

# Sudan National Mine Action Standards – SNMAS 05.05

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## Buildings Clearance

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## **1. INTRODUCTION**

The current global conflict in urban and semi-urban areas resulted in contamination of buildings and Infrastructure by explosive ordnance (EO) of all types and effected the human live in those areas and becomes challenge of mine action teams to work inside the buildings in conflict-affected areas that partially or completely damaged, the clearance of buildings required a different operational framework and methodologies from clearance of open and cases areas, to remove and destroy all EO in three-dimensional buildings and level of difficulty and response shall be fully explained in step-by-step detail in the mine action organizations SOP.

The term “building” in this standard is used to refer to a wide range of structures from domestic homes, institutions, commercial facilities or other services facilities such as health, power, water, sewage, and education and wide range of procedures may be required to address different types of structures and the wide variety of EO found in those structures.

The requirements of search procedures may vary from surface search for Explosive Remnants of War (ERW) to more intense search and clearance where is presence of Improvised Explosive Devices IEDs, this difficulty must be addressed through sound Threat Assessments being carried out, based on evidence. In addition, secondary hazards such as unstable structures and the huge levels of debris, that need the organization operation procedures outline a framework to mitigate the risks to clearance personnel through continuous update of fielded risk assessment (FRA)

As mentioned, high difficulties of clearance procedures required for dealing with buildings as well the gathering information's, the reporting and quality management can be grater challenging, techniques used during the Building Clearance may differ according to equipment, the terrain, type of mines, EO and IED etc. All procedures used in clearance operations are to be outlined in this standard to enhancing the safety and efficiency of buddings clearance process and procedures in urban and semi-urban areas

## **2. Scope**

This SNMAS provides standard guidelines and covers minimum requirements for the clearance of buildings, describes the specifications for the confirmed or suspected contaminated urban and semi-urban areas with Explosive Ordnance (EO), evaluating explosive risks prior to activities taking place, clearance techniques and development of relevant quality management systems as part of land release process in Sudan.

## **3. References**

SNMAS 05.05 and IMAS 09.13

#### **4. Terms, definitions and abbreviations**

For details about terms and definitions used in clearance of buildings as part of the land release process; refer to SNMAS 05.01 of Land Release.

#### **5. Aim of Building Clearance**

The aim of Buildings Clearance is to apply all reasonable effort identify, remove and destroy all EO present within the surveyed buildings after conducting the threat Assessment and relevant search process and procedures to be conduct using appropriate land released methods to suspected or confirmed contained building and ensure that the assessed threat of EO and IED and the disposable to be conduct safely to protect the team and civilian life and the property Buildings clearance shall be based on documented evidence and thorough well-documented threat assessment.

#### **6. Standard**

The following are established building clearance procedures and although, certain techniques may vary between mine action organizations, these shall be recognized as the minimum standard required by the SNMAS.

#### **7. Products of Building Clearance**

The products of Building Clearance should be based upon an analysis of the findings of the survey, in the context of other information about the type, nature and distribution of contamination within the theatre of operations, and should include:

- 1) Clearance of any building containing EO contamination to defined parameters.
- 2) Information gained through intrusive building clearance activities to adjust clearance plans for enhanced efficiency.
- 3) Evidence that all reasonable effort has been expended to sufficiently determine and demonstrate, to the satisfaction of the NMAC and beneficiaries, that a building is free of EO contamination.

#### **8. Building Clearance Principles**

The following principles should be applied to Building Clearance:

- 1) The threat assessment shall be based on all available evidence gained from survey and technical and to be reviewed and developed continually by the organization.
- 2) Building Clearance task shall be executed in accordance with an approved Clearance Plan in line with updated threat assessment including control measures to account for the being evidence on the EO contamination obtained.
- 3) The threat assessment shall account and especially consider the victim operated explosive ordinance then appropriate procedures to be used as mitigation.
- 4) Safe separation between individual searchers and search teams should be applied to minimize casualties in the event of an unintended detonation.
- 5) Appropriate PPE commensurate with the Threat Assessment should be worn.

