOL is stored safely and does not contaminate the soil or groundwater. These precautions should include:

a) No fuel storage facilities are positioned closer than 30m to a watercourse;

b) All storage tanks, containers and fuel dispensing equipment are regularly maintained to ensure that there are no leaks; and

c) Vehicle and equipment fueling are undertaken on a hard surface or over drip pans to ensure that any spilled FOL is contained and disposed off in an environmentally acceptable manner.

### 8.6. Maintenance Areas

When maintenance, repair or washing of vehicles, machines and equipment is required on worksites, specific areas should be designated for this activity. The environmental precautions to be taken include:

a) Wastewater shall not be released so that it will enter watercourses;

b) Drained oil shall be contained using a drip pan or other suitable receptacle and disposed off in an environmentally acceptable manner; and

c) Used parts, by-products of maintenance or other rubbish shall be disposed off as for domestic rubbish.

## 9. Completion of Mine Action Operations

On completion of mine action operations, all buildings, equipment, surplus materials, fencing other than hazardous area marking, and other such items should be removed. The toilets and soak pits and rubbish pits should be filled in, covered with soil and the surface stabilised to prevent erosion and to allow natural regeneration of vegetation.

Site office and clearance areas should be cleaned up including removal of all material and equipment lying at the surface after clearance including the recovering and disposal of all large items of scrap. All disturbed areas should be restored to their original condition.

## 10. Risk to Heritage

When mine action operations take place in locations where there are areas of cultural or historical significance, the organizations should take all practicable steps to prevent damage to these sites.

Such action may dictate that any mines or ERW found at the worksite are removed to another area for destruction. If these items are unsafe to move and in situ demolitions are necessary, protective works should be used.

If any article is located and identified during mine action operations and is deemed to be of cultural or historical significance, work in that area should be ceased and the matter be reported to NMAC sub-office and related government entities.

# Sudan National Mine Action Standards – SNMAS 07.04

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# Environmental Management in Mine Action

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Contents

## 1. Introduction

Mine Action operations and activities involve preparations for searching mine and Explosive Remnants of War (ERW) contaminated areas, which may include removal of bushes, trees and other natural things and objects. In addition, demining involves demolition and destruction of discovered hazardous ordnance that will affect the environment. It is therefore, necessary to understand that mine action especially demining activities have significant potential to adversely impact the environment. In order to reduce the adverse impact, it is crucial to properly manage environmental aspects of mine action operations and activities, which can extensively affect and lead to short and long term adverse impacts on land, water, soil and air. This can also result in direct harm to people, damage to the environment and infrastructure and originate legal action against mine action organisations and substantial claims for compensation. Adverse impacts on the environment can lead to associated negative social, economic and political impacts at local, regional and national levels. Environmental management, therefore, requires comprehensive and inclusive solutions which assess different impacts and an increased awareness towards environmental protection among Sudan Mine Action Programme (SMAP).

Nature as a whole warrants value and respect, the integrity of the earth's ecological systems shall be maintained and restored. All forms of life are unique and shall be safeguarded regardless of their value to humanity. Peace and security, sustainable development, environmental protection and conservation, and respect to human rights including persons with disability, gender and diversity groups are interdependent and mine action can significantly contribute to fulfilling these goals.

Sudan National Mine Action Centre (NMAC) and all Mine Action Organizations working in Sudan have the responsibility to ensure that all mine action activities including mine/ERW survey and clearance (Land Release) and Explosive Ordnance Disposal (EOD) operations, are carried out in accordance with Sudan National Mine Action Standards, safely, effectively and efficiently, with completely considering the ways that minimize adverse impact on people, wildlife, vegetation and other aspects of the environment. The main and essential aim on environmental management in mine action is to leave the environment in a status that is similar to, or where possible better than, before mine action operations commenced, and that permits the intended use of land once mine action operations have been completed.

Managing environmental aspects of mine action should not be considered as an obstacle or a difficult task. There are many similarities between Environmental Management System (EMS) and Quality Management System (QMS) and basic principles of risk management. The QM principles of the customer focus, leadership, engagement of people, process approach, improvement, evidence-based decision making and relationship management are all entirely applicable to environmental management. It is also important to note that one of the main, and most effective, ways of reducing the direct impact of mine action operations and activities on land is through the application of land release (LR) principles *"to minimize the number of square meters that are processed".*

NMAC as the coordination body and national authority for SMAP is responsible to develop the requirements for the implementation of suitable environment management systems for mine action in Sudan and to oversee the application of the environmental requirements by the mine action organizations.

## 2. Scope

This SNMAS covers the minimum requirements for environmental management of all mine action operations and activities in Sudan, which include but not limited to planning, protection and mitigation measures of environmental impact of mine action activities.

## 3. Reference

IMAS 07.13 and ISO 14001:2015.

## 4. Terms and Definitions

For details on mine action related terms and definitions, refer to IMAS 04.10 and SNMAS 07.01. However, environmental management related terms are defined in this standard.

The term 'environment' refers to the "surroundings, in which an organization operates, air, water, land, natural resources, flora, fauna, humans and their interrelationships" (ISO 14001:2015).

The term 'environmental aspect' refers to an "element of an organization's activities or products or services that interacts or can interact with the environment" (ISO 14001:2015).

The term 'environmental impact' refers to "change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects" (ISO 14001:2015).

The term 'environmental impact assessment' (EIA) refers to "the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant environmental impacts of activities prior to and during operations".

The term 'environmental mitigation measures' refers to actions taken before, during and/or after mine action operations to lower adverse environmental impact.

The term 'environmental management system' (EMS) refers to the "part of the management system used to manage environmental aspects, fulfil compliance obligations and address risks and opportunities" (ISO 14001:2015).

## 5. General Requirements of Environmental Management in Mine Action

Mine action operations and activities shall be conducted in a way that minimize the adverse impact on the environment and are safe for mine action staff, and people inhabited in vicinity of the mine action worksites including men, women and children.

Planning for mine action operations shall identify and assess relevant environmental aspects and determine appropriate and effective measures to mitigate adverse environmental impacts. This shall be undertaken through following levels:

a) National level by NMAC and UNMAS, in order to ascertain environmental requirements in national operational plans, and manage inclusion of these requirements in Requests For Proposals (RFP) and Calls For Proposals (CFP).

b) Mine Action Organizations level, in order to incorporate environmental requirements in related documentation including mine action proposals, SOPs, operational plans and QA monitoring and QC plans.

c) Operational and worksite level by mine action organizations, in order to meet the national and site specific environmental protection requirements.

Mine action organizations shall get the agreement of NMAC, landowner and beneficiaries if it goes beyond its capability to change the status of released land similar to or better than before mine action operations commenced.

## 6. Specific Requirements of Environmental Management in Mine Action

### 6.1. Environmental Policy

NMAC with technical support of UNMAS shall ensure that the environmental for the programme is established, and regularly reviewed and maintained. The policy shall be based on below:

a) Appropriate to the mine action programme and its activities;

b) Includes a commitment to protect the environment;

c) Includes a commitment to comply with applicable legal and other obligations;

d) Includes a commitment to the continual improvement of the programme's environmental management;

e) Properly communicated to relevant internal and external stakeholders; and

f) Reviewed and updated, at least annually.

### 6.2. Management Responsibilities

The senior management in SMAP shall ensure that:

1) Adequate resources are allocated to enable effective environmental management in accordance with the environmental policy;

2) Staff members are adequately trained and have a clear understanding of their role in the protection of the environment;

3) Management of environmental aspects is adequately incorporated into SOPs and other relevant documentation;

4) Documentation relating to environmental management is openly and transparently available, including in national languages to aid understanding, and is kept up to date;

5) Environmental management aspects of the mine action organization's activities are monitored, reviewed and improved.

### 6.3. Understanding Environmental Context

NMAC as coordination body for mine action in Sudan shall:

a) Identify and assess environmental obligations relevant to SMAP based on related national legislation;

b) Define and communicate environmental obligations in SNMAS;

c) Identify and liaise with other Government institutions relevant to environmental management;

d) Develop liability policy for environmental protection;

e) Coordinate with mine action stakeholders to support improvement of environmental protection and mitigation measures.

Mine action organizations shall take all reasonable measures to understand the environmental needs and expectations of mine action stakeholders including local communities.

Understanding of the physical environment and the needs and expectations of mine action stakeholders shall inform the planning for, and establishing of environmental protection and mitigation measures.

### 6.4. Identifying and Assessing Environmental Aspects

As a minimum, mine action organizations shall identify, assess and document environmental aspects of mine action activities, inputs to those activities, products and services arising from mine action operations, including:

1) Emissions to air;

2) Releases to water;

3) Releases to land;

4) Use of raw materials and natural resources;

5) Use of energy;

6) Emission of energy; and

7) Generation of waste.

Mine action organizations shall identify those aspects that may give rise to an adverse environmental impact, including, as a minimum, the following potential environmental impacts:

1) Erosion and soil degradation;

2) Desertification;

3) Pollution of air, water and soil;

4) Disruption, disturbance or harm to local communities, beneficiaries, infrastructure, wildlife and vegetation;

5) Litter, debris, residual waste and other degradation of the visible environment; and

6) Damage to heritage sites and historical areas.

When assessing the significance of environmental aspects, mine action organizations should take into account the following criteria:

1) The type of mine action activity;

2) The scope of the mine action operations;

3) The frequency of mine action operations;

4) Relevant legal and or standards requirements;

5) The expectations of environmental stakeholders;

6) The potential for one environmental aspect to lead to more than one adverse environmental impact; and

7) The potential legal liability associated with impacts arising from environmental aspects.

Environmental aspects shall be documented in SOPs and operational plans.

### 6.5. Environmental Protection and Mitigation Measures

Mine action organizations shall determine appropriate and effective mitigation measures in relation to environmental aspects assessed as bringing a significant risk of adverse environmental impact. Mitigation measures shall be documented in task dossier and operational plans.

Environmental protection and mitigation measures shall include emergency response plans for potential critical and major environmental incidents.

### 6.6. Environmental Impact Assessment (EIA)

Environmental Impact Assessment (EIA) is necessary part of mine action environmental management and shall be made whenever:

a) Mine action operations are expected to take place within, or close to, designated protected environmental areas, or other areas known to be environmentally sensitive;

b) There is a legal or contractual obligation to do so;

c) The NMAC determines that an EIA is necessary;

d) Any other occasion when there is uncertainty about the scale or significance of environmental impact; and

e) There may be situation where involvement of other relevant environmental management entities is necessary in EIA process, as determined by NMAC.

Guidelines on the conduct of an EIA are provided in Annex A to this SNMAS.

### 6.7. Planning of Mine Action Operations

When planning mine action operations, mine action organizations shall take into consideration the guidelines in Annex B to this standard. Contracting of mine action operations shall include relevant environmental requirements. Environmental protection and mitigation measures should be part of the proposals, implementation plan, statement of work and other documentation relevant to operational requirements.

### 6.8. Conduct of Mine Action Operations

Mine action organizations shall comply with the requirements of this SNMAS, and refer to it in their SOPs. When conducting mine action especially demining operations, all mine action organizations shall consider the followings:

1) Ensure compliance with environmental requirements through project, contract and operational management processes.

2) Promote knowledge, awareness and competence for protection of the environment through education and training, and ensure training for emergency preparedness and response in case of environmental incidents.

3) Allocate the responsibility of environmental protection to one of their suitably qualified staff member at mine action worksites.

4) Mitigation measures shall be taken to prevent adverse environmental impacts and to prevent pollution and degradation of soil, air and waterways. In addition all reasonable effort shall be taken to prevent the adverse impact on wildlife and vegetation during mine action operations.

5) The destruction of mines and other ERW using open burning and open demolition (OBOD) techniques shall be carried out in accordance with SNMAS 06.03.

6) Human waste shall never be discharged into watercourses or onto the soil surface.

7) Minimize the environmental impact of mine action operations and remove waste from demining worksites on completion of operations, prior to handover of released land.

8) The operation, repair, maintenance and servicing of mine action equipment shall be carried out in a manner that minimizes the adverse impact on the environment and in accordance with the requirements of the EIA.

9) Demining operations may occur in areas of cultural or historical significance where appropriate actions and practical steps are needed to be taken to prevent damages to these sites. NMAC and related government ministries shall be consulted in such cases.

10) All relevant environmental mitigation measures detailed in SOPs, task folders or otherwise documented shall be fully implemented during mine action operations and confirmed to be completed before land is handed over to the beneficiaries.

### 6.9. Monitoring of Environmental Aspects

Mine action organizations shall implement a monitoring system in accordance with SNMAS 07.03 and shall ensure that environmental requirements are included. Environmental nonconformities shall be managed in accordance with SNMAS 07.03, and environmental incidents shall be treated as nonconformities and investigated in accordance with SNMAS 08.04. Post Demining Impact Assessment that are undertaken after release of land should include assessment of environmental aspects including the effectiveness of any agreed environmental remediation measures.

### 6.10. Review and Improvement

As part of continual improvement in mine action sector, all mine action organizations shall conduct management reviews on regular basis by senior manager of mine action organizations to ensure the continued effectiveness, suitability and alignment of environmental management with SMAP environmental policy.

Management reviews should be conducted at least annually and should take into account:

1) The status of actions arising from previous reviews;

2) Changes in the mine action environmental context;

3) The environmental management performance of the mine action organization including:

   a) Satisfaction of customers and stakeholders' environmental needs and expectations;

   b) Compliance with environmental policy;

   c) Environmental nonconformities and corrective actions;

   d) Environmental monitoring, measurement, audit and evaluation results;

   e) Opportunities for improvement of environmental management.

Management reviews shall include decisions and actions related to:

1) Opportunities for improvement of environmental management;

2) Changes to environmental management policy;

3) Identification of actions to be taken, allocation of responsibility, schedule for completing and verification of effective implementation and validation of actions taken.

The results of management reviews should be communicated to the staff, managers and stakeholders.

## 7. Responsibilities and Obligations

### 7.1. Directorate of Mine Action Coordination

On behalf of the National Mine Action Authority in Sudan, the NMAC shall:

1) Document environmental management policy for the programme;

2) Monitor compliance by mine action organizations with documented environmental management policy;

3) Ensure the implementation of EIA as required;

4) Ensure that protection of the environment is taken into account during planning for mine action operations;

5) Maintain records of reported environmental incidents;

6) Conduct investigations into environmental incidents in accordance with SNMAS 08.04;

7) Disseminate information about significant environmental aspects of mine action within the sector;

8) Coordinate environmental protection with mine action stakeholders.

### 7.2. Mine Action Organizations

Mine action organizations shall:

1) Communicate SMAP's environmental policy within their organization;

2) Include environmental management requirements in their SOPs;

3) Consider protection of environment in the planning and conduct of all mine action operations;

4) Maintain records of environmental nonconformities and incidents; and

5) Report any significant environmental incidents to the NMAC and its sub-offices.

### 7.3. Stakeholders' Responsibilities

Mine Action Stakeholders including donors and contractors of mine action projects can also play a crucial role in improvement of environmental protection in mine action sector through the following:

1) Emphasize on the need of protecting the environment;

2) Contribute with resources to improve the awareness, understanding and implementation of environmental protection and mitigation measures;

3) Be aware of the challenges of protecting the environment in mine action operations when developing mine action RFP.

## 8. Specific Requirements

Any item of archaeological, heritage, historical, cultural, or scientific interest identified during demining operations, the operations shall be ceased, and NMAC and appropriate government authorities shall be notified. Operations shall not resume until clarification from the appropriate authorities has been received.

When areas require to be burned to remove vegetation before demining operations, burn plans shall be discussed with and approved by land owners/users and local authorities.

The preservation of trees, shrubs, ground cover, fish, and wildlife shall be considered in site selection and construction of temporary support facilities. Harassment of livestock or wildlife in and adjacent to demining sites is prohibited.

All toxic or hazardous materials, including fuels, shall be transported, stored, and used in a way that minimizes the likelihood of spills or leaks. Toxic or hazardous wastes including used batteries shall not be buried on-site, but collected and removed to an approved disposal area. This shall include any razor wire/barbed wire removed from demining worksites.

Suitable equipment and containers should be used to safely transport petroleum products, toxic and hazardous materials both on and off roads. The necessary precautions shall be taken to prevent the loss of these materials during transport on public highways and roads.

Temporary facilities should be located in such areas to ensure the safe provision of drinking water. Water supplies shall be arranged as to avoid disrupting local supplies to nearby land users/owners and communities. The facilities should also be located in consultation with local communities to ensure that they do not affect local activities and social and cultural values.

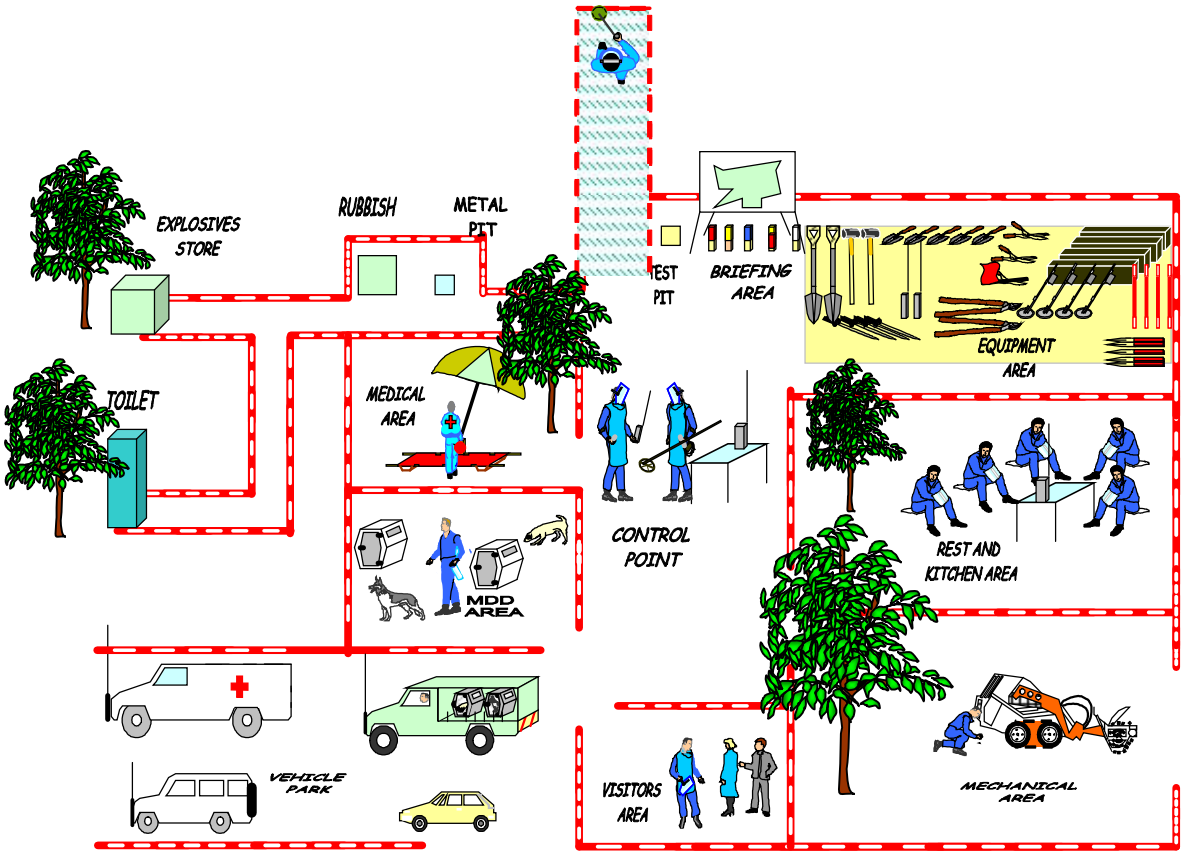
Human waste shall not be discharged into watercourses or onto the soil surface. Excess water from washing, bathing, and kitchen areas shall be drained to soak-away pits. It shall not be permitted to enter watercourses.

Contingency plans for the clean-up of toxic or hazardous spills, including fuels, should be prepared prior to any commencement of mine action activities, together with a list of required spill clean-up supplies necessary.

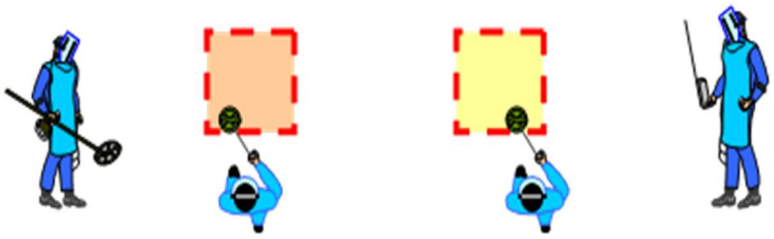
Before demining activities commence in a worksite, mine action organization shall discuss with local communities the issue of noise and dust that may result depending on the type of demining asset used.