- 6) Assessment of structural integrity of the building should be carried out prior to entry.
- 7) If there is a suspicion that non-explosive hazards are present, personnel should be appropriately trained and equipped for those hazards.
- 8) Building Clearance should only be conducted in appropriate light levels. If these do not exist naturally, then artificial light sources should be used.

## **9. Mandatory Actions**

- 1) The implementation plan shall be details with regards the safety, efficiency and effectiveness.
- 2) The team supervisor shall be EOD level 3 and responsible for the conduct of all building's clearance task aspects.
- 3) All EO safe to move shall be decided by supervisor only and highly safety precaution to be taken for EO destroyed in situ, and No item to leaving in cleared area unless the supervisor inform NMAC by the situation.
- 4) The site sketch map and briefing board shall be updated daily by all clearance details achievements.
- 5) If during the conduct of the task found explosive storage, the area shall be marked and the supervisor immediately inform NMAC for the further action to be taken.
- 6) The organization shall be clearly mentioned in their SOPs each and any required equipment's to be use during the clearance of the building.
- 7) The organization shall be clearly mentioned in the SOPs the manpower (Teems) as well the responsibility of each team member.
- 8) The organizations shall use proper equipment for pulling, and pulling drills to be conduct by qualified personal under extremely safety according to the standards.
- 9) The metal detector and the metal locator shall use when moving non-metal furniture, debris and rubble as well after removing buried explosive ordinance (EO) to ensure that no hazard left.
- 10) Training for building clearance should include to standard working procedures with regard to basic and refresher training the concepts of building cleanliness, provided that the training is consistent with the requirements and nature of building cleaning tasks, and assesses threats, procedures for dealing with and disposing of improvised explosive devices.
- 11) Organizations should develop the building clearance techniques of creating access to approach the entrances to the buildings and on how dealt with foundations, debris and rubble safely.
- 12) The organizations that conducting the building clearance operations should promote the efficiency of the explosive ordinance (EO) classification and their effects, whether it contains chemical, biological, nuclear or radiation as well the methods of awareness and methods of destruction if any, to ensure that the work areas are free from chemical pollution and radiation.
- 13) During the execution of the building clearance task the organization is to ensure that Armored Fighting Vehicle (AFV) are cleared around safely, Depleted Uranium (DU) munitions could have produced a radio-active or toxic hazard and may well be part of

the turret stocks of the Armored Fighting Vehicle (AFV), and therefore a DU threat cannot be discounted, at this stage the EOD shall be conducted by appropriately EOD 3 qualified personnel.

#### **10. Non-Technical Survey**

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

Non-technical survey encompasses all non-technical means, including desk assessments, analysis of historical records and a wide range of other information-gathering as well as physical visits to field locations. All elements of the non-technical process revolve around identifying, accessing, collecting and reporting, Further guidance can be found in (SNMAS 05.02)

#### **11. Buildings Clearance Threat Assessment**

Buildings Clearance Threat Assessment involves the analysis of a variety of information sources related to the conflict, the environment, and the use of EO. In particular the evaluation of elements related to the armed actors that deployed the EO

Risk is defined as ‘the effect of uncertainty on objectives’ (ISO Guide 73:2009), and is typically expressed through reference to the ‘combination of the probability of occurrence of harm and the severity of that harm, has confidence in the quality of the outputs and outcomes from explosive hazard risk assessment process, it is necessary to have confidence in the inputs to that process and the activities within the process.

Explosive Hazard Risk Assessment is continuous process that drives how explosive hazards affect planning, operations, and behavior in affected areas. following investigative process that generally involves the consideration of four main aspects:

- 1) Identification of threats.
- 2) Probability of an incident occurring.
- 3) Impact of hazards on an area, and/or its activities.
- 4) Mitigation measures that can be implemented.

All Explosive Hazard Risk Assessments should aim to answer the 4 fundamental questions:

- 1) Does an explosive hazard exist?
- 2) How does the explosive hazard affect the people and area around it?
- 3) What is the probability of an explosive hazard related accident occurring?
- 4) What advice can be given for safe operations in these affected areas?

The explosive hazard risk levels are not assigned based on the inherent explosive threat of ordnance, following levels of protection and mitigation that can be effectively implemented.