**Annex A to SNMAS 08.01 Pictorial Description of Site Setting Up**

**Picture 01 - Control Area:**

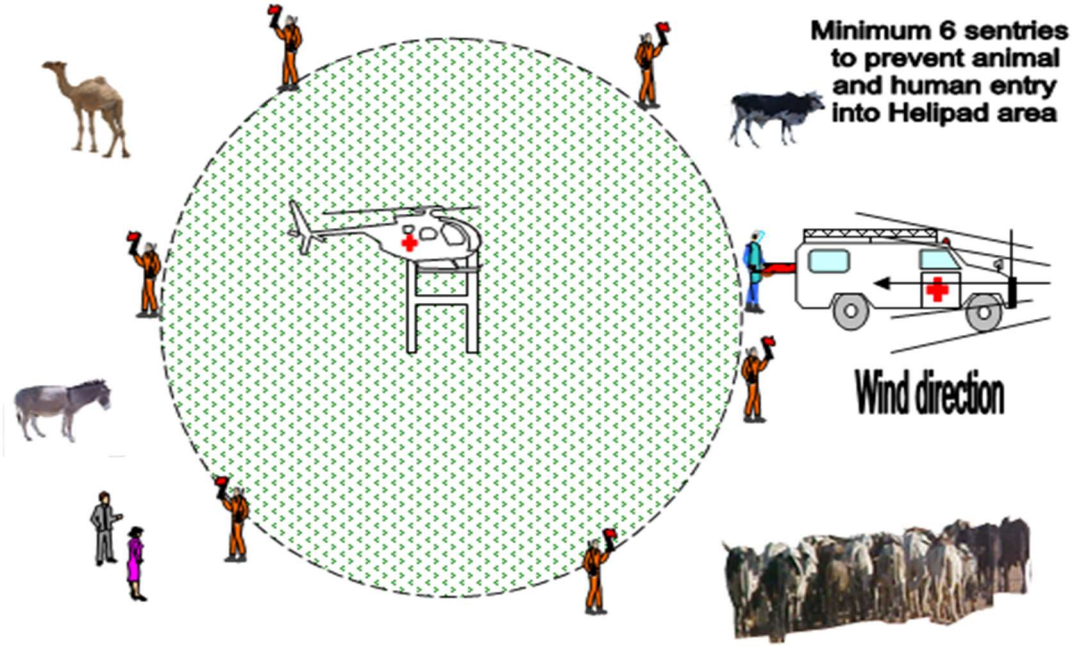



**Picture 02 - Detectors Test and Calibration Area:**



**Annex A to SNMAS 08.01 Pictorial Description of Site Setting Up**

**Picture 03 – Helicopter Landing Site:**



**Annex A to SNMAS 08.03 Medic Training Course Syllabus**

Personnel attending the Field Medic course should have completed at minimum nursing training through a recognized national medical institute and have experience in assessing and treating casualties and patients. Minimum ratio instructor per student should be I instructor for 10 students in classroom and I for 5 in practice. In the practical phase, some of the practice drills should be conducted after the theoretical lecture that applies to this drill. *It should be noted that the focus of medical training should be practical scenario-based training where the medic is called on to treat different pathologies in a calm, systematic, clinical based approach. These scenario-based exercises shall best prepare the medic for provision of advanced life support assistance to a casualty in the pre-hospital setting.*

| Subject | Description | Duration |
|---|---|---|
| Introduction to Humanitarian Demining | Medical support in humanitarian demining operations, IMAS and the NTSG chapter 10, basic outline of structure of national demining programme, Role of NMAC, QA procedures | 60 min |
| Anatomy and Physiology of Systems of the Human Body | Cardiovascular system | 60 min |
| | Musculoskeletal System | 60 min |
| | Respiratory System | 60 min |
| | Nervous System | 60 min |
| | Endocrine System | 60 min |
| | Endocrine System | 60 min |
| | Integumentary System | 60 min |
| | Reproductive System | 60 min |
| Universal Precautions | Barrier Protection. HIV, HBV, HCV transmission and prevention, procedures following possible accidental exposure to these viruses | 60 min |
| Principles of First Aid | What is first aid, what are the responsibilities of the medic, communicating with a casualty and gaining his / her trust, reassurance techniques, calling for help | 60 min |
| DRABC Algorithm – Controlling Life Threats | Danger, Response, Airway, Breathing, Circulation (immediate control of life threats) | 60 min |
| Casualty Assessment and Normal Adult Physiological parameters | Assessment techniques and understanding of normal physiological parameters for pulse, BP, respiration, temperature, skin perfusion, conscious status for an adult. Medics shall be taught to assess skin perfusion, blood pressure, pulse rate, respiratory (rate, rhythm & effort), conscious status (using the AVPU scale or Glasgow Coma Scale) (physiological assessment), Full body examination (anatomical assessment) | 120 min |
| Obtaining an A.M.P.L.E History | Obtaining an adequate history is vital for safe an effective treatment, this history includes: Allergies, Medications, Past Medical History, Last Meal, Event (including assessment of Mechanism of Injury) | 60 min |
| Mechanism of Injury & Kinematics | Assessment and understanding of Kinematics and Mechanism of Injury for blunt and penetrating injury. Quick assessment of an accident scene for clues to establish Mechanism of Injury and suspicion for occult injuries. | 60 min |

**Annex A to SNMAS 08.03 Medic Training Course Syllabus**

| | | |
|---|---|---|
| Basic Airway Maintenance | Introduction of airway equipment and demonstration of basic airway maintenance techniques, Head positioning, suctioning, airway adjuncts, oxygen administration for trauma and medical emergencies | 120 min |
| Management of a Choking Patient | Signs and Symptoms of choking, airway clearance techniques using finger sweeps, back slaps, Heimlich manoeuvres, (laryngoscopy and magil forceps, and crycothyroidotomy (optional – not NTSG requirement)) | 60 min |
| Ventilation Techniques | Ventilation techniques using expired air resuscitation and bag/mask ventilation techniques for intermittent positive pressure ventilation and assisted positive pressure ventilation including frequency of ventilation and tidal volume | 60 min |
| Cardiopulmonary Resuscitation Theory | Techniques for single and two responders for adult CPR as a minimum | 120 min |
| Developing a Systematic Approach for Casualty Management (Drill) | Immediate control of life threats, assessment of perfusion status, respiratory status, conscious status, full body examination, obtain AMPLE history and commence appropriate treatment in a calm efficient and systematic manner – "The Clinical Approach" | 60 min |
| Respiratory pathology | Recognition and treatment of respiratory distress, use of accessory muscles, narcotic analgesia administration as a precaution in respiratory distress, positioning techniques for casualties with respiratory distress, oxygen administration | 180 min |
| Asthma | Signs and Symptoms, pathology, trigger factors and treatment of asthma | 60 min |
| Accidental Narcotic Overdose | Recognition of signs and symptoms of accidental narcotic overdose, treatment using Naloxone Hydrochloride and oxygen therapy (ventilation if necessary) | 60 min |
| CVS Pathology | Heart attack, pathology, risk factors, signs and symptoms, treatment fluid resuscitation | 240 min |
| | Causes of shock, signs and Symptoms of Shock, Compensation and decompensation, treatment of Shock | 120 min |
| Fluid Resuscitation | Fluid resuscitation protocols – I.V fluid suitability for different pathologies, crystalloids and colloids, fluid compartments. | 60 min |
| Wound Management | Mine injury: mechanism of injury, blast mine injury, fragmentation mine injury, cavitation, basic ballistics concepts, compartment syndrome, wound infection, blood vessel damage, limb preservation, management. Amputation, laceration, avulsions, abrasions, penetrating trauma, haematoma etc, facial injury, scalp injury, haematemesis, dislodged teeth, wound debridement | 120 min |
| Head Injury | Head injury: signs & symptoms, management of open and closed head injury, primary and secondary head injury | 120 min |
| Other Causes of Unconsciousness | Overdose / poisoning, metabolic disorders, hypoglycaemia, hyperglycaemia, apoplexia (C.V.A), convulsions, syncope, infection, tumours | 60 min |

| | | |
|---|---|---|
| Spinal Injury | Spinal injury: mechanism of spinal injury, signs and symptoms, spinal immobilization techniques, log roll, application of cervical collar application, use of head block, use of spinal board, transportation of spine injured casualty | 120 min |
| Chest Injury | Chest injury: Signs and Symptoms, Penetrating and Blunt Chest Trauma, Pneumothorax, Hemothorax, Tension Pneumothorax, cardiac tamponade, flail chest. Treatment of Chest Injury, ((chest decompression (optional ATLS skill – not a requirement of NTSG)) | 120 min |
| Abdominal Injury | Abdominal injury: Signs & Symptoms, penetrating and blunt abdominal trauma, evisceration of organs, treatment of abdominal Injury | 60 min |
| Pelvis and Limb Injury | Pelvis and limb injury including traumatic amputation. Signs and Symptoms, vessel damage, Nerve Damage, Compartment Syndrome. Management of Pelvis and Limb Injury, limb assessment | 60 min |
| Embedded Objects | Embedded Objects: Signs and Symptoms. Management of a casualty with an embedded object. | 60 min |
| Soft Tissue Injury | Signs and Symptoms, sprains, strains, (Rest. Ice application. Compression. Elevation) treatment following injury, treatment in the recovery phase. Use of NSAIDS | 60 min |
| Burn Injury | Signs and Symptoms: Thermal burn injury, chemical burn injury, electrical burn injury and white phosphorous burns. Burn Depth assessment and categories of burns, Assessment of Burn Size, critical burns, management of burns, safety when dealing with thermal, chemical, electrical and phosphorous burns. Dangers of smoke / CO inhalation, S&S of CO poisoning, inhalation injury | 120 min |
| Management of Bites and Stings | Outline of types of snakes and scorpions in Sudan, mechanism of venom types, Signs and Symptoms of Snake bite and scorpion sting. Management of snake bite and scorpion sting | 60 min |
| Fractures and Dislocation Theory | Signs and Symptoms of fractures and dislocations, types of fractures, complications of fractures and dislocations, principles of splinting | |
| Allergic Reactions and Anaphylaxis | Basic understanding of allergy, anaphylaxis. Causes of anaphylaxis, signs and symptoms and management | 60 min |
| Eye Injury | Anatomy of the eye, causes of eye injury including penetrating eye injury, chemical burns, and blunt trauma. Prophylactic use of anti-emetic, Considerations for air evacuation, Signs & Symptoms of eye injury and treatment | 60 min |
| Emergency Field Drugs | Medics shall completely understand all emergency drugs they are carrying to ensure safe administration (including presentation, indications, contraindications, side effects, dose, routes of administration, precautions). Pre-administration drug checks and safe drug administration, Correct storage and drug accounting procedures. | 120 min |

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|---|---|---|
| Heat Disorders | Medics shall understand environmental hazards and be able to recognize disorders related to heat and treat hyperthermia (heat exhaustion, heat stroke) and hypothermia | 60 min |
| Endemic diseases | Medics shall have an understanding of the pathology of common endemic diseases, causes, avoidance and treatment | 120 min |
| Emergency (CASEVAC) SOP | Medics shall have a complete understanding of the emergency CASEVAC procedures and understand the roles of all responsible persons following an accident. Students shall understand the NMAC evacuation plan and the role of the AME teams and sector hospitals. | 120 min |
| Triage and Multiple Casualty Incident Management | Medics shall be taught the principles of triage and management of accidents involving multiple casualties, Triage priorities, role of triage officer, role of supervisor, use and completion of casualty triage tags | 60 min |
| Aviation Physiology & Principles of Air Medical Evacuation | Medics shall be taught the basic principles of aviation physiology and the principles of air medical evacuation | 60 min |
| Mine Awareness & Mine Field Marking | Medics shall have a basic mine awareness and shall understand the minefield marking system used by the organization, Indications Of Mine / UXO Presence, Basic Introduction to make up of a Mine, Basic UXO recognition, Minefield Marking System, The Layout of the Minefield, On-Site Requirements, On Site Work Routine, The Concept of Integrated Operations, The Organization of a Demining Team | 60 min |
| Radio Communications | Basic radio communications procedures shall be taught for VHF and HF | 60 min |
| Field Medic Documentation | Medics shall be able to complete a treatment log of a casualty and should record a daily morbidity report and drug register, they shall be trained in the completion of basic field medical documentation. | 60 min |
| Pain Assessment and Management | Assessment of pain using for example mnemonic DOLOR (Description, Onset, Location, Other signs and symptoms, Relief) and severity assessment using a verbal pain scoring system (0 – 10 pain scale or severe – moderate – mild) and pain management through titration of analgesia to reduce pain to comfortable level. Students shall be taught the analgesia administration protocol of the organization for the drug they shall use in the field | 60 min |
| Patient Handover | Medics are taught how to conduct a concise patient handover. Commencing with introductions of medic and casualty to medical officer, AMPLE history, injuries, initial vital signs, casualty status during transport, last vital signs taken prior to handover. Role playing exercises are helpful in this class | 60 min |
| Health and Safety | | |
| Safe Lifting | Prevention of Back injury, Safe Lifting techniques | 60 min |

| | | |
|---|---|---|
| Health and Hygiene | Health and Hygiene Measures, Disease transmission routes, Prevention measures, health and hygiene monitoring | 60 min |
| Oxygen Handling and Storage | Oxygen handling, storage and administration | 60 min |
| Healthy Living | Mental Health, Stress management, Healthy Living | 60 min |
| Helicopter Safety & HLS Requirements | Helicopter safety and HLS requirements | 15 min |
| Practical phase | | |
| Minefield Visit | Where possible following the theory class on minefield marking and MRE, the students should visit a clearance operation to see the operational set up and should receive a site brief from the supervisor and medic/s | 120 min |
| Emergency Medical Equipment | Medics shall be familiar with all emergency medical equipment that they shall use in an emergency, trauma kit layout, ambulance set up, stretcher function. Medics shall be able to disassemble and reassemble Ambubag and suction equipment, connect oxygen equipment and administer oxygen, disassemble and reassemble laryngoscope. | 120 min |
| Airway Management | Placing a casualty in lateral position, jaw thrust, chin lift, insertion of OP & NP airway, airway suctioning, finger sweeps, treating a choking patient. It is the choice of some organizations to teach endotracheal intubation, crycothyroidotomy (these are ATLS skills and not a requirement for NTSG) | 120 min |
| Ventilation Practical | Medics shall be taught bag – mask ventilation (both intermittent positive pressure ventilation and assisted positive pressure ventilation techniques), oxygen administration using a face mask | 120 min |
| Wound Management and Bleeding Control | Use of pressure point, pressure dressings, elevation, management of different types of wound. | 120 min |
| Mine Injury Management | Specific management of blast mine injury and Fragmentation mine injury, assessment for compartment injury, fragmentation wounds, vascular injury, fractures, ballistics, groin injury, blast wave | |
| CPR Practical | Single responder and two – responder CPR techniques | 120 min |
| Assessment Techniques | Physiological (skin, pulse, Blood pressure, respiratory status, conscious status) and anatomical assessment (full body examination / secondary survey) | 120 min |
| Bandaging | Bandaging and slings for injuries to different anatomical regions | 120 min |
| Fracture and Dislocation Management | Management of open and closed fractures using splints and anatomical splinting techniques | 60 min |
| Chest Injury Practical | Management of Open Pneumothorax, Decompression of Tension Pneumothorax, flail chest management | 60 min |

| | | |
|---|---|---|
| Head Injury Management - Practical | Management of open and closed head Injury (Primary and secondary brain injury) | 60 min |
| Spinal Immobilization Techniques | In line spinal immobilization, cervical collar application, log roll, use of spine board, use of head block | 120 min |
| Safe Lifting and Transport Techniques | Fore and aft lift, flat lift, chair lift, blanket lift, spinal board lift, stretcher carry, fireman carry, lift and drag method, safe ambulance and (where appropriate) helicopter approach, loading and transport of a casualty | 60 min |
| Parenteral Administration | Aseptic technique, Universal precautions, parenteral drug preparation, safe sharp handling and disposal, I.M injection, I.V injection, S.C injection, Giving set preparation, securing IV line and changing IV soft pack, IV cannulation should be practiced on I.V arm where possible. Medics should demonstrate IV cannulation of a person as well during the course | 180 min |
| Communications Procedures | Radio communications procedures and handing over a casualty to doctor – practical scenario training | 60 min |
| CASEVAC Scenario Exercises | The majority of practical training should be spent doing scenario-based training combining all of the skills learnt over the course to assess and treat a casualty appropriately. In the scenario-based training a casualty is assigned injuries and a conscious level. The medic shall then be called to control life threats, assess and provide appropriate treatment for the assigned pathology (medical or trauma emergency) | 3000 min |

# Sudan National Mine Action Standards – SNMAS 08.01

Second Edition: December 2018
Version 02

## Demining Worksite Setting Up

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**Contents**

## 1. Introduction

The nature of the ground will determine the layout of any worksite, however a consistent arrangement with correct marking will increase the safety of those involved in land release operations. The standardisation of all demining marking systems is paramount to be considered by all demining teams, enforced by mine action organizations and ensured by NMAC.

## 2. Scope

This SNMAS covers the minimum requirements for demining worksite setting up, preparation and worksite safety.

## 3. Reference

The main reference for this SNMAS is IMAS 10.20.

## 4. Terms and Definitions

A complete glossary of all mine action terms and definitions is given in IMAS 04.10, which should be referred to; this IMAS is inclusive and broader in principle, covering all mine action terms and definition that are used globally including in Sudan. However, the terms related to Worksite Set Up are covered in this SNMAS.

The term 'workplace' refers to 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.

The term 'demining organization' refers to any organization (government, NGO or commercial entity) responsible for implementing demining projects or tasks.

The term ‘demining worksite’ refers to any workplace where **demining** activities are being undertaken. Demining worksites include workplaces where **technical survey**, **clearance** and **EOD** activities are undertaken including centralized disposal sites used for the destruction of mines and ERW, (including unexploded sub-munitions), identified and removed during clearance operations.

## 5. Worksite Setting Up Requirements

The provision of a safe working environment includes the design and layout of a demining worksite by:

1) Fencing and marking of hazardous areas;
2) Controlling the movement of deminers, visitors and the local population;
3) Establishing and enforcing safety distances;
4) Providing effective medical cover and casualty evacuation procedures.

The following features are essential requirements for all mine and Explosive Remnants of War demining worksites:

### 5.1. Control of Entry to Demining Worksites

Demining often proves to be an attractive event for the local population, especially children. Procedures shall be developed for controlling the entry of unauthorized persons into the area.

### 5.2. Control Point

Control Point is a command post from which a team leader or supervisor should control the operation. The control point may also be used as administration and briefing area where visitors arrive. Ideally, it should be on level, well-drained land, have vehicle access and preferably some natural shade. It shall not be closer than 100 metres from the mine/ERW worksite.

### 5.3. Access lanes

All access lanes to the worksite shall be clearly marked as clear of hazards. They should not be less than two metres wide.

### 5.4. Vehicle Parking Areas

This shall be close to the Control Point and large enough to accommodate the team's and visitor's vehicles. It shall be situated a minimum of one hundred metres from the baseline of hazardous area. The distance can be reduced provided that protective barrier exists between the parking area and the hazardous area. All vehicles should be positioned in the park, so they do not have to manoeuvre to depart in the event of an emergency. Separate areas may also be required for loading and unloading of demining machines.

### 5.5. Control Areas

Effective control of the worksite will be achieved by establishing and clearly marking a number of areas for safety and administration that may include the following:

#### 5.5.1 Stores and Equipment Area

This is an area where all equipment can be securely stored while the team is at work and shall be part of the Control Area.

#### 5.5.2 Medical Area

Medical Area is a static medical point, always within the control area. The medical area shall always be occupied during mine/ERW clearance operations by a qualified medic. The area should be flat, dry, and shaded. The area may be combined with the equipment stores area but should be easily accessible from the hazardous area and clearly marked.

#### 5.5.3 Helicopter Landing Site (HLS)

In the event that helicopter evacuation is available; the HLS shall be established prior to demining operations commencing on site, the following applies:

a) The HLS should be located within five minutes vehicle travel time from the worksite and shall not to be within 100m of any hazardous area.

b) The dimensions of the HLS should not to be less than 20m x 20m, with an optimal size of 50m x 30m. Ground slope is not to exceed 6 degrees.

c) Areas of very dusty ground should be avoided.

d) The HLS shall be marked with an easily visible marker, in the shape of an 'H', of a minimum size of 2m x 5m, firmly secured to the ground.

e) The directions of aircraft approach and departure to and from the landing site shall be free from trees and other vertical obstructions.

f) The HLS shall be clear of all vegetation to 0.1m above ground level and all boulders and other loose debris should be removed

Demining organisations establishing HLS should contact the entity providing the air casualty evacuation services; to confirm that the HLS established is suitable for helicopter evacuation. The demining organisation shall also provide NMAC SO and the casualty evacuation organisation with details of the worksite number, HLS coordinates and a brief description of the HLS and marking being used. The HLS shall not to be used as a vehicles parking or administration area

### 5.6. Explosives Area

The explosives shall be stored in a secure and marked explosives storage area a minimum of fifty metres away from all other control areas. The explosive area should be sited between the control area and the hazardous area; for security. Explosives and accessories shall be kept separated in an area that is dry and protected from rain and sun. If located in the same area, then explosives and accessories shall be separated by a sandbagged wall.

### 5.7. Rest Areas

Rest areas should be established and clearly marked for use by deminers during their break time. These areas shall be established a minimum of twenty-five metres from the mine/ERW area, depending upon the types of mines/ERW identified. Sufficient space should be allowed for resting, preparation of equipment, and painting of marking material. The rest area shall be dry and shaded.

### 5.8. Demolition Area

Demolition area is the location cleared for the disposal of mine and ERW with explosive demolition. The demolition area must be at a safe distance from the worksite in order to avoid any fragmentation falling into cleared areas where quality control or sampling is planned.

### 5.9. Sentry Points

If, during the demining operations, control of the entry to hazardous area cannot be maintained through using markings, signs, physical barriers or observation, then sentries shall be used. The sentry points shall be selected, and sentries positioned to cover all possible approaches to stop people from entering the hazardous area or to warn the supervisor if people attempt to approach. Sentry points shall be outside the hazardous area but under a suitable cover. The sentry shall have radio communications with the site supervisor and team command group.

### 5.10. Detectors Test Area

Each demining worksite shall have a testing area in order to ascertain the detectors and locators' serviceability and ability to detect signals to the required clearance depth, prior to the deminers start working with. The testing area shall be made up of two 1m x 1m areas, each measuring x 0.5m deep. The first area shall be totally metal free, whereas the second area shall also be metal free except for the relevant test item (specific site threat), placed at the required clearance depth.

Following the normal setting up and calibration the detectors and locators shall be initially passed over the metal free area where no audible signal should be heard or seen and then over the area with the test item has been buried where an audible or visual signal should be heard or seen.

See Annex A to this SNMAS for pictorial description of site setting out.

**6. Metal Collection Pit**

All metal removed from the worksite shall be placed within the metal collection pit. The pit should be dug approximately one metre square and 50 centimetres deep at a suitable location behind the clearance lane.

**7. Mine/ERW Debris Pit**

All mine/ERW debris removed from the worksite shall be placed within a mine/ERW debris pit. The items remain in the pit until certified as Free from Explosive (FFE) content by qualified EOD personnel. A one-metre square, 50 cm deep pit should be located away from the hazardous area.

All FFE items shall be taken from the site and secured at a central collection point or designated place. EOD level 3 qualified staff shall then certify that the items are FFE. Back-loading instructions will be distributed once sufficient quantities are ready for disposal at an approved landfill site.

**8. Latrine**

A specific area shall be established for a latrine at each clearance site. This is fundamental for hygiene and will also prevent people inadvertently straying into hazardous areas. Latrines should be in the vicinity of the rest area and at least a minimum of 100 metres from the hazardous area. The number of personnel on the site should determine the number of latrines required per site.

**9. Site Reference Points and Control Markers**

a) Reference Point: RP is a permanent fixed feature or building, outside the mine/ERW contaminated area, from which all measurements to the benchmark are made.

b) Benchmark: BM is a clearly identifiable fixed marker on the start line, from which all mine/ERW measurements are taken.

c) Start Point: Start Point is the point where a deminer begins mine/ ERW clearance. The Start Point is the location where each clearance teams starts work in their clearance lane.

d) Baseline: Baseline is a fixed line referred to from the starting point. This line is the dividing line between the mine/ERW area and the safe area. The Baseline shall never move.

e) Start Line: The start line from where mine/ERW clearance begins. As the clearance progresses into the minefield this line may be moved forward into the area which has been cleared of mines.

f) Clearance Lane: Clearance Lane is the lane where a deminer is physically working, also known as the working lane.

g) Cleared Lane: Cleared Lane is a lane that has been cleared of all mines/ ERW and may be normally free of all metal contamination.

h) Intermediate Line: Intermediate line is a line forward of the Start Line where cleared lanes finish and new clearance lanes begins. Intermediate Lines should be numbered successively, progressing forward, away from the Start Line. See Annex A to SNMAS 05.03 for Marking of Hazardous Area.

## 10. Setting Out the Base Line

Where possible existing linear features such as roads paths and cultivated land should be utilised for setting out the base line. However, when a base line is required to be cleared, it shall be on the forward edge of a cleared/safe lane. This base line shall be a minimum of 2 metres wide.

## 11. Found Mine or ERW

When a mine/ERW is located, it shall be marked by placing a mine marker in front of it. If immediate destruction is not possible, the clearance lane shall be closed off and a new lane commenced from the start line. The mine/ERW shall be destroyed at the end of the day.

## 12. Minimum Safety Distances

### 12.1. Working Safety Distance

For assigning safety distance; the Field Risk Assessment (FRA) as per Annex A of SNMAS 05.03 shall be conducted to identify the level of risk. However, the table 1 shows minimum, recommended working distances between demining staff at a worksite.

If any of the following apply the distances shown under the heading increased risk in table 1 shall be applied as a minimum.

a) Hazards in the area are unknown or in unpredictable conditions.

b) There is reason to believe that hazards may be booby trapped or have anti lift devices fitted.

c) The processes in use have not been proven in a similar context.

d) The likelihood of an unintended detonation has been assessed as high.

When the FRA determines that ERW present the greatest hazard, working distances appropriate for the risk of unintended detonation of the ERW should be determined and applied. When there is no reason to believe that the procedures and tools in use could cause an unintended detonation of any hazard present, the working distance for the normal risk associated with the AP blast mine should be adopted. Greater distances should be used when a demining group own risk assessment determines that greater distances are desirable.

| Mine type | Minimum distances between demining personnel (distance in meters) | |
|---|---|---|
| | Normal Risk | Increased Risk |
| AP blast HE up to 200gm | 10 | 15 |
| AP blast HE more than 200gm | 15 | 20 |
| AP fragmentation mines | 20 | 25 |
| AP bounding or directional fragmentation mines | 25 | 30 |
| AT mines | 25 | 50 |

Specific notes to table 1:

1) Recommended minimum distances are for demining staff wearing SNMAS compliant PPE;

2) The FRA used to determine the minimum working distances shall be reviewed if any of the information used in the assessment changes;

3) If devices representing a greater hazard than expected are discovered, the appropriate working distances for the increased risk shall be adopted unless there is no reason to anticipate the presence of more of those devices;

4) These distances should not be applied during demolition or any other procedure during which mines are deliberately detonated, such as mechanical demining;

5) Generally, working distances do not apply to those supervising deminers while they work. It is a safety requirement that supervisors may approach any working deminer as part of their task. Supervisors should not approach closer than three meters while a deminer is working.

### 12.2. Demolition Safety Distance

Table 2 below shows the minimum safety distances for the explosive demolition of mines. Safety distances during explosive demolition are greater than working distances during clearance operations due to a deliberate intent to cause a detonation, and there is need for other demining work to be conducted while the demolition takes place.

| Mine Type (A single mine and minimum demolition charges is presumed) | Minimum Safety Distance (Distance in meters) | |
|---|---|---|
| | Demolition Staff | Other Staff |
| AP blast, all types | 25 | 60 |
| AP fragmentation mines (all types). | 60 | 100 |
| AT mines | 200 | 300 |

Specific notes to table 2:

1) Recommended minimum distances are for demolition staff wearing SNMAS compliant PPE. Other staff not wearing PPE should be out of line of sight from the demolition at the time of detonation.

2) The distances shown in table 2, are between the site of the detonation and the position of staff at the time of demolition.

3) The safety distances may be reduced if there is a safe place with adequate protection available in the area such as a bunker or behind a hillside or other barriers.

4) When using protective works while destroying mines by explosive demolition, the required.

**Annex A to SNMAS 08.03 Medic Training Course Syllabus**

Personnel attending the Field Medic course should have completed at minimum nursing training through a recognized national medical institute and have experience in assessing and treating casualties and patients. Minimum ratio instructor per student should be 1 instructor for 10 students in classroom and 1 for 5 in practice. In the practical phase, some of the practice drills should be conducted after the theoretical lecture that applies to this drill. *It should be noted that the focus of medical training should be practical scenario-based training where the medic is called on to treat different pathologies in a calm, systematic, clinical based approach. These scenario-based exercises shall best prepare the medic for provision of advanced life support assistance to a casualty in the pre-hospital setting.*

| Subject | Description | Duration |
|---|---|---|
| Introduction to Humanitarian Demining | Medical support in humanitarian demining operations, IMAS and the NTSG chapter 10, basic outline of structure of national demining programme, Role of NMAC, QA procedures | 60 min |
| Anatomy and Physiology of Systems of the Human Body | Cardiovascular system | 60 min |
| | Musculoskeletal System | 60 min |
| | Respiratory System | 60 min |
| | Nervous System | 60 min |
| | Endocrine System | 60 min |
| | Endocrine System | 60 min |
| | Integumentary System | 60 min |
| | Reproductive System | 60 min |
| Universal Precautions | Barrier Protection. HIV, HBV, HCV transmission and prevention, procedures following possible accidental exposure to these viruses | 60 min |
| Principles of First Aid | What is first aid, what are the responsibilities of the medic, communicating with a casualty and gaining his / her trust, reassurance techniques, calling for help | 60 min |
| DRABC Algorithm – Controlling Life Threats | Danger, Response, Airway, Breathing, Circulation (immediate control of life threats) | 60 min |
| Casualty Assessment and Normal Adult Physiological parameters | Assessment techniques and understanding of normal physiological parameters for pulse, BP, respiration, temperature, skin perfusion, conscious status for an adult. Medics shall be taught to assess skin perfusion, blood pressure, pulse rate, respiratory (rate, rhythm & effort), conscious status (using the AVPU scale or Glasgow Coma Scale) (physiological assessment), Full body examination (anatomical assessment) | 120 min |
| Obtaining an A.M.P.L.E History | Obtaining an adequate history is vital for safe an effective treatment, this history includes: Allergies, Medications, Past Medical History, Last Meal, Event (including assessment of Mechanism of Injury) | 60 min |
| Mechanism of Injury & Kinematics | Assessment and understanding of Kinematics and Mechanism of Injury for blunt and penetrating injury. Quick assessment of an accident scene for clues to establish Mechanism of Injury and suspicion for occult injuries. | 60 min |

**Annex A to SNMAS 08.03 Medic Training Course Syllabus**

| | | |
|---|---|---|
| Basic Airway Maintenance | Introduction of airway equipment and demonstration of basic airway maintenance techniques, Head positioning, suctioning, airway adjuncts, oxygen administration for trauma and medical emergencies | 120 min |
| Management of a Choking Patient | Signs and Symptoms of choking, airway clearance techniques using finger sweeps, back slaps, Heimlich manoeuvres, (laryngoscopy and magil forceps, and crycothyroidotomy (optional – not NTSG requirement)) | 60 min |
| Ventilation Techniques | Ventilation techniques using expired air resuscitation and bag/mask ventilation techniques for intermittent positive pressure ventilation and assisted positive pressure ventilation including frequency of ventilation and tidal volume | 60 min |
| Cardiopulmonary Resuscitation Theory | Techniques for single and two responders for adult CPR as a minimum | 120 min |
| Developing a Systematic Approach for Casualty Management (Drill) | Immediate control of life threats, assessment of perfusion status, respiratory status, conscious status, full body examination, obtain AMPLE history and commence appropriate treatment in a calm efficient and systematic manner – "The Clinical Approach" | 60 min |
| Respiratory pathology | Recognition and treatment of respiratory distress, use of accessory muscles, narcotic analgesia administration as a precaution in respiratory distress, positioning techniques for casualties with respiratory distress, oxygen administration | 180 min |
| Asthma | Signs and Symptoms, pathology, trigger factors and treatment of asthma | 60 min |
| Accidental Narcotic Overdose | Recognition of signs and symptoms of accidental narcotic overdose, treatment using Naloxone Hydrochloride and oxygen therapy (ventilation if necessary) | 60 min |
| CVS Pathology | Heart attack, pathology, risk factors, signs and symptoms, treatment fluid resuscitation | 240 min |
| | Causes of shock, signs and Symptoms of Shock, Compensation and decompensation, treatment of Shock | 120 min |
| Fluid Resuscitation | Fluid resuscitation protocols – I.V fluid suitability for different pathologies, crystalloids and colloids, fluid compartments. | 60 min |
| Wound Management | Mine injury: mechanism of injury, blast mine injury, fragmentation mine injury, cavitation, basic ballistics concepts, compartment syndrome, wound infection, blood vessel damage, limb preservation, management. Amputation, laceration, avulsions, abrasions, penetrating trauma, haematoma etc, facial injury, scalp injury, haematemesis, dislodged teeth, wound debridement | 120 min |
| Head Injury | Head injury: signs & symptoms, management of open and closed head injury, primary and secondary head injury | 120 min |
| Other Causes of Unconsciousness | Overdose / poisoning, metabolic disorders, hypoglycaemia, hyperglycaemia, apoplexia (C.V.A), convulsions, syncope, infection, tumours | 60 min |

| | | |
|---|---|---|
| Spinal Injury | Spinal injury: mechanism of spinal injury, signs and symptoms, spinal immobilization techniques, log roll, application of cervical collar application, use of head block, use of spinal board, transportation of spine injured casualty | 120 min |
| Chest Injury | Chest injury: Signs and Symptoms, Penetrating and Blunt Chest Trauma, Pneumothorax, Hemothorax, Tension Pneumothorax, cardiac tamponade, flail chest. Treatment of Chest Injury, ((chest decompression (optional ATLS skill – not a requirement of NTSG)) | 120 min |
| Abdominal Injury | Abdominal injury: Signs & Symptoms, penetrating and blunt abdominal trauma, evisceration of organs, treatment of abdominal Injury | 60 min |
| Pelvis and Limb Injury | Pelvis and limb injury including traumatic amputation. Signs and Symptoms, vessel damage, Nerve Damage, Compartment Syndrome. Management of Pelvis and Limb Injury, limb assessment | 60 min |
| Embedded Objects | Embedded Objects: Signs and Symptoms. Management of a casualty with an embedded object. | 60 min |
| Soft Tissue Injury | Signs and Symptoms, sprains, strains, (Rest. Ice application. Compression. Elevation) treatment following injury, treatment in the recovery phase. Use of NSAIDS | 60 min |
| Burn Injury | Signs and Symptoms: Thermal burn injury, chemical burn injury, electrical burn injury and white phosphorous burns. Burn Depth assessment and categories of burns, Assessment of Burn Size, critical burns, management of burns, safety when dealing with thermal, chemical, electrical and phosphorous burns. Dangers of smoke / CO inhalation, S&S of CO poisoning, inhalation injury | 120 min |
| Management of Bites and Stings | Outline of types of snakes and scorpions in Sudan, mechanism of venom types, Signs and Symptoms of Snake bite and scorpion sting. Management of snake bite and scorpion sting | 60 min |
| Fractures and Dislocation Theory | Signs and Symptoms of fractures and dislocations, types of fractures, complications of fractures and dislocations, principles of splinting | |
| Allergic Reactions and Anaphylaxis | Basic understanding of allergy, anaphylaxis. Causes of anaphylaxis, signs and symptoms and management | 60 min |
| Eye Injury | Anatomy of the eye, causes of eye injury including penetrating eye injury, chemical burns, and blunt trauma. Prophylactic use of anti-emetic, Considerations for air evacuation, Signs & Symptoms of eye injury and treatment | 60 min |
| Emergency Field Drugs | Medics shall completely understand all emergency drugs they are carrying to ensure safe administration (including presentation, indications, contraindications, side effects, dose, routes of administration, precautions). Pre-administration drug checks and safe drug administration, Correct storage and drug accounting procedures. | 120 min |

| | | |
|---|---|---|
| Heat Disorders | Medics shall understand environmental hazards and be able to recognize disorders related to heat and treat hyperthermia (heat exhaustion, heat stroke) and hypothermia | 60 min |
| Endemic diseases | Medics shall have an understanding of the pathology of common endemic diseases, causes, avoidance and treatment | 120 min |
| Emergency (CASEVAC) SOP | Medics shall have a complete understanding of the emergency CASEVAC procedures and understand the roles of all responsible persons following an accident. Students shall understand the NMAC evacuation plan and the role of the AME teams and sector hospitals. | 120 min |
| Triage and Multiple Casualty Incident Management | Medics shall be taught the principles of triage and management of accidents involving multiple casualties, Triage priorities, role of triage officer, role of supervisor, use and completion of casualty triage tags | 60 min |
| Aviation Physiology & Principles of Air Medical Evacuation | Medics shall be taught the basic principles of aviation physiology and the principles of air medical evacuation | 60 min |
| Mine Awareness & Mine Field Marking | Medics shall have a basic mine awareness and shall understand the minefield marking system used by the organization, Indications Of Mine / UXO Presence, Basic Introduction to make up of a Mine, Basic UXO recognition, Minefield Marking System, The Layout of the Minefield, On-Site Requirements, On Site Work Routine, The Concept of Integrated Operations, The Organization of a Demining Team | 60 min |
| Radio Communications | Basic radio communications procedures shall be taught for VHF and HF | 60 min |
| Field Medic Documentation | Medics shall be able to complete a treatment log of a casualty and should record a daily morbidity report and drug register, they shall be trained in the completion of basic field medical documentation. | 60 min |
| Pain Assessment and Management | Assessment of pain using for example mnemonic DOLOR (Description, Onset, Location, Other signs and symptoms, Relief) and severity assessment using a verbal pain scoring system (0 – 10 pain scale or severe – moderate – mild) and pain management through titration of analgesia to reduce pain to comfortable level. Students shall be taught the analgesia administration protocol of the organization for the drug they shall use in the field | 60 min |
| Patient Handover | Medics are taught how to conduct a concise patient handover. Commencing with introductions of medic and casualty to medical officer, AMPLE history, injuries, initial vital signs, casualty status during transport, last vital signs taken prior to handover. Role playing exercises are helpful in this class | 60 min |
| Health and Safety | | |
| Safe Lifting | Prevention of Back injury, Safe Lifting techniques | 60 min |

| | | |
|---|---|---|
| Health and Hygiene | Health and Hygiene Measures, Disease transmission routes, Prevention measures, health and hygiene monitoring | 60 min |
| Oxygen Handling and Storage | Oxygen handling, storage and administration | 60 min |
| Healthy Living | Mental Health, Stress management, Healthy Living | 60 min |
| Helicopter Safety & HLS Requirements | Helicopter safety and HLS requirements | 15 min |
| Practical phase | | |
| Minefield Visit | Where possible following the theory class on minefield marking and MRE, the students should visit a clearance operation to see the operational set up and should receive a site brief from the supervisor and medic/s | 120 min |
| Emergency Medical Equipment | Medics shall be familiar with all emergency medical equipment that they shall use in an emergency, trauma kit layout, ambulance set up, stretcher function. Medics shall be able to disassemble and reassemble Ambubag and suction equipment, connect oxygen equipment and administer oxygen, disassemble and reassemble laryngoscope. | 120 min |
| Airway Management | Placing a casualty in lateral position, jaw thrust, chin lift, insertion of OP & NP airway, airway suctioning, finger sweeps, treating a choking patient. It is the choice of some organizations to teach endotracheal intubation, crycothyroidotomy (these are ATLS skills and not a requirement for NTSG) | 120 min |
| Ventilation Practical | Medics shall be taught bag – mask ventilation (both intermittent positive pressure ventilation and assisted positive pressure ventilation techniques), oxygen administration using a face mask | 120 min |
| Wound Management and Bleeding Control | Use of pressure point, pressure dressings, elevation, management of different types of wound. | 120 min |
| Mine Injury Management | Specific management of blast mine injury and Fragmentation mine injury, assessment for compartment injury, fragmentation wounds, vascular injury, fractures, ballistics, groin injury, blast wave | |
| CPR Practical | Single responder and two – responder CPR techniques | 120 min |
| Assessment Techniques | Physiological (skin, pulse, Blood pressure, respiratory status, conscious status) and anatomical assessment (full body examination / secondary survey) | 120 min |
| Bandaging | Bandaging and slings for injuries to different anatomical regions | 120 min |
| Fracture and Dislocation Management | Management of open and closed fractures using splints and anatomical splinting techniques | 60 min |
| Chest Injury Practical | Management of Open Pneumothorax, Decompression of Tension Pneumothorax, flail chest management | 60 min |

| | | |
|---|---|---|
| Head Injury Management - Practical | Management of open and closed head Injury (Primary and secondary brain injury) | 60 min |
| Spinal Immobilization Techniques | In line spinal immobilization, cervical collar application, log roll, use of spine board, use of head block | 120 min |
| Safe Lifting and Transport Techniques | Fore and aft lift, flat lift, chair lift, blanket lift, spinal board lift, stretcher carry, fireman carry, lift and drag method, safe ambulance and (where appropriate) helicopter approach, loading and transport of a casualty | 60 min |
| Parenteral Administration | Aseptic technique, Universal precautions, parenteral drug preparation, safe sharp handling and disposal, I.M injection, I.V injection, S.C injection, Giving set preparation, securing IV line and changing IV soft pack, IV cannulation should be practiced on I.V arm where possible. Medics should demonstrate IV cannulation of a person as well during the course | 180 min |
| Communications Procedures | Radio communications procedures and handing over a casualty to doctor – practical scenario training | 60 min |
| CASEVAC Scenario Exercises | The majority of practical training should be spent doing scenario-based training combining all of the skills learnt over the course to assess and treat a casualty appropriately. In the scenario-based training a casualty is assigned injuries and a conscious level. The medic shall then be called to control life threats, assess and provide appropriate treatment for the assigned pathology (medical or trauma emergency) | 3000 min |

**Annex B to SNMAS 08.03 Duty Fitness Medical Examination**

Duty Fitness Medical Examination Record (Date: / /20--)

| Dates Revised: |
|---|

*All questions contained in this questionnaire are strictly confidential and will become part of your medical record*.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Name:** | | | | **F/Name**: | | | |
| **Age:** | | Sex: | F ☒ M ☒ | Date of last physical exam: | | | |
| **Marital status:** | ☐ Single | ☐ Partnered | ☒ Married | ☐ Separated | ☐ Divorced | ☐ Widowed | |

PERSONAL HEALTH HISTORY

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Childhood illness: | ☐ Measles | ☐ Mumps | ☐ Rubella | ☐ Chickenpox | ☐ Rheumatic Fever | ☐ Polio | ☐ Others Specify |

| | | |
|---|---|---|
| *Immunizations and dates:* | ☒ **Tetanus** | ☒ **Pneumonia** |
| | ☒ **Hepatitis** | ☒ **Chickenpox** |
| | ☒ **Influenza** | ☐ **MMR** |

List any medical problems that other doctors have diagnosed

| |
|---|
| |

Surgeries:

| **Year:** | **Reason:** | **Hospital** |
|---|---|---|
| | | |
| | | |

**Other hospitalizations**

| **Year:** | **Reason:** | **Hospital:** |
|---|---|---|
| | | |
| | | |

| | | |
|---|---|---|
| Have you ever had a blood transfusion? | ☐ **Yes** | ☒ **No** |

**Annex B to SNMAS 08.03 Duty Fitness Medical Examination**

| Do you have any allergies to medications? | |
|---|---|
| **Name of the Drug?** | **Reaction You Had?** |
| | |
| | |
| | |
| | |

REVIEW OF SYSTEMS:

**ALL QUESTIONS CONTAINED IN THIS QUESTIONNAIRE ARE OPTIONAL AND WILL BE KEPT STRICTLY CONFIDENTIAL.**

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *General Appearance* | Weight Loss | ☒ | Yes | ☐ | No | Weight Gain | ☒ | Yes | ☐ | No | Fatigue | ☒ | Yes | ☐ | No |
| | Fever | ☒ | Yes | ☐ | No | Night Sweet | ☐ | Yes | ☒ | No | | | | | |
| *Skin* | Rashes | ☒ | Yes | ☐ | No | Pruritus | ☒ | Yes | ☒ | No | Impetigo | ☐ | Yes | ☐ | No |
| **Head** | Trauma | ☒ | Yes | ☐ | No | Dizziness | ☒ | Yes | ☒ | No | Syncope | ☒ | Yes | ☐ | No |
| **Eye** | Vision | ☒ | Yes | ☐ | No | Excessive Tearing | ☒ | Yes | ☐ | No | Cataract | ☒ | Yes | ☒ | No |
| **Ear** | Hearing Changes | ☐ | Yes | ☒ | No | Tinnitus | ☒ | Yes | ☒ | No | Pain(h) | ☒ | Yes | ☒ | No |
| | Discharge | ☒ | Yes | ☒ | No | Vertigo | ☒ | Yes | ☐ | No | | | | | |
| **Nose** | Sinus Problem | ☐ | Yes | ☒ | No | Epistaxis | ☒ | Yes | ☐ | No | Polyps | ☒ | Yes | ☒ | No |
| | Sense of Smell | ☒ | Yes | ☒ | No | | | | | | | | | | |
| **Throat** | Bleeding Gum | ☒ | Yes | ☐ | No | Lesion On Tonsils | ☒ | Yes | ☐ | No | Mucosa Lesion | ☒ | Yes | ☐ | No |
| **Respiratory System** | Chest Pain ® | ☒ | Yes | ☒ | No | Dyspnoea | ☒ | Yes | ☒ | No | Dry Cough | ☐ | Yes | ☒ | No |
| | Hemoptysis | ☒ | Yes | ☒ | No | Sneezing | ☒ | Yes | ☐ | No | Productive cough | ☐ | Yes | ☐ | No |
| **CVS** | Chest Pain | ☒ | Yes | ☒ | No | Orthopnea | ☒ | Yes | ☐ | No | Exertional Dyspnoea | ☒ | Yes | ☐ | No |
| | PND | ☐ | Yes | ☐ | No | Claudication | ☒ | Yes | ☐ | No | Peripheral Oedema | ☒ | Yes | ☒ | No |
| **GIS** | Dysphagia | ☒ | Yes | ☒ | No | Nausea | ☒ | Yes | ☒ | No | Vomiting | ☒ | Yes | ☒ | No |
| | Diarrhoea | ☐ | Yes | ☐ | No | Constipation | ☒ | Yes | ☐ | No | Melina | ☒ | Yes | ☐ | No |
| | Jaundice | ☐ | Yes | ☒ | No | Food | ☒ | Yes | ☒ | No | Hematemises | ☐ | Yes | ☒ | No |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Intolerance | | | | | | | | | |
| **Genitourinary System** | Frequency | ☒ | Yes | ☐ | No | Urgency | ☒ | Yes | ☒ | No | Dysuria | ☒ | Yes | ☒ | No |
| | Heamaturea | ☒ | Yes | ☐ | No | Poly urea | ☒ | Yes | ☒ | No | Discharge | ☒ | Yes | ☒ | No |
| | Impotence | ☒ | Yes | ☒ | No | | | | | | | | | | |
| **Endocrine System** | Poly depsia | ☒ | Yes | ☐ | No | Polyphagia | ☒ | Yes | ☐ | No | Temperature Intolerance | ☒ | Yes | ☒ | No |
| | Changes In Hair Or Skin Texture | ☒ | Yes | ☒ | No | | | | | | | | | | |
| **Musculoskeletal** | Arthralgia | ☒ | Yes | ☐ | No | Trauma | ☒ | Yes | ☐ | No | Joint Swelling | ☐ | Yes | ☐ | No |
| | Limitation In Range or Motion | ☒ | Yes | ☐ | No | Back pain | ☐ | Yes | ☒ | No | | | | | |
| **Peripheral Vascular** | Varicose Veins | ☒ | Yes | ☐ | No | Intermittent Claudication | ☒ | Yes | ☒ | No | Thrombophlebitis History | ☒ | Yes | ☒ | No |
| **Hematology** | Anemia | ☐ | Yes | ☐ | No | Bleeding Tendency | ☒ | Yes | ☐ | No | Easy Bruising | ☒ | Yes | ☐ | No |
| **Nervous** | Syncope | ☒ | Yes | ☐ | No | Seizures | ☒ | Yes | ☐ | No | M Weakness | ☒ | Yes | ☒ | No |
| | M coordination | ☒ | Yes | ☒ | No | Memory | ☒ | Yes | ☐ | No | Sleep Pattern | ☒ | Yes | ☐ | No |
| | Emotional Disturbances | ☐ | Yes | ☐ | No | | | | | | | | | | |
| **Psychiatric** | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

| **PHYSICAL EXAMINATIONS** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| All questions contained in this questionnaire are optional and will be kept strictly confidential. | | | | | | | | | |
| **General Appearance** | Mood | | Unusual Position | | | | | | |
| **Vital Signs** | Bp | | PR | | T | | | | |
| **Skin** | | | | | | | | | |

**Annex B to SNMAS 08.03 Duty Fitness Medical Examination**

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Node** | Location | | | | | Size | | | | | | Tenderness | | | | |
| | Motility | | | | | | | | | | | | | | | |
| **Head** | | | | | | | | | | | | | | | | |
| **Eyes** | Conjunctiva | | | | | Enophthalmos | | | | | | Pupil Size | | | | |
| | Reactivity | | | | | Visual Activity | R E | | | | | LE | | | | |
| **Ears** | Test Hearing | | | | | Discharge(E) | ☐ | Yes | ☒ | No | | Tympani Membrane | | | | |
| **Neck** | Nodes | ☒ | Yes | ☐ | No | Masses | ☒ | Yes | ☒ | No | | Thyroid | | | | |
| | Bruit | ☒ | Yes | ☐ | No | | | | | | | | | | | |
| **R S** | Inspection | | | | | Palpation | | | | | | Precaution | | | | |
| **C V S** | Inspection© | | | | | Palpation | | | | | | Auscultation© | | | | |
| **G I S** | Inspection | | | | | Palpation | | | | | | precaution | | | | |
| | Auscultation | | | | | | | | | | | | | | | |
| **U G S** | Inspection | | | | | Palpation | | | | | | Precaution | | | | |

**Medical Examiner:**
**Date of Examination:**
**Address:**
**Signature:**

**Senior Medical Officers Comments:**

Signature: _____ Date: _____

**Annex C to SNMAS 08.03 List of Medical Supplies**

| Compulsory Minimum Medical Equipment for Trauma Care Pack | QUANTITY |
|---|---|
| **AIRWAY EQUIPMENT** | |
| Manual ventilation bag with mask | 1 |
| Oral airway disposable various sizes 2,3,4 | 1 each |
| **IV FLUID, CANNULATION AND INJECTION EQUIPMENT** | |
| Protective eyewear | 2 |
| Sharps disposal container | 2 |
| Intravenous Cannula size 14G, 16G, 18G, 20G | 2 each |
| I.V administration set | 4 |
| Medical adhesive tape 2.5 cm | 1 |
| Venous tourniquet | 2 |
| Alcohol swabs | 25 |
| Syringe 5ml | 20 |
| Syringe 10ml | 20 |
| Needle 21G | 10 |
| Water for injection or NaCl 0.9% 10ml | 10 |
| Ringer Lactate 1000ml | 2 |
| Normal Saline 1000ml | 2 |
| Medical gloves | 10 pair |
| **TRAUMA SUPPLIES** | |
| Triangular bandages | 10 |
| Sterile dressings (10cmx10cm or 10cmx20cm) | 10 |
| Bandage 10cm | 10 |
| Bandage 15cm | 10 |
| Large multi-trauma abdomen/chest dressing | 5 |
| Burn dressings | 5 |
| Eye pads | 8 |
| Pressure dressing / field dressing | 5 |
| Antiseptic solution | 1000 ml |
| **SPLINTS** | |
| Upper limb splint (e.g., Sam, Kramer, cardboard) | 2 |
| Lower Limb Splint (e.g., wooden, cardboard) | 2 |
| Cervical stiff neck collar set or adjustable stiff neck collar | 2 |
| **OTHER ITEMS** | |
| Universal scissors (paramedic shears) | 2 |
| Dressing scissors | 2 |
| Kelly forceps | 2 |
| Dressing Forceps | 2 |
| Magyl Forceps | 2 |
| Stethoscope | 1 |
| Blood pressure manometer. | 1 |
| Casualty triage tags (set 5) | 2 |
| Gauze Pads, medium | 25 |
| Torch (preferably penlight) | 2 |
| Adhesive medical tape | 2 roll |
| Sterile scalpel | 2 |

**Annex C to SNMAS 08.03 List of Medical Supplies**

| MEDICINES | |
|---|---|
| Inj. Morphine 10 mg/ml (or similar drug) | 4x 1 ml. |
| Inj. Naloxone 0.4 mg/ml (if using opoid) | 2 x 1 ml. |
| Inj. Dexamethasone 1ml | 5 |
| Inj. Diclofenac | 5 |
| Inj. Hydrocortisone 100mg | 5 |
| Via. Xylocain | 1 |
| Inj. Avil | 5 |
| Tab. Paracetamol 500g | 5 x 10 |
| Tab. Diclofenac 50mg | 2 x 10 |
| Tab. Amoxycillin 500mg | 4 x 10 |
| Tab. Metronidazole 400mg | 4 x 10 |
| Tab. Avil 25mg | 2 x 10 |
| **ANTI-SEPTICS** | |
| Pyodine 450ml | 1 |
| Dettol soap | 6 cake |
| Polyfax skin Ointment 20gm | 2 tubes |
| Genticyn Eye/Ear drop | 2 |
| Hydrogen Peroxide 450ml | 1 |
| Polyfax Eye Ointment | 2 tubes |

**Minimum Medical Equipment for the Evacuation Vehicle**

| ITEM | QUANTITY |
|---|---|
| Stretcher with straps and means of securing the stretcher to the vehicle | 1 |
| Spinal Board and Head Block set (or similar device) | 1 |
| Blanket | 2 |
| Water container | 10 liters |
| Proven radio communications (on the UNMIS/NMAO communication net) | 1 |
| Signal smokes (if possible) | 1 |
| Flashlight | 2 |
| Oxygen supply for 120 mins at 8 litre/min (10 litres 200 Bar) | 1 |
| $O_2$ manometer and regulator with minimum flow of 8 litres/minute | |
| Manual ventilation bag with oxygen reservoir + mask | 1 |
| Handheld suction unit with oral catheter | 1 |
| Non-rebreathing oxygen mask with reservoir bag | 2 |

**Recommended Additional Medical Equipment**

| ITEM | QUANTITY |
|---|---|
| Laryngoscope (with blades and batteries) | 1 |
| Nasopharyngeal airways various sizes | 1 |
| Endotracheal tubes sizes 7,8 (cuffed) and Tube check | 1 each |
| ETT Guide stylets | 1 |
| Magill forceps size 8 | 1 |
| Magill forceps size 9 | 1 |
| KY Gel tube | 1 |

**Annex C to SNMAS 08.03 List of Medical Supplies**

| | |
|---|---|
| Normal saline 1000ml | 4 |
| Chest decompression set | 1 |
| Convenience bag | 1 |
| Emergency blanket | 2 |
| Asherman chest dressing | 1 |
| I.V dressing | 10 |

# Sudan National Mine Action Standards – SNMAS 08.03

Second Edition: December 2018
Version 02

# Medical Support to Demining Operations

Sudan National Mine Action Centre (NMAC)

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Website: www.su-mac.org

**Contents**

## 1. Introduction

Demining operations on explosive hazards have inherent risks that shall be mitigated in order to ensure the safety of demining workers. By ensuring that the demining workers are adequately prepared, effectively trained, provided with personnel protective equipment, supported by adequate medical response capacity and that the safe work practices are applied; the level of risk of demining accidents can be minimised.

In addition to supporting demining tasks, medical support also includes all the preparatory and preliminary requirements to ensure that demining staff are fit to work and have confidence in their organizations to look after them in an emergency.

Safety and Occupational Health (S&OH) are achieved through the development of safe work practices and operating procedures, effective supervision, and control, appropriate education and training, equipment of inherently safe design, the provision of effective and suitable Personal Protective Equipment (PPE) and clothing and correct prophylactics against disease.

Appropriate management and supervision in demining operations reduce the likelihood of accidents and harm to demining workers, but there will always be the potential for demining accidents to occur. Demining organizations and employees must therefore be properly trained and equipped to respond to demining accidents. Demining is often conducted in an environment degraded by conflict and other humanitarian challenges, perhaps made worse through natural disasters. Under these circumstances' diseases such as malaria, tuberculosis, hepatitis 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 effective planning, well trained staff and the availability of medical services able to provide effective emergency treatment. Nevertheless, the legal and moral obligations placed on managers to provide the best medical support possible, in particular at the demining worksite, planning shall acknowledge the reality of field operations. Medical facilities in state level in Sudan can be limited and evacuating casualties to the specialized hospitals in Khartoum will be needed.

## 2. Scope

This SNMAS cover the specifications, guidance and requirements for the provision of appropriate medical support to demining operations in the field. The national mine action standard includes terms and definitions, requirements, specifications and responsibilities. In addition, the annexes provide additional detailed information and guidance on how to apply the standard.

## 3. References

IMAS 10.40 Medical Support to Demining Operations

## 4. Terms and Definitions

A complete glossary of all mine action terms and definitions is given in IMAS 04.10, which should be referred to, IMAS 04.10 is inclusive and broader in principle, covering all mine action terms and definition that are used globally including Sudan. However, the terms related to medical support for demining operations are covered in this SNMAS.

The term 'demining accident' refers to an accident at a demining workplace involving a mine or Explosive Remnant of War (ERW), including unexploded sub-munitions hazard. A demining

workplace is any workplace where demining activities are being undertaken. Demining worksites include workplaces where survey, clearance and EOD activities are undertaken including centralized disposal sites used for the destruction of mines, and or ERW identified and removed during clearance operations.

The term “mine accident” refers to an accident away from the demining workplace involving a mine or ERW hazard.

The term 'demining accident response plan' refers to 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.

The term “Medical Support Staff” refers to men and women employees of demining organizations designated, trained and equipped to provide first aid and further medical treatment of demining employees injured as a result of an accident.

The term “demining workers” include all employees, male and female, who work at a demining worksite.

The term “CASEVAC Destination” refers to a medical facility with the capacity to appropriately stabilize the casualty’s condition. Trauma casualties will often require transport to a facility capable of relevant emergency surgical interventions, whereas a local clinic may suffice for casualties with more minor injuries. The chosen evacuation destination should be appropriately matched to the casualty’s injuries and condition to meet the definition of an appropriate ‘CASEVAC Destination.’

The term “Clinical Competency” refers to a medic’s ability to perform a given medical intervention safely and effectively. Emphasis is placed on practical performance; therefore, demonstrable competency shall be proven irrespective of prior existing certification.

The term ‘Medical Professional’ refers to personnel that have undergone formal medical training that is endorsed by the government of Sudan recognized medical authority. Only medical professionals are appropriately knowledgeable or experienced to fulfil the role of casualty care providers which include paramedics, nurses and doctors.

The term “Casualty Evacuation or CASEVAC” refers to all actions taken to move and treat the injured person from the point of injury until handover to CASEVAC destination.

The term “Medical Treatment Area” refers to a designated safe/cleared location, within or in close proximity to a clearance task that has clear and safe access and is sufficiently spacious to facilitate the safe and unhindered provision of emergency medical care. The Medical Treatment Area may be referred to by different terms in organizational SOPs, however the sentiment, whether called a ‘Medical Treatment Area or Medic Point.

## 5. General Requirements

### 5.1 Planning and Preparation

Planning and preparation include all enabling activities taken by mine action organizations in close coordination with Sudan National Mine Action Centre (NMAC) to establish and maintain appropriate medical cover at the demining workplace, and to make appropriate arrangements with local and

national specialized medical and surgical treatment facilities. There may be a need for further specialized and out of country medical and surgical treatment which should be considered.

### 5.1.1 Accident Response Planning

A demining accident response plan shall be developed and maintained by the demining organization for each demining workplace. The plan shall identify:

1) The training and qualification need of all employees at the demining workplace, in particular demining workers and medical support staff with responsibilities for casualty evacuation, casualty stabilization and initial treatment;

2) The equipment and materials required to implement the demining accident response plan, including:

    a) First aid kid and medical equipment;
    b) Suitable stretcher for carrying casualty;
    c) Trauma kit, supplies and medicines;
    d) Suitable, four-wheel drive casualty evacuation vehicle or ambulance;
    e) Communications to call forward assistance and/or to provide details of the nature and extent of injuries.

3) The location of a suitably equipped and staffed hospital in the state and country level. Explosive hazard accident injuries can be severe and require specialist surgery.

Preparation for a demining accident shall include:

1) The development and maintenance of work practices designed to reduce both the risk of demining accidents and the risk of its severe consequences and multiple victims;

2) Positioning of medic in a suitable safe area close to the demining worksite with required medical kit to be able to provide adequate, appropriate and immediate respond to a demining accident;

3) The development, management and maintenance of:

    a) Demining worksite documentation that includes details of the blood group, infections background and known allergies for each demining worker;

    b) A capacity to transport victims, either male or female, to an appropriate treatment facility or surgical hospital;

    c) Insurance to cover the cost of transportation and specialized treatment including prosthetics, if required to be provided out of country;

    d) Insurance to provide an appropriate disability pension to demining workers who become victims of demining accidents, in accordance with applicable national legislation in Sudan.

4) The periodic testing of emergency and evacuation procedures from the time of the accident through to the delivery of victim to an appropriate treatment facility.

The demining accident response plan shall include responsibilities for:

1) The management of the on-site emergency response procedures, which include procedures to evacuate victims from the hazardous areas and to extract victims from mechanical demining equipment;

2) Regular CASEVAC drills;

3) The on-site first aid and medical care of victims;

4) Evacuation of victims to a CASEVAC destination or suitable hospital for treatment, including:

   a) Details of planned routes and means of transportation;

   b) Details of security requirements, if required;

   c) Logistics and other facilities on evacuation route.

5) The medical care of the victim during evacuation and transportation;

#### 5.1.2 Occupational Health Planning

The occupational health planning shall include:

1) Appropriate briefing of demining workers and all staff on the health hazards including water and victor-borne diseases, poisonous animals or insects native to the demining area. Such information can be obtained from the state ministry of health;

2) The provision, where appropriate, of prophylactics against disease;

3) Arrangements for periodic heath checks; and

4) The provision of up to date vaccination against diseases such as tetanus, yellow fever and hepatitis, as advised by state or World Health Organization.

### 5.2 Demining Accident Response Capability

#### 5.2.1 General

Each demining workplace with a demining team shall include at minimum one suitably qualified medic graduated from a government of Sudan recognized medical institution, with required skills and first aid and trauma kit to:

1) Provide immediate first aid to a victim of a demining accident;

2) Reach to victim immediately after evacuated from the hazardous area;

3) Support victim evacuation to an appropriate hospital for required and specialized treatment;

4) Provide medical care for the victim throughout the evacuation route;

5) Communicate with the medical facilities, other emergency services or other coordinating organizations responsible for assisting the demining organization in providing an appropriate response to a demining accident;

6) The medic shall be suitably qualified and skilled to:

   a) Clean and dress wounds correctly;

   b) Insert cannula and open the vein of victim for fluid replacement;

   c) Stabilize fractures;

   d) Give required analgesic to prevent further complications;

   e) Give required antibiotics and anti-tetanus prophylaxis if the victim is not otherwise likely to receive them within six hours of the demining accident;

   f) Properly cover the victim to prevent possible hypothermic shock.

Refer to Annex B and C for the list of medical supplies that shall be available at each demining worksite.

#### 5.2.2 Medical Support to Non-Technical Survey (NTS) Teams

It may not be practical to provide dedicated medical staff to non-technical survey teams which may be required to operate independently and in remote locations over extended periods. In such cases, mine action organizations shall ensure that each NTS team has:

1) Employees, Male and or female as appropriate, with first aid training and resources including communications, required to respond to an accident, move victims to an intermediate medical treatment facility or directly to a hospital; and

2) A proper CASEVAC plan that is communicated to NMAC sub office and organization's operations department and approved;

3) Appropriate emergency response procedure that is well understood and available with the team, documented.

In exceptional situation, when a team has only two surveyors, both should be first aid trained and capable of carrying out appropriate emergency response procedures.

### 5.3 Training and Qualification

#### 5.3.1 General

All men and women working at or visiting demining workplaces shall receive appropriate training on the precautions to reduce the risk of a demining accident, and the action to be taken in the event of a demining accident, this shall be included in organizations medical SOPs.

### 5.3.2 First Aid Training

First Aid training shall be provided to all field personnel, including deminers, surveyors, team command group, drivers and any management staff involved in land release and clearance operations. First aid training shall be provided by the mine action organisation on regular basis including refresher training at minimum once a year and shall be part of organizations medical SOPs. A first aid course consists of at least 20 hours of training. The syllabus is to be included in the organisations SOP, approved by NMAC.

### 5.3.3 Paramedic or Medic Training

All medics or paramedics employed to the demining teams, shall at minimum have been graduated from a national or international nursing institution that is recognized by the Government of Sudan's national medical and health authority. In addition to formal certification, the medics and paramedics shall demonstrate their knowledge and skills in casualty stabilization and advanced live support. For details about medic's skill and practical capability, refer to Annex A of this standard.

## 6. CASEVAC and Sequencing of Care

The CASEVAC process is intended to maximize casualty survivability by ensuring effective and timely casualty extraction, treatment, and evacuation whilst managing associated contextual risks.

Due to the contextual changes throughout the various points on the CASEVAC timeline it is helpful to split the CASEVAC process into three (3) distinct phases:

### 6.1 Hazardous Area Extraction

Hazardous Area Extraction is the first phase of the CASEVAC process and covers all activities undertaken from the point of injury until the casualty is delivered to the Medical Treatment Area. The priority in the Hazardous Area Extraction is for the trained rescue party to gain, or create, safe access to the casualty and then rapidly extract the casualty to the Medical Treatment Area.

Due to the limited safe space within clearance lanes, and the understanding that many casualties will require treatment beyond the scope of the first aid trained demining workers, non-time critical activities including dressing and bandaging and spinal immobilization, should not be performed until the Care on Site phase when the casualty is under supervision of the Medic in an appropriate Medical Treatment Area.

In certain circumstances, and where safe to do so, the medic should join the rescue party before transfer to the Medical Treatment Area to assist with casualty care during the Hazardous Area Extraction phase. The rescue party should aim to complete the Hazardous Area Extraction, within 5 minutes of initiation of the accident response.

The principles of hazardous area extraction should also be applied to accidents that occur outside of clearance tasks including vehicle collisions, where associated hazards such as fires or traffic may prohibit the safe provision of care at, or close to, the point of accident.

### 6.2 Care on Site

Care on Site is the second phase of the CASEVAC process and covers all activities undertaken from when the casualty is delivered to the Medical Treatment Area until they loaded and ready for transport.

The medic shall aim to complete the Care on Site phase, performing holistic casualty assessment, time critical clinical interventions, and loading into the evacuation platform, within 15 minutes of receipt of the casualty at the Medical Treatment Area.

Trauma casualties will require treatment beyond the scope of the medic; therefore, time shall not be wasted performing non-time critical clinical interventions that can be reasonably delayed and practicably performed in transit. This is especially important in time critical casualties and situations with short evacuation times.

### 6.3 Care in Transportation

Care in Transit is the third and final phase of the CASEVAC process and covers all activities undertaken from when the casualty loaded for transport until handover to an appropriate CASEVAC destination.

Clinical care shall not stop during transport, the medic shall deliver appropriate care in transit with an emphasis on continual monitoring and reassessment of the casualty's condition and the continued efficacy of previously performed interventions. The Care in Transit phase also provides the opportunity for the management of any remaining non-time critical conditions deferred during the Care on Site phase.

## 7. Priority Evaluation for Casualty Evacuation

The following priorities shall be used to describe the casualty's condition so that the need for CASEVAC destination can be decided:

### 7.1 Priority One

Priority one casualties are those who cannot survive without immediate treatment but who have a chance of survival:

1) Skin: pale.

2) Pulse: Absent at periphery and or >120 BPM at rest and or <50 BPM or abnormal rhythm with signs of poor perfusion.

3) Breathing rate: 10 or >29 or abnormal rhythm.

4) Blood Pressure: <80mmHg or >160mmHg.

5) Temperature: <35°c or > 39°c.

### 7.2 Priority Two

Priority two causalities' condition is stable for the moment and, they are not in immediate danger of death. These victims will still need hospital care and will be treated immediately after priority one:

1) Skin: pale.

2) Pulse: Weak at periphery and or >100 BPM at wrest.

3) Breathing rate: <10 or >29 or abnormal rhythm.

4) Blood Pressure: <100mmHg or >140mmHg.

5) Temperature: <36.6°c or > 37.2°c

### 7.3 Priority Three

Priority three casualties are those who will need medical care at some point, after more critical injuries from priority one and priority three have been treated:

1) Vital signs will be within normal range, but patient may be agitated and or in pain.

### 7.4 Priority Four

Priority four victims have injuries which will not be compatible with life.

## 8. Staff Insurance Coverage

All staff employed by mine action organizations in Sudan shall be provided with sufficient and adequate insurance coverage at no cost to the individuals. This should also cover short term workers and contractors involved in supporting demining operations. At minimum, insurance cover shall exist for all employees against death, disablement and injuries of work-related accidents. The coverage shall include:

a) Coverage for trauma orientated injuries and death.

b) The amount of compensation shall not be less than the amount stipulated in Sudan national legislation.

c) The partial permanent disablements shall be compensated according to the percentage of impairment and disability; and

d) Temporary complete and partial impairment and disability should be compensated on monthly indemnity basis.

## 9. Responsibilities

### 9.1 Sudan National Mine Action Centre (NMAC)

Sudan National Mine Action Centre (NMAC) shall:

1) Establish and maintain up to date standards for medical support to mine action operations;

2) Accredit mine action organizations' medical SOPs, Medics and Paramedics;

3) Monitor demining organizations' development and maintenance of demining accident response plans;

4) Assist in the coordination of appropriate responses to demining accidents, including supporting demining organizations in overcoming security constraints in the execution of a response plan;

5) Evaluate the effectiveness of emergency response plans and assist in implementing appropriate corrective and preventive actions;

6) Establish and maintain standards and procedures for the investigation of demining accidents; and

7) Establish and maintain gender-sensitive standards for insurance cover for medical treatment for mine action workers, and gender-equal standards for their compensation.

### 9.2 Mine Action Organizations

All accredited mine action organizations working in Sudan, with due consideration of possible different needs of men and women employees, shall:

1) Develop and maintain Standard Operating Procedures which aim to reduce the risk of demining incidents occurring;

2) Develop and maintain SOPs which aim to reduce the risk of harm resulting from demining accidents;

3) Develop and maintain demining accident response plans for each demining worksite;

4) Undertake regular Field Risk Assessment as per the requirements of Annex A of SNMAS 05.03;

5) Provide the training and resources needed for the implementation of the demining accident response plan;

6) Provide an appropriate health plan for the mine action workforce;

7) Ensure that demining accident response plans are practiced regularly;

8) Cooperate with other mine action organizations to ensure consistency of standards for accident prevention, emergency procedures and occupational health.

### 9.3 Mine Action Employees

Mine action employees, including medical support staff shall:

1) Apply SOPs which aim to reduce the risk of a demining incident, including Field Risk Assessment;

2) Apply SOPs which aim to reduce the risk of harm resulting from a demining accident;

3) Develop and maintain skills needed to respond to demining accident emergencies and regularly practice CASEVAC drills;

4) Identify and report opportunities to improve work practices to reduce the risk of a demining incident occurring and to improve the organization's demining accident response plan;

5) Provide and receive regular First Aid Training.

# Sudan National Mine Action Standards – SNMAS 08.05

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## Personal Protective Equipment (PPE)

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**Contents**

## 1. Introduction

Mitigation of risk in mine action operations including land release and EOD operations is the one of the fundamental responsibilities of mine action management, including establishing a safe working environment for men and women demining staff including deminers, technical survey surveyors, MDD handlers and teams command group. This shall also include visitors and other mine action staff. Risk reduction involves a combination of safe working practices, field risk assessment and operating procedures, effective supervision, command and control, appropriate education, briefing and training, equipment of inherently safe design, and the provision of effective Personal Protective Equipment (PPE) and clothing.

PPE shall be regarded as a 'last resort' to protect against the effects of mine and ERW hazards; after all risk mitigation measures including planning, training, risk assessment and procedural efforts to reduce risk have been taken. PPE protects only the person wearing it, whereas measures managing the risk at source can protect everyone at the demining workplace. To obtain the maximum protection from the PPE it shall be correctly fitted and properly maintained and used.

The risk to deminers comes from all types of explosive ordnance including Anti-Personnel (AP) blast mines, AP fragmentation mines, Anti-Tank (AT) mines and ERW, including unexploded sub-munitions, the AP blast mine occurs in the greatest numbers and features in the most accidents. PPE, therefore, is principally designed to defeat the injuries caused by AP blast mines. At close quarters, AP fragmentation mines and AT mines overmatch PPE currently available, however, due to the area effect of such mines, they also have the potential to cause 'secondary victims' and PPE is intended to provide some protection to them.

## 2. Scope

This SNMAS covers the minimum requirements for PPE that shall be considered by mine action staff especially those involved in demining operations in Sudan.

## 3. References

The main reference for this SNMAS is IMAS 10.30

## 4. Terms and Definitions

A complete glossary of all mine action terms and definitions is given in IMAS 04.10, which should be referred to, IMAS 04.10 is inclusive and broader in principle, covering all mine action terms and definition that are used globally including Sudan. However, the term related to PPE is covered in this SNMAS.

The term 'Personal Protective Equipment (PPE)' refers to all equipment and clothing designed to provide a reasonable degree of protection, which is intended to be worn, or held by an employee, when conducting specific activities, and which protects him/her against one or more risks to his/her safety or health.

## 5. Personal Protective Equipment (PPE) Requirements

### 5.1 General

The primary means of preventing explosive injury in the demining workplace are:

1) Application of accredited procedures of Field Risk Assessment;

2) Supervised use of appropriate demining tools;
3) Supervised application of accredited procedures, and
4) Effective supervision and control in a demining worksite.

All above reduce the likelihood of an unintended detonation. PPE is provided as a secondary safeguard to protect against the small risk remaining. It is important that the PPE provided should not restrict the application of demining tools and processes in any manner that increases the risk that an unplanned detonation will occur.

The levels of PPE provided for use in suspected hazardous areas shall be decided based on the Field Risk Assessment (FRA) which includes:

1) Anticipated hazards;
2) Worksite condition and environment;
3) Demining tools and equipment; and
4) Operational procedures.

Refer to Annex A of SNMAS 05.03 for details about FRA.

To ensure effective use, management and maintenance of PPE, the following shall be considered by mine action organizations:

1) Provided appropriate training to all field personnel on the proper use, maintenance and storage of all PPE provided by the mine action organization.

2) Appropriate facilities should be provided for its proper storage, carriage, cleaning and maintenance.

3) PPE shall be examined on a regular basis of at minimum 3 months to ensure they are suitable for use.

### 5.2 Suitability and Appropriateness

The following requirements shall be considered by mine action organizations:

1) PPE provided shall fit the employee, male or female;
2) Be designed to provide reasonable comfort;
3) Be designed and tested to provide protection against the predictable risks present at a demining worksite.

Clothing provided shall be suitable for the prevailing weather conditions and include footwear with suitably slip-resistant soles.

If the predictable risk is from AP blast mines, and Explosive Ordnance (EO) containing greater than 240g of explosive, and the FRA determined that there is a high probability of mine or ERW initiation if current procedures are applied, then the use of other appropriate procedures and enhanced protection shall be considered.

### 5.3 Minimum PPE Requirement

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

2) The amount of PPE provided shall be determined as a result of a field risk assessment and management decision.

3) The minimum PPE inside the safety distance of a demining worksite or when engaged in any activity that involves being close to mines and ERW, shall be:

   a) Body armor capable of satisfying the ballistic test outlined in STANAG 2920, achieving a V50 rating (dry) of 450m/s for 1.102g fragments;

   b) Be capable of protecting the chest, abdomen and groin area against the blast effects of 240gm of TNT at 60 cm from the closest part of the body;

   c) Eye protection that is held over the eyes in a frame that prevents blast ingress from beneath;

   d) 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 5mm of untreated polycarbonate; and

   e) Eye protection shall be a part of frontal head protection capable of protecting against the blast effects of 240gm of TNT at 60 cm and providing full frontal coverage of face and throat.

### 5.4 PPE Requirements in Different Roles

The minimum PPE requirements in different roles of demining, disposal of ERW and stockpile destruction operations shall be considered as below:

1) Manual clearance; full face visor, body armor and protective gloves;

2) BAC operations as following:

   a) Surface visual; search body armor.
   b) Surface instrumental search; eye protection and body armor.
   c) Sub-surface search and excavation; protective visor and body armor.
   d) Surface and sub-surface for sub-munitions; protective visor and body armor.

3) MDD handler are permitted to use reduced face protection to avoid voice distortion. Reduced face protection may be half-face visors or the use of ballistic eye protection only.

4) Mechanical operators and surveyors may not need to wear protective visor and body armor when working inside an armored cabin, unless there are limitations applied as part of the operational accreditation of the machine that dictate wearing PPE by occupants.

5) EOD operators; were protective visors and body armor during handle or working around ERW. An exception may be when the EOD personnel are operating in confined spaces and wearing of PPE could impede the operator potentially creating a higher risk. When dealing with large items including aerial dropped weapons an enhanced level of protection may be necessary.

6) Supervisory personnel; ballistic eye protection and body armor, but when approaching within minimum safety distance of clearance activity, full visors and body armor shall be worn.

7) Visitors; protective visors and body armor when within the minimum safety distance with working personnel.

### 5.5 Fragmentation Protection

The fragmentation danger from most fragmentation mines and sub-munitions cannot be protected against with lightweight and practical PPE. This emphasizes the need to minimize 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 blast hazards.

### 5.6 Hand Tools

Hand tools shall be constructed in such a way that their separation or fragmentation resulting from the detonation of an AP blast-mine detonation is reduced to a minimum. Hand tools shall 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.

### 5.7 Blast Resistant Footwear

Based on FRA findings, organizations 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 procedures alone. Blast resistance boots shall be proven to be effective in reducing the risk presented by the anticipated hazards.

### 5.8 Protecting Hearing

When conducting demolitions at minimum safety distances, the use of protection for the eardrums should be considered.

### 5.9 Explosive Ordnance Disposal (EOD) Clearance Sites

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

## 6. Responsibilities

### 6.1 Sudan National Mine Action Centre (NMAC)

1) Ensure this national standard for PPE is properly applied;

2) Monitor the application of PPE as per the requirements of this standards; and

3) Undertake periodic reviews of this national standard for PPE and the technologies available to reduce risks.

### 6.2 Mine Action Organizations

All accredited mine action organizations working in demining operations in Sudan, shall:

1) Comply with requirements of this standard for PPE;

2) Provide PPE for each activity undertaken that meets, or exceeds, the minimum requirements and is appropriate for the wearer, male or female.

3) Provide relevant employees with serviceable and appropriate PPE;

4) Provide training and supervision in the selection of appropriate PPE and the correct use and maintenance of PPE;

5) Establish and maintain SOPs that specify care and maintenance requirements;

6) Provide suitable facilities for the storage, carriage, cleaning and maintenance of PPE.

### 6.3 Employees

Employees of mine action organizations involved in demining operations, shall:

1) Use PPE in accordance with the requirements of this standard and specified in organizations accredited SOP;

2) Clean and maintain the PPE in accordance with the specification of SOPs and as trained for;

3) Report to the organization, problems with the PPE and suggest improvements to SOPs, which may reduce the requirement for PPE, or improvements in their design or application.

# Sudan National Mine Action Standards – SNMAS 09.01

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# Explosive Ordnance Risk Education (EORE)

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## 1. Introduction

The term mine and ERW risk education (MRE) refers to activities that seek to reduce the risk of death and injury from mines and ERW, or in general terms from Explosive Ordnance (EO) by raising awareness and promoting safe behavior among "at risk" people within affected communities, and throughout the population in Sudan. MRE activities include training, education and information exchange and dissemination with at-risk communities, communication of safety messages to them and supporting communities' risk management and their participation in mine action.

MRE shall ensure that men, women and children in the affected communities are aware of the risks from EO and are encouraged to behave in a way that reduces the risk to them, their property, and the environment. The main objective is to reduce the risk to a level where people can live safely, and to recreate an environment where economic and social development can occur free from the constraints imposed by EO contamination. This standard covers Mine/ERW Risk Education requirements and best practices that shall be considered by MRE organizations in Sudan and working under the coordination of Sudan National Mine Action Center (NMAC). UNMAS provides mine action including MRE technical support to NMAC and Sudan Mine Action Programme (SMAP).

## 2. Scope

This SNMAS covers the standard guidelines and requirements for the management and implementation of Mine and ERW Risk Education (MRE) in Sudan.

## 3. References

The main reference for this SNMAS is IMAS 12.10 and the terms and definitions are taken from IMAS 04.10.

## 4. Terms and Definitions

A complete glossary of all mine action terms and definitions is given in IMAS 04.10, which should be referred to; IMAS 04.10 is inclusive and broader in principle, covering all mine action terms and definition that are used globally including Sudan. The terms related to monitoring, evaluation, quality management and accreditation are covered in SNMAS 07 series.

## 5. Mine and ERW Risk Education General

MRE shall be integral part of mine action planning and implementation in Sudan. MRE should mainly be implemented in support of and in conjunction with other mine action activities, however, it can be implemented as stand-alone activities where needed. MRE programs and projects may be implemented in situations of emergency where communities are living around or in the vicinity of EO contaminated areas and where humanitarian assistance support is highly needed especially to the IDPs and returnees. MRE can be implemented in transition where the known EO hazards are removed and or in development situation; as part of managing residual risk of EO hazards.

In certain emergency situations where the risk of EO is high and when immediate demining is not possible or has not begun, the stand-alone and direct MRE sessions shall be implemented.

In areas where known EO contamination is removed but still there is risk of residual contamination, MRE should form part of school curriculum, and not be linked to other aspects of mine action. Such MRE activities may be managed and monitored by educational authorities but coordinated by NMAC.

### 5.1 International Legal Obligations to Provide MRE

Sudan is state party to Anti-Personal Mine Ban Convention (APMBC) which in addition to other legal obligations requires Sudan as state party to provide MRE to reduce the risk of death and injuries to the mine and or ERW affected communities and other at-risk people.

Other international conventions including CCM (Convention on Cluster Munitions) and Protocol V to CCW (Convention on Certain Conventional Weapons) have posed similar obligations on state parties.

### 5.2 The Role of MRE in Mine Action

MRE can play a significant role in mine action, by virtue of the information it exchanges with community members and the relationship it can build with affected communities. Some of the practical contributions that MRE may make within a mine action programme to protect affected populations are identified below:

1) Communication of Safety Messages:

Communication of MRE safety messages refers to information and education activities that seek to minimize deaths and injuries from mine and ERW or EO by raising awareness of the risk among individuals and communities and by promoting safe behavior. MRE messages may be transmitted through a mix of:

a) Interpersonal communication including direct MRE sessions;
b) Mass media including TV and Radio;
c) Traditional media, or 'small media' including posters and leaflets;
d) In an emergency post-conflict situation, due to time constraints and lack of accurate data, communication through public information channels may be the most practical means of communicating safety information to reduce risk;
e) In stable contexts, communication of safety messages can be carried out as part of comprehensive risk-reduction strategy including community-based activities, integration of MRE into schools' curriculum and other social and economic activities.

2) Data Gathering in At-risk Communities:

MRE can play a crucial role in data collection about the presence of mine and ERW hazards from the at-risk communities and other sources, about the impact of mines/ERW on the civilian population, including victim and incident data, knowledge of the hazard and safe behavior, and victim assistance.

Such data shall be used in order to:

a) Understand the extent of the EO hazards and their impact;
b) To identify target groups in affected communities;
c) To support other mine action interventions including non-technical survey, technical survey, clearance and BAC, EOD and victim assistance.

The data should also be used for monitoring and evaluation of the impact of mine action activities.

3) Community Liaison (CL):

Community Liaison plays crucial role in mine action and refers to the processes and techniques of information exchange between mine action programme, affected communities, authorities, humanitarian assistance, development sector and other stakeholders:

a) CL encourages SMAP including mine action organizations and NMAC to develop a better understanding of affected communities and their existing assets, needs, and priorities.
b) CL allows affected communities, local authorities and development organizations to gain a better understanding of mine action services and to participate in defining their requirements for MRE, survey, marking, clearance and victim assistance.
c) CL facilitates information exchange between national authorities, mine action agencies, relief and development organizations and bodies, and affected communities.
d) CL should ensure that community members are involved in determining their own risks and their priorities for mine action assistance.
e) CL can support communities to develop locally appropriate solutions to reduce the risk in their communities.
f) CL should also ensure that SMAP address community needs and priorities and involve community members in the design, implementation, monitoring, and evaluation of mine action operations.

Community liaison is particularly relevant to MRE, but it is important and crucial to all pillars of mine action and shall be considered when implementing survey, land release, clearance and VA projects and activities. Community liaison work should be carried out by trained officers only, to ensure that a single, coherent approach is applied when interacting with communities, and educating them on mine/ERW risks.

4) MRE Support to Demining and Explosive Ordnance Disposal (EOD):

Demining includes survey, marking, and clearance of mines and ERW. MRE may contribute to each of these three activities, as well as to promote community support for the demining process. In terms of non-technical and technical surveys, MRE teams may, based on data and information provided by the community or other key informants:

a) Locate hazardous areas;
b) Identify types of hazards present;
c) Understand how mines/ERW are affecting the lives and wellbeing of the communities; and
d) Help to generate communities' priorities for clearance or marking.

In terms of marking, MRE teams could:

a) Gather and disseminate information about local warning signs;
b) Ensure community understanding and respect for minefield marking and fencing; and
c) Help to generate communities' priorities for marking, including suitable materials that will reduce the risk of removal, theft, or destruction.

In terms of mine/ERW clearance, MRE teams can:

a) Advise the community of the arrival of demining teams;
b) Inform the community about safety procedures to be used during clearance operations;
c) Inform men, women and children about areas that have been cleared and those that remain hazardous, including markings of cleared and uncleared areas;
d) Facilitate handover of released land, including confidence-building measures to show the community that land is actually clear; and

e) Follow-up, by returning to communities' weeks or months after clearance to ensure that land is being used, and used appropriately, by the intended beneficiaries.

In terms of explosive ordnance disposal (EOD), MRE teams can:

a) Gather and report information on ERW spot tasks;
b) Support the development of reporting systems for spot tasks;
c) Facilitate the work of the EOD teams within communities to remove and destroy ordnance;
d) Ensure that EOD teams respond in a timely manner to community reports.

5) MRE Support for Victim Assistance (VA):

Within the context of Sudan, VA includes but not limited to immediate casualty evacuation from the hazardous area, emergency and continuous medical care, physical rehabilitation, physical accessibily, psychosocial support, and socioeconomic reintegration. Casualty data collection and Information Management, advocacy for the right of people with disability and support to laws and policies that promote the rights of persons with disabilities are also part of VA activities.

MRE can play crucial role in facilitating the provision of assistance to mine and ERW victims and survivors and wherever possible, other persons with disabilities. In particular, MRE teams should:

a) Contribute to mine/ERW victim data collection or surveillance systems;
b) Identify national and local capacities for victim assistance, and under what conditions assistance is available;
c) Identify survivors and victims' that need assistance; during their work in communities;
d) Provide to survivors detailed information about the availability of assistance and how the assistance can be obtained;
e) Liaise with physical rehabilitation centers to ensure assistance is provided;
f) If necessary, facilitate transportation to the survivors and family member to and from the center for treatment; and
g) Consider employing survivors in their work, if possible and where appropriate, as MRE facilitators.

6) MRE Support for Advocacy:

MRE may play a role in advocacy in favor of and the support of victim assistance, including support for the UN Convention on the Rights of Persons with Disabilities.

## 6. Needs and Capacity Assessment, and Information Management

MRE shall be based on a careful assessment of needs and capacities; 'MRE needs assessment'. The purpose of an MRE needs assessment is to:

a) Identify, analyze and prioritize the local mine and ERW risks;
b) Assess the capacities and vulnerabilities of the men, women, boys and girls in the affected communities and of other stakeholders; and
c) Determine the options for conducting MRE.

1) Conduct of Needs Assessment:

The needs assessment shall:

a) Feed in to national level mine action needs analysis that contribute to programme planning and prioritization to better plan programme activities.
b) Be reported to NMAC which shall then be shared with mine action stakeholders including UNMAS, government, donors and mine action organizations.
c) Precede the planning and implementation of MRE;
d) Not be not a one-off activity, rather should occur on a regular basis;
e) Review the different needs, vulnerabilities, and expectations of the affected communities in each mine and or ERW affected state and locality;
f) Be part of the monitoring responsibilities of NMAC and MRE organizations.

The process of data gathering, and analysis as part of needs assessment shall be transparent and ensure the participation of the at-risk community. When undertaking needs assessment, the MRE organizations shall ensure that NMAC and its sub offices, and where relevant, other MRE organizations are informed and included in the process. The needs assessment shall be well planned and participatory.

The MRE staff assigned to conduct needs assessment; shall be appropriately qualified and trained and gender balanced. The training on needs assessments shall at minimum include:

a) Understanding the reason for gathering the data and how it will be analyzed and used;
b) Understanding the safety and occupational health; the SNMAS series 08 shall be referred to;
c) Knowledge of Sudan norms and ethical standards for gathering data and conducting a needs assessment.

2) Data Collection and Information Management:

The purpose of gathering data and assessing needs shall be established in agreement with mine and or ERW affected communities and relevant stakeholders. The results of data collection and primary analysis shall be shared through briefings, with community leaders, community-based organizations, and community members. This is particularly applicable for data collected from the affected communities. All data gathered shall be recorded, stored, analyzed, and used to improve MRE.

The data gathered during a MRE needs assessment provides the basis for the MRE operational planning and prioritization. The data collected as part of MRE needs assessment shall enable MRE organization to determine the following important aspects:

a) Target groups: Both social and geographical; by gathering mine and ERW victim and survivors' data on who is taking risks and why, and who is affected by mines and or ERW. Attention shall be paid especially on population movements into or through areas of risk;
b) Mine and or ERW hazards: Information on the location of mine and ERW hazards and affected areas including the type of devices used (if known), nature of suspected hazard and where such devices can be found, any markings and signs used;
c) Areas of work: By gathering data on where people are injured, where the risk is high and where risk-taking behavior is occurring;
d) How the people are injured: Messages, and subsequently the activities, according to target groups by assessing how people are injured and how and why they take risks;
e) Assessing MRE approaches: MRE approaches and methodologies likely to induce behavioral change. Community input shall be sought in assessing any existing local safety strategies;
f) Communication channel: Communication channels and the way target groups communicate and learn;
g) Institutional arrangements: Institutional arrangements and partnerships for providing MRE messages and emergency responses;

h) Available resources: Resources available and their allocation; and
i) Timeframe: The timeframe to achieve the project or programme objective by gathering data on the nature and size of the mine and or ERW hazards, general population and at-risk group and their daily movement and involvements.

3) Principles of MRE Needs Assessments:

The following MRE needs assessment principles need to be applied when conducting needs assessment:

a) MRE organizations should make use of existing information wherever possible when conducting MRE needs assessments.
b) Data shall be gathered on NMAC standard and approved forms, for entry into the IMSMA.
c) MRE organizations may also gather other data for internal purposes using their own forms.
d) Men and women and other programme implementers who are gathering data shall be specially trained for that purpose, including on the ethics of data gathering.
e) Care should be taken that this process does not become a mechanical experience, but that it develops as an open conversation allowing interviewees to speak naturally.
f) MRE organization shall not raise expectations that cannot be fulfilled. They shall be careful not to raise false hopes about early clearance, and stress that the data is being collected for the purpose of helping to determine communities' need for MRE.
g) Men, women and children's needs should be considered. Community members' perceptions and requirements vary according to age, gender, social, tribal, ethnic and educational background.
h) Mine and or ERW survivors have the right to privacy and to be included in decisions and programmes affecting them, they shall be respected throughout the process.
i) MRE organizations conducting needs assessments shall provide to NMAC with all the data collected, subject to requirements for confidentiality.
j) The needs assessment information shall be entered to IMSMA in order to facilitate timely analysis required for mine action planning and prioritization, and broader development interventions.
k) NMAC shall in turn share all necessary information, subject to requirements for confidentiality, with mine action organizations and other relevant stakeholders. This should include an analysis of the results of any needs assessment, wherever possible.

## 7. Planning

MRE planning in Sudan mine action context shall be based upon the followings:

1) The goals and objectives relating to MRE; outlined in National Mine Action Strategic Framework;
2) MRE impact criteria covered in SNMAS 03.01 of mine action planning and prioritization;
3) MRE needs assessment of the mine and ERW affected communities;
4) Affected communities with recent accidents that need emergency response;
5) The needs of people and humanitarian assistance agencies involved in, and or working near to the impacted communities and contaminated areas.

A broader mine and ERW impact analysis, MRE needs assessment of the affected communities including IDPs and returnees, and the assessment of urgent needs of humanitarian assistance agencies, will lead SMAP in proper MRE planning. There should be verities of MRE plans; including multi-years plan, annual MRE operational plan and MRE projects implementation plan. The project implementation plan should also include community MRE plan based on the expressed needs and

the ongoing assessment with active involvement of men, women and children in the affected communities.

## 8. MRE Messages and Message Delivery

### 8.1 General

MRE messages constitute the main aspect of MRE operations, developing and delivery of these messages and evaluating their positive impact in terms of promoting the safe behavior and reducing the risk of death and injuries, shall be the result of a carefully planned strategy and process, based on proper analysis of mine and ERW impact and MRE needs assessment. MRE messages shall be part of a nationwide approach to addressing the risk-taking behavior and target groups within affected communities, considering cultural and religious values that determine the nature of behavior.

Delivery of MRE messages and all communication in MRE shall be based on a carefully planned strategy that is targeted to specific at-risk groups and which is socially and culturally appropriate. An MRE project or programme SHOULD NOT ASSUME that a specific group in impacted community is always the most at risk, rather identifying the at-risk group shall be based on a proper assessment of the types of involvement of people and their movement pattern. In certain communities and based on the local culture, men could be mostly at-risk group comparing to women and or children, and in some other areas and communities, women or children could be the most at-risk group. The following elements shall be considered in MRE messages and communication strategy:

1) Risk-taking behaviors to be addressed;
2) Target groups within affected communities;
3) Appropriate safety messages,
4) Communication channels, and
5) Means of information dissemination.

### 8.2 MRE Message Development

MRE messages and symbols shall be culturally, linguistically, and socially appropriate to target audiences. There should be positive messages, as people need to feel that they can take actions and that by taking actions they can improve their own and their families' lives. A message does not need to be short, but it should be clear.

### 8.3 Message Testing

All MRE messages and symbols and proposed means of delivery, shall be tested before they are finalized.

Testing MRE messages should be done among the target audiences, at various levels of sophistication with different costs, but shall not take longer time. Testing aims to ensure that messages or materials are:

1) Understandable, specially to the target group;
2) Socially and culturally acceptable in the area;
3) Relevant to the type of hazards and involvement of people;
4) Realistic, reflecting the risk factors that impact people; and
5) Persuasive and convincing.

### 8.4 Monitoring, Review and Revision of MRE Messages

MRE messages, material and their delivery shall be monitored by MRE organizations and NMAC to ensure their effectiveness. A monitoring and review process shall be established at the MRE planning stage to assess, and if needed revise the messages and materials, the monitoring shall ensure that the messages and materials are:

1) Reaching their target audiences;
2) Being understood and accepted;
3) Being adopted and acted upon;
4) Resulted in behavioral changes.

## 9. Using Media and Materials

### 9.1 Designing MRE Media and Materials

NMAC and MRE organizations shall consider the followings when determining the need for media and materials to support MRE:

a) Proper assessment of the local conditions and cultural values, and the need for MRE messages through media and printed materials;
b) Design and develop culturally acceptable and valued media and printed materials;
c) Ensure getting the right messages to the right people in the right language and symbols;
d) Design and develop appropriate printed materials including posters, leaflets, and or billboards, that seem to be effective;
e) Appropriately combine media messages with printed MRE materials to cover the target population and at-risk group of people and audiences in affected communities;
f) Before dissemination, the designed messages shall be reassessed for appropriateness and suitability in the context of MRE projects in order to ensure achieving expected results and coverage.

The same, similar or different messages and images may be used for each MRE project. Adapting materials from other contexts may be inappropriate or misleading in certain circumstances and shall therefore, be carefully tested before dissemination.

### 9.2 Testing MRE Media and Materials

The MRE media and materials shall be tested before they are finalized, the following shall be considered by NMAC and MRE organizations:

a) Conduct a focus group discussion or group or individual interviews to discuss the proposed approaches with selected members of the target audience;
b) Field testing is undertaken before printing materials, some changes may require to be made;
c) Test MRE materials to ensure the designs are understandable, socially acceptable, relevant, attractive, and persuasive.

### 9.3 Monitoring and Revising MRE Media and Materials

As part of SMAP monitoring system which includes external monitoring by NMAC and UNMAS, and internal monitoring by mine action organizations; in accordance with SNMAS 07.03, the reaction to and trust in the means of delivery of MRE services, including MRE media and printed materials, shall be regularly monitored. Where media and materials are found to be resulting in the wrong messages

being delivered, they shall be stopped immediately until they have been effectively revised, tested properly, and then approved by NMAC.

## 10. MRE Implementation

### 10.1 MRE in an Emergency Situation

Emergency may result from an armed conflict or a natural disaster where some communities may be at immediate risk and threat of mine and or ERW hazards. MRE in such situation refers to efforts to raise awareness of a significant new risk from mines and or ERW, aiming to promote safe behavior among the largest number of civilians potentially at risk, particularly children, in the shortest possible time. It may be nationwide or extremely localized, and the emergency situation may last for days, weeks, or months.

*Note: UNICEF defines an emergency as 'a situation that threatens the lives and wellbeing of large numbers of population and in which extraordinary action is required to ensure their survival, care and protection.' UNICEF has developed an Emergency MRE Toolkit for use in planning a risk education campaign in an emergency situation. The Toolkit is designed to take an MRE project manager or project team step-by-step through the first six weeks of an emergency MRE campaign.*

### 10.2 Key Challenges for MRE in an Emergency Situation

Ideally, MRE is an exchange of information with specific groups within at-risk communities to support sustained behavioral change. However, in an emergency, for reasons of time, most of the communication will normally be one-way. The aim is to reach the greatest number of at-risk people in a few days or weeks with information about the EO and basic safety messages to encourage safe behavior. Population displacement or even movement are particular risk factors, especially in an emergency. At the end of an emergency phase, evaluation or re-assessment may be required to establish a new different post-emergency MRE approach.

### 10.3 MRE Messages in an Emergency Situation

In an emergency, messages should tend to be general in nature. Determining the key messages in such cases depends on a variety of factors, such as the target audience and the types of risk-taking behavior. It is still necessary to know which types of EO people are at risk from. If mines are the greatest risk, it may be that people are injured through stepping on them or triggering unseen tripwires rather than touching mines. Therefore, efforts should focus on raising awareness of the danger and stressing safe behavior, such as recognition of potentially dangerous areas, which may include the following set of connected messages:

1) Stay on a well-used path.
2) Ask local people where it is safe and where it is dangerous.
3) Avoid overgrown areas, military bases and equipment.
4) Report explosive ordnance to a responsible person including police or mine action workers and NMAC sub office.

If unexploded submunitions pose the greatest risk, 'don't touch' messages are far more appropriate. Such messages may include:

5) Unexploded bombs are lying in the fields around your homes.
6) Unexploded bombs are small but extremely powerful and can kill many people.
7) Unexploded bombs are highly unstable, you never know when they're going to explode.
8) Never touch unexploded bombs, never pick them up and never kick them.

### 10.4 MRE in Schools

Considering the mine action context in Sudan, the widespread and protracted problem of mine and ERW in territory, and the requirements for managing residual risks after removing known EO hazards which may likely pose threat to the people for a longer term; integrating MRE into the schools system and curriculum will be one of the effective and sustainable solutions and shall therefore, be part of the national mine action strategy. Integrating MRE into school system and curriculum facilitates covering a large number of children throughout Sudan. This is reasonable to accept the fact that EO especially ERW can be a long-term residual problem, requiring multiple and sustainable solutions.

The MRE messages and their means of provision should be appropriate to different age groups and grades in the schools. MRE can be incorporated as an added curricular activity into current curriculum; possibly into life skills or social environment curriculum.

### 10.5 Integrating MRE into the Curriculum

Integrating MRE into the school curriculum or as an extra curricula activity is distinct from projects where MRE teams visit schools and make presentations. In setting up a programme to integrate MRE into schools' system it is necessary to:

1) Determine if it should involve all schools in the country or only particular schools in heavily affected areas.
2) Determined whether the national or local authorities and school system have the capacity and willingness to undertake such a programme.
3) Determine that the schools in remote and rural areas have required capacity in terms of teaching staff and equipment to implement such a project.
4) Make advocacy efforts for accepting such national intervention by the national and state ministries of education Government of Sudan.
5) Involve relevant officials, professionals and institutions from the ministry of education and the officials from the schools especially located in EO affected areas in inclusion of MRE messages into schools' curriculum.
6) Understand and come to a common consensus on monitoring responsibilities of such MRE interventions in short and longer term.

To achieve inclusion of MRE into schools' curriculum may take longer, however, parallel to making effort for this to happen, NMAC with technical support of UNMAS, and MRE organizations should also try to include MRE as a supplementary activity in schools to ensure appropriate MRE coverage of school children. In addition, depending on the level of school enrolment in EO affected areas in Sudan the development of specific projects and methods to reach out to school children and all those at-risk children who do not attend school or attend informal or religious schools, should be considered. The need to reach out these children is crucial and shall be considered by NMAC and MRE organizations when planning MRE projects, such children are often more at-risk from EO accidents comparing to those who attend school. Such children may be reached through the development of community liaison and direct MRE sessions.

A child-to-child approach should also be considered and promoted to reach maximum number of children including siblings who may not have the opportunity to attend school.

### 10.6 Strengthening Community Capacities for MRE

Efforts to strengthen community capacities for MRE should be an integral part of any MRE project. This may include the establishment of volunteer networks and strengthening of community risk management efforts. MRE may be integrated with development, land release, victim assistance and other methods of community-based risk reduction.

## 11. Coordination of MRE and Information Management

NMAC with technical support of UNMAS shall ensure:

1) Proper coordination of mine action including MRE, VA, Land Release and EOD activities and operations both in country and states levels established and maintained.
2) MRE organizations and other mine action organizations complement and support each other's activities and operations.
3) The coherent and effective involvement of all relevant organizations in every component of the MRE project cycle exist, including:
    a) MRE needs assessment;
    b) MRE planning and implementation;
    c) Monitoring and evaluation of strategies, projects and activities.

MRE should also be properly coordinated with relief and development efforts. This will help MRE to better achieve its goals of minimizing the number of victims, reducing the socio-economic impact of mines and ERW, and promoting development.

### 11.1 Coordination Mechanisms and Tools

NMAC as coordination and regulating body for mine action programme in Sudan sets with technical support of UNMAS, the overall mine action strategy, policies, standards and plans for Sudan to ensure effective coordination of MRE as part of the mine action programme and that MRE is properly integrated with other mine action pillars. The coordination mechanism and tool include but not limited to:

1) Development of national mine action strategy that includes specific goals and objectives for MRE projects and programmes;
2) Development of national mine action standards with requirements for MRE projects and activities including management, prioritization, planning and implementation;
3) Establishing accreditation process to cover MRE organizations and operations, as part of national mine action standards;
4) Establishing forums for regular operational coordination meetings and technical working group for MRE;
5) Establishment information management system to cover MRE activities and reporting aspects;
6) Establishment of program-wide communication channel within the programme to connect and link MRE activities and projects to land release, VA and EOD projects and activities;
7) Establishing monitoring and evaluation process for MRE activities, outputs and outcomes;
8) Establishing technical working group for developing, assessing and finalizing MRE materials including media and messages.

## 12. Monitoring and Evaluation

All MRE operations, activities and projects shall be monitored as per the requirements of SNMAS 07.03.

Evaluation MRE shall be focused on the achievement of MRE of objectives, the impact of MRE on reducing the risk and promoted safe behavior among at-risk and target people and communities, accountability, effectiveness, sustainability of MRE in the communities and lessons to be learned for planning future MRE projects and programmes.

### 12.1 Developing a Monitoring System

SNMAS 07.03 details developing monitoring system in mine action which includes MRE as well, it covers the requirements for undertaking monitoring internally by the implementing organization and externally by NMAC with technical support of UNMAS.

Monitoring MRE should also aim to ensure that MRE projects meet the requirements of this SNMAS and the requirements of accreditation and contractual agreements. Monitoring system shall be able to:

1) Identify measurement indicators that focus on relevance, efficiency, effectiveness, impact, and sustainability of MRE projects and programmes;
2) Collect information relating to these indicators;
3) Assess information management system regarding MRE data and information;
4) Ensure that the data collected is analyzed and interpreted;
5) Ensure that the information is used to inform project/programme management; and
6) Ensure that MRE is adapted based on the information gathered by monitoring to ensure that the activities support the achievement of objectives.

### 12.2 Key Aspects to be Monitored

At a minimum, monitoring should look at how well MRE is being implemented and whether the plan on which implementation is based is relevant to the needs of the affected communities. The following issues should, therefore, be monitored:

1) Effectiveness and efficiency of MRE delivery;
2) Perception of MRE projects and programmes by at-risk communities;
3) Resultant behavioral change;
4) Geographical coverage;
5) Reasons for risk-taking, new behaviors, adaptation to the hazard;
6) Casualties; and
7) Changes in the make-up of the target risk group.

In addition to assessing the effectiveness of MRE and progress in implementing plans, monitoring should track change in the mine/ERW hazard and environment. This involves monitoring changes to:

1) Initial assumptions regarding target groups;
2) Demographic and cultural changes affecting those most at risk;
3) The mine/ERW hazard; and
4) The broader political and socio-economic context that might influence people's ability to respond to MRE in an appropriate manner.

### 12.3 Key Issues to be Evaluated

Evaluation of MRE shall:

1) Assess the impact of the MRE project or programme, in reducing the human, social or economic impact of mines and ERW.

2) Be wider in scope to consider organizational and SMAP approach, policy and strategy on MRE.

MRE evaluation can be carried out at various stages of the projects cycle, not only at the end. Evaluation can be formative as mid-term reviews aiming to assist the development of a project or programme during its implementation by highlighting achievements, identifying problems, and suggesting solutions. It can also be summative or retrospective that takes place after the project is ended, aiming to derive lessons and to feed into long-term policy and programme.

The decision when to evaluate will depend on each project or programme, and the different factors that affect it. Factors that should be considered are:

1) Whether the project or programme has short- or long-term objectives;
2) What kind of monitoring methods are already being used and what data are available;
3) Whether external evaluators are required;
4) The availability of resources for the evaluation; and
5) The impact the evaluation will have on people's time; including MRE organizations and target beneficiaries.

### 12.4 Using an Evaluation

There are four good reasons for undertaking an evaluation of an MRE projects:

1) To improve performance;
2) To enhance accountability;
3) To improve communication among stakeholders; and
4) To improve learning and empowerment.

The value of evaluation, as with monitoring, is realized only through the use of the results, the results of an evaluation shall feed directly into future projects planning and SMAP's strategy. The results of evaluation should to the extent possible, disseminated widely to all programme stakeholders.

## 13. Capacity Development

### 13.1 Capacity Development Plan

Based on the information and insights generated by the needs and capacities assessment, a capacity development plan should be elaborated to improve MRE management and operations.

A capacity development plan should include the following elements:

1) A shared stakeholder vision and understanding of the current gaps in management capacity;
2) Activities for dealing with each problem, keeping in mind the overall vision;
3) Specific benchmarks and outputs to be reached in meeting each stated objective;
4) The process of how each objective will be reached; and
5) Clear division of who will be responsible for supporting, implementing and executing the plan.

Based on the Sudan national mine action strategic framework and programme's vision, mission, and the strategic goals and objectives, the next phase in the process is the formulation of a work plan. A work plan flows logically from the strategic plan and supports its implementation, typically on an annual basis. This operationally focused document should normally include detailed activities, and

necessary resources, as well as programme results, indicators and targets. It should also include a concise performance measurement framework, summarizing key components of the plan in an easy-to-track format.

### 13.2 Capacity Building of Impacted Communities

Impacted communities including mine and or ERW survivors are constrained to live with the daily risk of mines or ERW. MRE organizations shall seek first to understand at-risk communities and provide support them with their efforts to minimize risk. Subsequent capacity development may cover areas such as information management, risk management and MRE delivery. Risk management involves marking or fencing or seeking alternatives to risk-taking and using alternative approaches to access livelihoods and resources without clearance or entering hazardous areas.

### 13.3 Capacity Development of National Mine Action Centre

NMAC should be aware of the importance and role of MRE and be capable of making informed, strategic decisions about MRE direction and contribution to casualty reduction and effective mine action intervention. UNMAS should provide technical support to NMAC to facilitate effective coordination and management of MRE in Sudan.

### 13.4 Capacity Development of MRE Organizations

MRE organizations and their staff, especially national MRE NGOs require capacity development to able to properly undertake MRE needs assessment, planning and prioritization, provide training and deliver MRE services, and monitor and evaluate MRE activities, projects, outputs and outcomes in coordination with NMAC and UNMAS.

## 14. Role and Responsibilities

### 14.1 Mine and ERW Impacted Communities

Impacted communities bear a primary responsibility for ensuring their own protection. MRE organizations should seek to understand and support at-risk communities in their efforts to minimize risk, and not to assume ignorance or lack of capacity.

### 14.2 Governments of Republic of Sudan

Government of Sudan (GoS) has the primary responsibility for ensuring the safety of its constituents. GoS can also support NMAC and mine action organizations including MRE NGOs to plan, manage and operationally conduct MRE activities in Sudan.

### 14.3 Sudan National Mine Action Centre (NMAC)

The NMAC is responsible for ensuring the conditions which enable the effective management of national mine action. The NMAC is ultimately responsible for developing and managing the mine action programme, including MRE projects, within Sudan and ensuring that it responds to the needs and priorities of the affected communities.

The NMAC with technical support of UNMAS is responsible for establishing and maintaining national mine action strategy, vision, mission, national mine action standards, policies, processes and procedures for the management and implementation of MRE projects in Sudan. The primary responsibilities of the NMAC are to:

1) Coordinate MRE projects and programmes in Sudan;
2) Oversee MRE activities and projects based on this standard, in Sudan;
3) Establish accreditation process for MRE organizations and operations;
4) Develop national mine action strategic plan included MRE goals and objectives;
5) Ensure that MRE is integrated into overall mine action;
6) Liaise with other development actors on strategic planning;
7) Liaise with donors and other stakeholders including educational institutions, advocacy organizations and media representatives;
8) Strive to provide MRE with adequate resources, based on the needs identified in the national mine action strategic plan;
9) Monitoring MRE activities and projects;
10) Facilitate external evaluations of the MRE programme; and
11) Provide funding for MRE activities, and identifying and deploying MRE resources according to the national strategic plan;
12) Ensure that the IMSMA meets the needs of MRE organizations;
13) Coordinate the implementation of a MRE needs assessment;
14) Manage the development of a sustainable national operational MRE capacity through MRE NGOs;
15) Produce and communicate regular information about MRE to stakeholders;
16) Coordinate with other national institutions including education and health for integrating MRE into their programmes and services;
17) With technical support of UNMAS, provide training and capacity building to MRE organizations.

### 14.4 United Nations

The UN 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 incorporating changes to international regulations, requirements and treaties. Such treaties include the Convention on the Rights of the Child (1989) and the Convention on the Elimination of all Forms of Discrimination against Women (1979) among others. UNMAS is the office within the UN Secretariat responsible to the international community for the development and maintenance of IMAS, UNMAS Sudan should provide technical support to NMAC and mine action in Sudan in development of national strategy, national mine action standards, processes, procedures, policies and institutional and individuals capacity building. UNICEF is the focal point for MRE within the UN System, and has responsibility for the development, review, and amendment of the MRE component of IMAS.

The UN should ensure that the MRE needs of affected communities are addressed and that appropriate MRE is provided in the mine action programmes.

### 14.5 MRE Organizations

MRE organizations working in Sudan shall establish an appropriate and effective management system, present it to the NMAC, and apply it throughout the MRE projects. MRE organizations shall be accredited by the NMAC prior to starting MRE activities in Sudan, they are also responsible to apply the requirements of SNMAS relating to MRE and other relevant national standards including SNMAS for planning and prioritization, SNMAS series for Quality Management System, and SNMAS for Reporting and Information Management, and adapt their SOPs to conform to these national mine action standards.

### 14.6 Donors

Donors are part of the management process, and as such have a responsibility for ensuring that the MRE activities and projects they fund are managed effectively, and in accordance with national mine action standards. This involves attention to the writing of contract documents and ensuring that MRE organizations chosen to carry out such contracts are competent, and likely to meet the national accreditation agreements. Donors should also make provisions for monitoring and periodic evaluation of their projects, to ensure their relevance, impact, effectiveness and successful execution.

# Sudan National Mine Action Standards – SNMAS 09.02

First Edition: January 2019
Version 01

## Victim Assistance (VA)

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**Contents**

## 1. Introduction

Victim Assistance (VA) is one of the five pillars of Mine Action and an obligation placed on the government by the Anti-Personnel Mine Ban Treaty. As a State Party to the Mine Ban Treaty, Sudan has made commitments to assist victims of mines and explosive remnants of war (ERWs) in the country. Sudan National Mine Action Centre (NMAC) as coordination body for mine action in Sudan is responsible to regulate mine action activities in Sudan which include VA as well. The same as for other pillars of mine action, it is important to establish standard guidelines and requirements for the VA services and activities within mine action context in Sudan.

Victim Assistance (VA) is the combination of activities and efforts to provide adequate age-and-gender sensitive supports to victims; with the purpose of reducing the physical and psychological implications of their trauma, and overcoming their economic loss, social marginalization or the impairment of the realization of their rights. The aim of VA is to bring about lasting improvements in the daily lives of people injured by a landmine or explosive remnant of war (ERW).

Effective VA is characterized by systematic programming that improves physical accessibility, physical rehabilitation, enhances individual empowerment, raises community awareness and ensures the rights of people with disability through advocacy efforts. Accessibility eliminates obstacles and barriers to schools, housing, medical facilities, workplaces, government and public buildings, and places of worship. Empowerment includes the provision of physical rehabilitation, peer support, social inclusion and economic reintegration. Community awareness ensures the rights and capacities of landmine and ERW survivors are known, realized and respected by society as a whole.

Successful VA supports are ensured through properly understanding the number, the type of disability and the specific needs of survivors, and comprehensive analysis, proper programming, planning and projects' design, effective implementation and management of VA activities and projects including their proper monitoring and evaluation.

## 2. Scope

This SNMAS provides standard guidelines and requirements for the provision of VA services within the mine action context of Sudan and specifically refers to services designed for landmine/ERW victims. However, it is also acknowledged that VA activities are provided within the larger context of disability in Sudan.

## 3. Reference

The United Nations Policy on Victim Assistance in Mine Action, Government of Sudan's Strategy on VA and Disability and the provisions of APMBC.

## 4. General Requirement

This SNMAS applies to all VA organizations working in Sudan, provision of VA is one of the five fundamental pillars of mine action, it is therefore, put as a requirement that all mine action programming in Sudan shall ensure that assistance for victims is included in all aspects of mine action including prioritization, planning, design, development, implementation and monitoring and evaluation.

The NMAC Sudan has established a dedicated department for the coordination and management of Victim Assistance and support to disability in Sudan. All VA organizations working in Sudan shall coordinate their activities with NMAC and related government ministries and institutions.

## 5. Terms and Definitions

### 5.1 Terms and Definitions Related to Victims Assistance

a) The term **Victim** refers to a person who has suffered physical, emotional and psychological injury, economic loss or substantial impairment of his or her fundamental rights through acts or omissions related to the use of mines or the presence of ERW. Victims include directly impacted individuals (including survivors), their families and communities affected by mines, ERW or other explosive ordnance following conflict.

b) The term **Survivor** refers to any individual directly injured by a landmine or ERW or other explosive ordnance explosion that survives the accident.

c) The term **Victim Assistance** refers to all adequate age-and-gender sensitive support provided to victims with the purpose of reducing the physical and psychological implications of their trauma, and overcoming their economic loss, social marginalization or the impairment of the realization of their rights. Victim Assistance includes all aid, relief, comfort and support provided to victims with the purpose of reducing the immediate and long-term medical, economic, social and psychological impacts of their trauma or stress.

d) The term **VA organization** refers to any organization that provides oversight of or direct support to landmine/ERW victims.

e) The term **Accident** refers to an undesired event, which results in harm.

f) The term **Advocacy** in the context of mine action 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.

### 5.2 Medical Terms and Definitions

The following medical terminology is used in this SNMAS:

a) Orthotics. Specialized mechanical devices used to support or to supplement weakened or abnormal joints or limbs.

b) Prosthetics. Artificial devices or body parts that replace missing body parts. Prosthetics may also be described as biomechanics.

c) Mobility Devices. Walking aids including canes, crutches and walkers, or wheelchairs that substitute for walking by means of a wheeled device upon which the user sits.

d) Physical Rehabilitation. The therapeutic and clinical services that support people with injuries and impairments so that they may achieve maximum functional capacity. Physical Rehabilitation may include Physical Therapy (physiotherapy), Occupational Therapy, gait training, teaching for adaptation to mobility devices, and education about functionality, recovery, or adjustment to an impairment.

### 5.3 Psychological Terms and Definitions

The following psychological terminology is used in this SNMAS:

a) Trauma. An emotional reaction or response to being physically injured. Survivors may suffer immediate psychological trauma from an injury or experience symptoms later once physical injuries have healed or the survivor begins the process of adjustment, adaptation and reintegration.

b) Post-Traumatic Stress Disorder (PTSD). A clinically defined condition that describes a delayed reaction or response to a stressful situation including danger, psychological harm, or physical injury. Landmine/ERW survivors may exhibit a range of PTSD symptoms that can inhibit adjustment, adaptation, or reintegration.

## 6. VA Principles

The following principles should be considered and applied by VA organizations when providing VA services:

1) A Rights-Based Approach: Assistance to victims shall be about realizing the human rights of survivors and other victims in accordance with IHL and international human rights law. They should be entitled to the highest attainable standards of health, rehabilitation, inclusive education, work and employment, full participation and inclusion in society and the adequate standard of living and social protection.

2) Non-Discrimination: Victim assistance shall be non-discriminatory and fully accessible and participatory. Victim assistance efforts shall not discriminate against persons injured or impaired in another manner or against or between victims; all of them shall be guaranteed equal rights.

3) Neutrality, Impartiality and Humanity: Respect of the fundamental principles of neutrality, impartiality and humanity shall be mandatory and essential. Priority for services and treatment of victims shall be based on need, with no distinction being made based on their civilian or military status.

4) National Ownership, and Comprehensive and Integrated Nature of Services: Victim assistance in Sudan is primarily the responsibility of Government of Sudan (GoS). The United Nations aims at having victim assistance integrated into the frameworks of national and states public health, community-development, resilience and violence-prevention national strategies in Sudan. Victim assistance may be an entry point for working with communities at various levels and ensuring participation and leadership.

5) Participation and Inclusivity: Mine and ERW victims, survivors, VA organizations and Disabled People Organizations (DPOs), local communities and their leaders should be consulted in the planning, implementation and monitoring of victim assistance services.

6) Age-and-Gender Sensitive Victim Assistance: Age-and-gender specificity and sensitivity should be mainstreamed in all aspects of victim assistance planning and programming. This should be executed in accordance with the United Nations Gender Guidelines for Mine Action Programmes.

7) Accessibility: Mine and ERW victims shall have access to the services they require. Barriers to the access to those services, such as physical obstacles, lack of access to information and negative attitudes towards persons with disabilities, shall be systematically addressed.

8) Training and Capacity Building: VA organizations and relevant personnel should be provided with training to ensure victim assistance is conducted with the requisite sensitivity and relevant expertise, as well as to be understood within the broader frameworks of rights of persons with disabilities.

## 7. Victim Assistance Components

Victim Assistance consists of eight complementary components as below:

### 7.1 Emergency and Continuing Medical Care

Emergency medical care covers activities that support a landmine/ERW survivor's medical state from the moment an accident occurs to the provision of definitive care needed to stabilize his or her condition. Emergency medical care includes emergency assistance provided at the scene of the accident, transfer to hospital(s), surgery, and recuperation.

Continuing medical care is the ongoing medical care provided after a survivor's condition stabilizes and he or she is able to live in reasonable comfort given the injuries sustained. In some cases such medical care may be necessary throughout the survivor's lifetime.

### 7.2 Data Collection

Data collection is essential in providing a basis for the prioritization and planning of effective and sustainable VA projects. VA organizations shall, therefore, include processes and procedures for gathering and managing information on accidents, survivors and victims. The data collection shall be age and gender disaggregated, and in addition to collecting data on the number, age and gender of survivors and victims, the mine action and VA organizations shall also collect data on the specific needs and requirements of mine/ERW victims and survivors. The VA data shall be properly reported to NMAC VA department and IMSMA section for the management and timely provision of information to related stakeholders and interested parties.

### 7.3 Physical Rehabilitation

Physical rehabilitation includes physical therapy and patient education, the provision of prosthetic and orthotic devices, mobility devices including canes, crutches, walkers and wheelchairs, as well as the training in their use. Survivors may require transitioning between different devices and aids at different stages of their recovery and adjustment; each transition may require specialist support and rehabilitation. All surviving landmine/ERW victims require physical rehabilitation.

### 7.4 Psychological Counselling and Peer Support

Psychological counselling and peer support include the counselling and advisory support provided to landmine/ERW victims and their families in order to assist them in adjusting to their new status and coping with their new circumstances. Counselling or peer support may be provided on an individual basis or in groups and may be of short, medium, or long-term durations. All survivors require psychological counselling or peer support. However, such support should be provided to families of victims that do not survive a mine or ERW accident.

### 7.5 Social Inclusion

Disability and dependence resulting from landmine/ERW injuries may result in social exclusion and survivor isolation. The negative feelings directed toward those with disability shall be overcome from both the survivor's perspective as well as that of their family and the community in which they live. Social inclusion for landmine/ERW survivors promotes cultural or social participation within the family and within the community where the survivor lives. Assistance with social inclusion may also be provided to families of victims that did not survive a mine and ERW accident.

### 7.6 Economic Reintegration

Economic reintegration involves activities such as vocational training, support for livelihoods development, and job placement all designed to provide economic independence for victims and their families. In many cases adaptations may be required for mine/ERW survivors to participate in mainstream training programs or benefit from livelihoods development. In some cases, specific industries or businesses may be established to provide employment to victims or support for small business start-ups or home-based enterprises.

### 7.7 Advocacy for the Rights of Mine/ERW Victims and Dependents

People with disability may be marginalized dependent to the society they live in, and shall therefore, be legally protected from discrimination and provided assurance of an acceptable level of care and access to services. In order for this to be realized, advocacy for the rights of landmine/ERW victims shall be actively carried out.

Sudan has a National Disability Law but some or most of the new landmine/ERW survivors may not be familiar with and as such may not be comfortable in advocating for their own legal rights. Advocacy for enforcement of the National Disability Law ensures both People with Disability and landmine/ERW survivors are protected from discrimination.

### 7.8 Physical Accessibility

There is possibility of presence of infrastructure that remains inaccessible to the people with physical disabilities. Resolving physical impediments to buildings and key public sites is therefore critical to ensuring both mine and ERW survivors and other People with Disability are able to fully participate in community life. Schools, parks, hospitals, clinics, training sites, markets, government and public buildings and places of religious worship shall be made accessible and physical barriers either removed or corrected that provides easy and comfortable access to the People with Disability.

## 8. Victim Assistance Approach

Due to different factors including age and gender of the mine and ERW survivors, the types of their disability, their family resources, local conditions, local security, level of community supports and awareness, availability to and the degree of access to basic support and services facilities within the local context; they need different VA services. The scope of VA should therefore not be fixed or limited to a kind of assistance support, a place or time; rather, it shall reflect flexibility, creativity, and dedication to supporting the victims and survivors based on their needs and requirements, while planning and implementing VA projects.

All VA organizations, in consultation with NMAC VA department, shall plan and implement their VA activities based on the need analysis, and take into account the specific requirements of mine and ERW survivors and victims. The strategic goals and objectives of the Sudan national strategic framework for victim assistance shall also be considered.

## 9. General Responsibilities of VA Organizations

VA organizations, NMAC and government institutions that are working in VA and wider disability aspects have certain responsibilities in relation to the promotion and support of VA in Sudan. The responsibilities of VA organizations and NMAC are outlined below.

### 9.1 Information Gathering

All VA organizations have a responsibility for gathering, analysis and reporting to NMAC the accurate and timely information on mine and ERW accidents, number of victims and survivors, type of disabilities and the needs and requirements of mine/ERW victims and survivors. NMAC shall manage and maintain all VA data as part of the Information Management System for Mine Action (IMSMA). The VA data shall include information about the individual victims and survivors in Sudan, the types of their disability, their needs, locations and contact details and other local conditions. Such information shall be shared with VA organizations and stakeholders for planning, prioritization, and implementation purposes of VA projects.

### 9.2 Strategic Planning

Strategic planning of VA aspects within the mine action context of Sudan requires meeting both the provisions and requirements of national legislation on disability, and Sudan's obligations in relation to compliance with APMBC. Strategic planning for VA shall be carried out by NMAC with technical support of UNMAS, and in consultation with relevant government institutions, mine action stakeholders and organizations.

### 9.3 Design and Development of VA Projects

Design and development of VA projects or long-term programming shall conform to the following criteria:

a) Specific. All projects require written plans and shall be responsive to local VA needs as identified through comprehensive study, assessment and analysis of VA data. Project objectives shall reflect specific VA accomplishments rather than merely describe the activity the VA organization intends to pursue. Objectives should be detailed enough that all program staff assigned to the project clearly understand them and the related action plans and activities to achieve them. The intended beneficiaries should be directly involved in the design, implementation, monitoring and evaluation of VA projects.

b) Measurable. There should be clear and well defined indicators to support measuring and reporting achievements of the projects' objectives.

c) Attainable. As standards of achievement, project objectives should be ambitious but should not be impossible. Project objectives shall also be consistent with the actual resources available to the implementer.

d) Results-Oriented. Project objectives should be specified in terms of results. In most cases, this means recording a positive change in the life of the victims and survivors, their family and community.

e) Time-Bound. Proposal objectives should be completed in a specified timeframe. Attention shall be given to project timing to assure that the stated objectives can be achieved within the period of performance proposed.

## 10. Resource Mobilization and Allocation of Resources for Victim Assistance

UNMAS should assist NMAC in identifying resources that are available at local, national and international levels to implement national plans of action for victim assistance. UNMAS should assist Sudan mine action programme with this undertaking by, among other activities and when appropriate, promoting the integration of resource mobilization efforts within broader assistance appeals, and engaging with potential donors. Ideally this should be done in coordination with relevant United Nations entities and other actors involved in victim assistance. Communicating financial requirements related to victim assistance to donors is of particular importance when victim assistance has not yet been integrated into broader health, disability, humanitarian or development programmes and where mine and ERW victims are reliant on victim assistance dedicated funding.

UNMAS should identify where the inclusion of those needs and rights may be promoted, so that resources are allocated to priority areas. Prioritization also depends on the specific context of Sudan including humanitarian emergency, recovery or development. Addressing the human rights of mine and ERW victims is a long-term endeavour requiring sustained financial support, provided through national and international resources and commitments.

Financial and technical support provided for the implementation of the CRPD by Sudan as States Party to this convention has the potential to promote the human rights of mine and ERW survivors. UNMAS should advocate for the inclusion of mine and ERW survivors as direct beneficiaries of international cooperation and assistance in support of persons with disabilities, within and outside the realm of the CRPD.

## 11. Accreditation of VA Organizations

All organizations intending to carry out VA services in Sudan under the coordination of NMAC should be accredited by NMAC as VA organizations in accordance with the requirements of this SNMAS and SNMAS 07.02, prior to initiating any VA activities and projects in Sudan.

## 12. Monitoring and Evaluation of VA Activities and Projects

### 12.1 Monitoring

Organizations implementing VA projects shall use internationally recognized tools (Quality of Life Surveys, Activities of Daily Living Surveys) to appropriately monitor the services provided. Such monitoring shall track progress in project implementation, compliance with project standards and any changes in the environment under which project outputs are delivered. Monitoring shall be carried out on a regular basis and thoroughly documented.

When monitoring identifies significant changes in the environment under which a project's outputs are delivered, the implementer should review and, if necessary, amend their project plan in consultation with NMAC to ensure that the VA activities originally offered remain relevant.

The NMAC shall conduct external monitoring of the Victim Assistance activities and projects based on the requirements of SNMAS 07.03 and implemented through VA organizations.

### 12.2 Evaluation of VA Projects and Programs

NMAC may engage qualified third-party evaluators to review and assess VA projects and programs conducted under its coordination. Such evaluations should assess:

a) Effectiveness. The extent to which the project or program achieves its medium-term objectives and goals (project outcomes);

b) Impact. The long-term direct and indirect benefits of the VA projects on the beneficiaries;

c) Relevance. The extent to which the project meets particular needs, expectations and priorities of the beneficiaries, government authorities, and funding bodies;

d) Efficiency. The extent to which the project has achieved its 'outputs' (deliverables) in relation to its 'inputs' (resources invested); and

e) Sustainability. The probability project benefits will continue once initial inputs such as external funding or assistance cease.

### 12.3 Corrective Action

When monitoring and or evaluation identify a deficiency associated with the management or implementation of a VA project, the implementing organization shall be immediately notified to take immediate actions to address the issues. Further re-audit visits should be conducted by NMAC to ensure appropriate and effective remedial actions are taken and implemented.

## 13. Reporting VA Activities

VA organizations shall submit regular monthly progress reports on their activities to the NMAC using standard forms that are developed and issued by NMAC VA department. NMAC shall compile records of VA activities collected as part of its role in managing mine action data through IMSMA.

## 14. Information Management

NMAC manage and maintains IMSMA containing data relevant to VA; specifically mine/ERW accidents and victims and survivors information. Information from IMSMA shall regularly analyzed and made available to all mine action organizations including organizations providing VA assistance to mine/ERW victims and survivors. NMAC should ensure that IMSMA meets all mine action and especially VA information requirements of VA stakeholders, and provide essential and reliable inputs to national planning and prioritization aspects of VA in Sudan.

# Sudan National Mine Action Standards – SNMAS 10.01

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Version 02

# Information Management System in Mine Action

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**Contents**

## 1. Introduction

Information Management (IM) is an integral part of all activities in mine action. IM refers to the process of continuously specifying information requirements, and the collection, reporting, recording and analysis of data, and provision of timely information to the relevant mine action stakeholders. In addition to mine action sector, IM includes support to humanitarian assistance agencies, donors, government, legal entities, researchers and development agencies and interventions. Proper and efficient IM ensures that mine action managers and stakeholders have access to optimal and required information when making informed decisions.

IM requires the close collaboration of all parties involved in Sudan mine action programme (SMAP). Effective, accurate, well-designed and transparent information management system (IMS) makes mine action aspects easier to manage and promotes accountability. IM enables monitoring, evaluation and comprehensive quality management.

IMS in mine action sector is managed through a specific database called Information Management System for Mine Action (IMSMA). This national mine action standard will assist NMAC, UNMAS and mine action organizations working in Sudan to develop and implement Sudan national information management policy, IMSMA reporting forms and templates and Standard Operating Procedures (SOPs).

## 2. Scope

This SNMAS covers specific requirements, standard guideline and general principles for effective information management system for mine action in Sudan.

## 3. References

The main reference for this SNMAS is IMAS 05.10.

## 4. Terms and Definitions

A complete glossary of all mine action terms and definitions is given in IMAS 04.10, which should be referred to; IMAS 04.10 is inclusive and broader in principle, covering all mine action terms and definition that are used globally including Sudan. The terms related to IMS are covered in SNMAS 10.01.

The term 'Information Management' refers to the on-going specification of information requirements, its collection and analysis followed by the dissemination of relevant information to relevant stakeholders in a timely manner.

The term 'Information Management System' refers to those procedures, data, software or media that are used to gather, analyze and present information.

The term 'Data' refers to information in raw or unorganized form.

The term 'Information' refers to data that has been processed, organized and presented in a way that makes it useful for decision making.

The term 'Knowledge' refers to the result of combining data, information, training and experience.

The term 'GIS' refers to Geographic Information System. It is an organized collection of computer hardware, software, geographic data and personnel designed to efficiently capture, store, update, manipulate, analyze and display all forms of geographically referenced information. GIS allows a user to view multiple layers of data based on their geographic distribution and association. GIS incorporates powerful tools to analyze the relationships between various layers of information.

The term 'Stakeholder' refers to a person, group, organization or governmental body that has a direct or indirect stake in a mine action programme. A stakeholder can affect or be affected by the mine action activities and policies.

The term 'IMSMA' refers to the Information Management System for Mine Action.

## 5. Purpose of Information Management in Mine Action

The purpose of Information Management in mine action is to facilitate and support informed and fact-based decision-making. IM involves gathering, reporting, recording and analysis of mine action data, and making it meaningful and valuable information for mine action sector and its stakeholders. IM facilitates and supports informed and fact-based decision-making in strategic, management and operational levels. Proper IM supports SMAP to ensure realization of timely and appropriate planning, prioritization, resource mobilization, monitoring, evaluation and reporting of progress and success, to its national and international stakeholders and interested parties.

## 6. Information Management Prerequisites

### 6.1. General

Effective IM requires some prerequisites, which may increase when IM activities are more complex. As a minimum, the following are prerequisites for the establishment and flow of IM in SMAP:

1) Document Management

NMAC shall establish and maintain a document management system with the following features:

a) Digital Structure: A standardized digital structure with relevant file naming guidelines and metadata, capable of managing digital documents related to mine action activities including reports, maps, pictures, photos and videos.
b) Paper Structure: A standardized paper filing structure that mirrors the digital structure.

The document management system shall enable tracking of the version of documents and details about editing; including editor, date of editing and the last or recent version of the documents.

2) Record Management

NMAC shall establish and maintain a record management system that is capable of meeting the following requirements:

a) Managing operational and secondary data;
b) Priority-setting and allocation of operational resources;
c) Producing an overview of the operational progress and resource allocation;
d) Accessible for use by operational and management staff; and
e) Adjustable to the SMAP needs and compatible with other information systems.

NMAC shall define the scope and responsibilities of the IMS through information management and communications policy to achieve optimum operational efficiency.

3) Web Management

The NMAC shall ensure that there are policies and methodologies in place that enable the presentation of SMAP activities via web technologies including internet, intranet, and social networks.

4) Human Resources

The NMAC shall ensure that there are the following staff positions as a minimum:

a) IM Officer: Responsible for IM activities;
b) System Administrator: ICT and communication infrastructure;
c) GIS Officer: Responsible for GIS activities.

5) IM Equipment

NMAC shall ensure that:

a) Computer systems used by IM staff meet the minimum specifications of the IM software;
b) Software is licensed and there are appropriate peripheral systems such as printers and scanners;
c) ICT equipment is protected from power spikes, dust and other damage;
d) A data storage infrastructure is established and protected with appropriate policies and procedures for data security, backup and disaster recovery;
e) Staff have access to means of communication including internet and e-mail; and
f) The staff working environment meets basic ergonomic principles.

6) IM Knowledge

NMAC shall ensure that IM staff are given the opportunity for professional development and that they receive adequate training in:

a) Information systems used in the programme, including system administration;
b) Data analysis and statistics;
c) GIS; and
d) Mine action operations.

7) GIS Management

NMAC shall ensure that:

a) GIS software is available to the IM staff. The software should be either integrated in the record management system or work as a stand-alone application;
b) Geospatial data is available and accessible; either locally or through the internet;
c) Spatial data standards are established regarding coordinate and measurement units and symbology; and
d) Data collection forms contain the spatial data required to produce the expected output.

8) Quality Management

NMAC shall ensure that:

a) Standardized data collection forms are established;
b) Fields on the data collection forms are properly defined, and there is established policy for data and information exchange and communication within the programme and with mine action stakeholders and interested parties;
c) The data quality is maintained and improved at all phases of IM from source to the final receivers;
d) The data quality check process is established within mine action organizations and NMAC; and
e) Operational and IM processes are properly mapped and documented.

## 7. Information Management Process

### 7.1. Information Management Cycle

The IM cycle ensures a proactive approach to IM activities by defining programme's requirements and anticipating stakeholders' needs and planning to address them. The IM cycle is the process of:

1) Information Needs Assessment;
2) Data Collection;
3) Data Entry;
4) Data Analysis; and
5) Information Dissemination.

The IM cycle shall be based on the following:

a) Transformation:

Continual transformation of data to information and information to knowledge for decision-making.

b) Efficiency:

The management of data and information is done with a proactive approach in which, the IM staff based on their experience, foresee the requirements and are ready to address them in a timely manner.

c) Inclusiveness:

Successful implementation of the IM cycle depends on the active involvement of operations, top management and the stakeholders.

d) Quality:

Data is checked and verified for accuracy and for timeliness and organized for analysis.

e) Consistency:

Disaggregated data collection, in combination with agreed technical definitions of key terms and requirements, will ensure objective and repeatable results to analytical queries. This will enable the formulation of informed decisions that are transparent and accountable.

f) Communication:

Information is disseminated to the stakeholders, within and outside the mine action programme, in a standard form and with defined contents.

### 7.2. Information Needs Assessment

The analysis of information shall involve recurring assessment of the needs and requirements of the mine action information users and shall include discussion with each of the stakeholders about their requirements. The discussion should result in agreement on the:

1) Output of information required by each stakeholder for their current and future use;
2) Data that needs to be collected;
3) The frequency, the format and medium of data collection;
4) Process for ensuring the quality of data collection activity and that of the incoming data;
5) The ways for analysis of incoming data to ensure consistency in the output information;
6) Formats and means of internal and external information dissemination and reports; and
7) IM process map and qualitative and quantitative key performance indicators that are used for the map.

### 7.3. Data Collection

The data collection phase identifies where, how and in which form to collect required data, and how to validate it. Data collection shall be designed to meet the intended use of the data, and consideration shall be given to ethical principles such as maintaining confidentiality and privacy.

The NMAC shall ensure that data collection meets agreed policies on:

1) Disaggregated data is collected which includes sex and age, when relevant;
2) The uniformity and standardization of the data collection process;
3) Inventory of information management sources including details on the type of data, collection methods, and the format and means of data provision;
4) Quality management during the data collection process, including the use of standard forms and data entry fields, as well as the active involvement of operational staff during the data reconciliation and approval process;
5) Ensuring consistency during data gathering by implementing methodologies and relevant criteria for data collection standards, including measurement units, equipment, means of recording, language and input method;
6) The validation and verification of data to ensure data accuracy, completeness, consistency and links to other existing information; and
7) The classification of information sources and the reliability of information.

### 7.4. Data Entry

Data entry is part of the IM process and shall take place with suitably qualified data entry staff. The up to date version of mine action database (IMSMA) shall be used for data entry and IM.

### 7.5. Data Analysis

Objective and timely data analysis relies on IM policy and standard that reduce the subjectivity and increase the consistency of the output information.

The NMAC shall ensure that policy and procedure for data analysis include:

1) Technical definitions of key mine action terms including but not limited to victim, survival, area reduced, cancelled, released, cleared; in square meters.
2) Methodology with relevant criteria for managing low quality information such as duplicate, incomplete, out-of-date information;
3) Methodology for grouping and structuring data by using summarized statistical reports and maps;
4) Procedures for cross-referencing information from mine action and from other sources;
5) Methodology and relevant criteria for identifying trends based on established indicators; and
6) Methodology involving relevant stakeholders during the process of analyzing the information, in order to take advantage of their experience and personal interpretation.

### 7.6. Information Dissemination

Dissemination of mine action information in Sudan involves releasing of monthly IMSMS information to internal and external users and stakeholders, so that it can be readily and easily used by them. In addition to monthly IMSMA information, certain user may request NMAC for provision of specific information. Such information should be provided by NMAC IMSMA section after permission by NMAC Director and Chief of Operations. The confidentiality of certain information shall be always be maintained by NMAC IMSMA section. As minimum the monthly IMSMA information shall include but not limited to the following:

1) Mine action achievements;
2) Ongoing operations; and
3) Challenges.

The achievement shall at minimum cover the following aspects:

1) Survey and Land Release;
2) Number, length and size of roads and routes opened;
3) Number of EO destroyed;
4) Number of land release beneficiaries;
5) Number of Mine and ERW Risk Education interventions;
6) Number of MRE beneficiaries;
7) Victim Assistance services;
8) Number of VA beneficiaries;
9) Advocacy effort made during the month;
10) Number of QA monitoring visits and the size of area sampled (QC);
11) Number of mine action organizations accredited;
12) Number of mine action teams operationally accredited.

The ongoing operations shall at minimum cover:

1) The number of teams operational;
2) The number of mine and or ERW contaminated areas under operations;
3) Current locations of the mine action teams;
4) Types of mine action activities.

The challenge shall at minimum cover the following:

1) Seasonal limitations;

2) Shortage of tools and equipment;
3) Civilians mine or ERW accidents/incidents;
4) Demining incident/accident;
5) Accessibility of the areas for mine action teams;
6) Safety and security.

Information sharing as part of the Sudan Mine Action Programme (SMAP) activities, shall be based on a specific policy for communications that is developed, approved and issued by NMAC with technical support of UNMAS.

As a minimum, the following should be taken into consideration when planning for information dissemination:

1) To which stakeholders the information should be distributed;
2) The types of information each stakeholder will receive;
3) How the information is disaggregated, as a summary, statistics and or maps.

The following aspects shall be considered when disseminating mine action information:

1) Relevance: Level of details and specifications to stakeholders' needs;
2) Security: Data discretion policy of the programme and that of the stakeholder; and
3) Sensitivity: Security issues relevant to data disclosure.

## 8. Reporting

Reporting in mine action is the process of providing documentary evidence of related activities performed and completed, the results achieved and or events occurred. Mine Action activities are being recorded in standard formats, recorded, managed and maintained in IMSMA database. Accurate, quality and timely information requires accurate, quality and timely reports or documented information as input to IMSMA.

## 9. Requirement of Mine Action Reports and Reporting Forms

Use of mine action reporting forms are intended for recording the minimum set of required data. In order to ensure entry of accurate, quality and timely data to IMSMA and management of information; each reporting form shall be used for its appropriate intended use. The filled reporting forms shall be quality checked internally by mine action organization and then by NMAC Sub Office, the reporting forms shall then be submitted NMAC Operations and IMSMA departments after verification by Sub Office.

As minimum the following standard reporting forms shall be used by mine action organizations in Sudan; that are related to their activities and accreditation fields:

### 9.1 Hazardous Area Report (Non-Technical Survey Report)

The Hazardous Area Report is used for recording newly found mine and or ERW hazardous areas, which shall at minimum include:

1) Description of geographical location;
2) Perimeters and corresponding control markers;
3) Type (s) of hazards, type of land, ground profile, obstacles and terrain category;
4) Impact of hazardous areas on the communities;
5) Number of beneficiaries when the area is cleared;
6) Recommendation for further land release activities.

Hazardous Area Report shall also be used to record new data on previously recorded hazardous areas with accurate technical information required for the new areas. See Annex A to this SNMAS.

### 9.2 Village Survey Form

The village survey form is essential for collecting socio-economic, demographic, and location reference information that forms the core of the IMSMA pre-requisite information for the data entry of the various forms. The village survey is essential for impact scoring and priority setting during the non-technical survey operation and forms. See Annex B to this SNMAS.

### 9.3 Task Data Sheet

The Task Data Sheet shall be used for recording tasking data of the mine actions activities. A unique IMSMA Task ID is generated per Task Data Sheet and consequently task order is issued to mine action organizations where all future progress reporting is done against this Task ID. This form shall be filled by all mine action organizations and EOD operators working in Sudan. See Annex C to this SNMAS.

### 9.4 Hazardous Area Cancellation Report

As per SNMAS 05.02 Non-Technical Survey, the cancellation process allows mine action organizations to change the status of or parts of a recorded Suspected Hazardous Area (SHA) and may be Confirmed Hazardous Area (CHA) which have been found not to represent any risk from mines and ERW. Once the cancellation criteria are met, the organization shall:

1) Fill the cancellation form;
2) Recommend to NMAC Sub Office the cancellation of area; and
3) To verify the cancellation form.

The form shall then be submitted to NMAC HQ for approval and updating IMSMA database. Once approved, the recorded hazardous area status shall be changed to “Closed” in IMSMA. The form should be scanned and linked to related hazardous area report in IMSMA for future reference. See Annex D to this SNMAS.

### 9.5 Hazardous Area Technical Survey Report

Hazardous Area Technical Survey Report is used to record the findings of technical survey activities. This report shall at minimum include:

1) Reference to the “Hazardous Area (NTS) Report”;
2) Recommendation for succeeding course of action;
3) The detailed map of the area; and
4) Reference to “Hazardous Area Completion Report”, if the area is entirely released.

See Annex E to this SNMAS.

### 9.6 Hazardous Area Completion Report

The Hazardous Area Completion Report shall be filled out by mine action organization for each hazardous area that has been completed and released from mine and or ERW hazards. This report shall cover the entire area in terms of the size of:

1) Area cancelled without any demining activities;
2) Area reduced at the result of technical survey; and

3) The area cleared through clearance assets to the specified depth.

See Annex F to this SNMAS

### 9.7 Monthly Progress Report

The monthly progress report form shall be used to report progress of land release ongoing operations on monthly basis.

The Progress Report shall be prepared by the mine action organizations on a monthly basis and submitted to NMAC sub office and HQ for recording into IMSMA database. See Annex G to this SNMAS.

Mine Action organizations shall also report daily progress of operations to the NMAC sub offices. Sub offices can then send the report to IMSMA section for entry and operations department for information.

### 9.8 Mine/ERW Risk Education Report

M/ERW RE Monthly Report shall be used by all MRE teams in the field. All mine action organizations undertaking MRE activities, shall report their achievements on monthly basis to NMAC sub offices for verification and then to NMAC MRE department and IMSMA for approval and data entry to IMSMA database. The MRE monthly report should include the data about MRE audience, their gender, location of MRE activities and sessions. See Annex H to this SNMAS.

### 9.9 Victim Assistance Monthly Activity Report

Victim Assistance monthly activities report shall be used by all VA organizations undertaking VA activities. This report shall be submitted on monthly basis to NMAC sub office for verification and then to NMAC VA and IMSMA departments for approval and entry to IMSMA database. The report shall include related components that the organizations is implementing as part of their VA projects. See Annex I to this SNMAS.

### 9.10 Demining Accident/Incident Report Form

The Demining Accident/incident Report shall be filled out and reported by mine action organizations to record any single demining accident/incidents in demining worksite. This form should only be used to record information on accidents/incidents encountering individuals involved in land release activities in hazardous areas; including team members, supervisors, internal and external QA monitors and mine action visitors. Once the demining accident data is entered into IMSMA the IMSMA ID shall be used in all related references. See Annex J to this SNMAS.

### 9.11 Mine and ERW Accident Report

This format shall be used to record information on mine or ERW accidents encountering civilians and individuals away from a demining workplace, in a known or unknown hazardous area. See Annex K to this AMAS

### 9.12 Monthly Quality Assurance and Quality Control Summary Report

“Monthly QA and QC Summary Report” shall be submitted by all mine action organizations and NMAC sub offices to NMAC Quality Management department, on monthly basis covering internal and external QA Monitoring and QC sampling activities and results.

NMAC QM department shall check and verify the reports and then submit them to IMSMA for entry to database. See Annex L to this SNMAS. The hard copies of detailed QA and QC forms shall be maintained by NMAC sub offices, through a proper filing system.

## 10. Timelines

As soon as the mine action activities are completed, mine action organizations shall submit their reports to NMAC Sub Offices in a time span of maximum 3 days. All other progress reports shall be submitted on monthly basis, by no later than 3rd of coming month. This reporting timeline will allow NMAC Sub Office to properly check and verify the reports. Any discrepancies and errors shall be communicated with related teams and organizations immediately. Once verified and finalized the reports shall then be submitted to NMAC operations and related departments for checking and approval. The approved reports shall then be submitted to IMSMA section for entry into IMSMA database. This process should be completed before 10th of coming month. The following exceptions are applied about the timelines:

a) Immediate notification of demining accidents and incidents as soon as possible by phone or radio.
b) Initial demining accident or incident report shall be submitted within the same day without waiting for the end of month.
c) Detailed investigation report shall be submitted within 10 days of the event. See SNMAS 08.04 for demining incident investigation and its annexes for more details.

## 11. Responsibilities and Obligations

### 11.1. Sudan National Mine Action Centre (NMAC)

It is the responsibility of NMAC to:

1) Develop and implement IM policy, standards, regulations and reporting requirements and forms for the management of mine action information; in compliance with IMAS, and relevant national regulations and needs.
2) Establish information management systems that allow effective, efficient and timely transfers of data and information between mine action organizations, donors, government and stakeholders.
3) Ensure that IM section is staffed with appropriately qualified personnel and equipment.
4) Develop, maintain and ensure implementation of IM process and procedures.
5) Ensure that all mine action information gathering activities are properly coordinated to avoid duplication of effort, and to ensure effective use of resources.
6) Develop reporting formats that clearly define reporting requirements and frequency.
7) Develop the capacity of IM staff both in NMAC and mine action organizations and provide required training to operational and IM personnel.
8) Ensure a streamlined data and information flow by applying IM policy, standards, process procedures and routines.
9) Implement data quality management procedures at all stages of the IM cycle.
10) Regularly review IM system and information needs, identify areas for improvement and take appropriate actions to improve IM system.

### 11.2. Mine Action Organizations

All mine action organizations accredited and working in Sudan are responsible to:

1) Develop and implement appropriate information management SOPs in accordance with the requirements of this national mine action standard.
2) Utilize the existing IM capacity within the mine action programme in order to plan, implement and follow up on operational activities.
3) Comply with mine action data reporting requirements as outlined in this standard.
4) Participate in reviewing of IM system as requested by NMAC.
5) Ensure the involvement and training of IM staff in operational activities.
6) Provide feedback, verification and correction of information to NMAC whenever notified about any errors or inconsistencies in reporting.