### **11.1. Low Risk**

There is a low probability of residual explosive hazard within the buildings, rubble or debris, possessed risk to the personnel or the equipment are mostly from non-explosive ordnance components that may contain industrial chemical or radiations

### **11.2. Medum Risk**

There is a probability of multiple ordnance, of the same type, within the buildings, rubble or debris, specific explosive hazard posed to personnel or equipment from similar ordnance, of known characteristics and hazards. specific preparation, training and mitigation measures can be implemented.

### **11.3. High Risk**

There is a high probability of explosive Hazard of multiple ordnance of various EO types and quantity, within the building, debris and rubble posed to the personnel and the equipment, all personnel involved must be closely supervised, and to conduct operations with extreme caution and safety procedures shall applied by the organization during the task when dealing with IED and suspected buried weapons remove and clearance.

## **12. Recommended mitigation measures**

- 1) Explosive Hazard awareness training for worksite personnel
- 2) Explosive Hazard awareness training for crushing site personnel.
- 3) Keep non-essential personnel out of the worksite.
- 4) Divert human and vehicular traffic away from worksite.
- 5) Deploy Explosive Hazard awareness trained ground-guide during heavy machinery operations Visual search of worksite for Explosive Hazard prior to operations.
- 6) Removal of rubble by layer.
- 7) Do not allow workers to throw broken concrete and scrap on to un-cleared rubble.
- 8) Conducting rubble breaking on cleared flat ground.
- 9) Workers to wear high visibility vests to facilitate supervision.

### **12.1. Work-site may contain unexploded aerial bombs**

Pay attention to the rooftop of the collapsed building during rubble removal activities, and take note of holes that penetrate more than one level in the building.

Unusual mechanical parts like grey (or green) triangular metal sheets, and electronic components in heavy metal casings are indicators that there may be an unexploded aerial bomb inside

### **12.2. Work-site may contain unexploded missiles & rockets**

Unusual mechanical parts like black metal tubes made of thin metal, with wires, small pipes and burn marks on the inside or thin metal sheets that are yellowish in color on one side, and black on the other are indicators of unexploded missiles and rockets.

### **13. Clearance Plan**

Buildings Clearance plan should be comprehensive implementation plans depending on the threat assessment, it should be written in a methodical manner, provide a map for the execution of the Clearance with scope to deploy dynamic related to the process and the procedures, it should provide confidence regarding the quality of the final product that will be delivered. It is recommended that in dense urban environments plans are developed to include multiple buildings to increase efficiency and to be more comprehensive implementation plans covering a wider geographic area with multiple hazard areas.

Organization conducted building clearance shall submit the threat assessment report with the task implementation plans for the review and approve, the Clearance Plan may amend at any time during the operation however any changes or amendment shall be justified based on evidence and to be agreed and approve by NMAC.

### **14. Systematic clearance**

#### **14.1 Site Setting Out**

The nature of the building's clearance shall determine the task site set up and the standardization of site layout and all marking systems requirement as a minimum set up and temporary marking, the organization shall conform to the details within the SOPs to increase the safety of the personal involved in the building clearance and the civilians.

#### **14.2. Marking**

The boundaries of all buildings tasked area shall be marked with appropriate temporary markers. The methods to be used shall be flags, permeant marker or painted stones to clearly distinguish between the area cleared and un-cleared area, the appropriate method should be utilized after consideration of the prevailing of buildings and to be assessed after the clearance of each block as quality assurance and control.

#### **14.3. Classification and sub-division of hazardous areas**

The classification of the hazard areas inside the task boundaries, the organization must define the boundary of the hazardous area in which intervention will be made., the task area may include confirmed hazard areas (CHA), and open areas as suspected hazard areas (SHAs), or other areas free from the contamination, hazard areas are classified as such. The land released process shall carried out on the basis of available evidence in terms of presence and quantity with more clear and accurate description of the levels of confidence associated with evidence sources, and evidence analysis.

Classification should enable subdivision of hazardous areas within the task boundaries based on evidence, or lack of evidence to include in a threat assessment that will help in the sufficient and effective selection of appropriate intervention methods and techniques.

### **14.3 Buildings Clearance Visual Search**

Prior to conducting building clearance search, a visual search of the entire area shall be conducted. As a minimum, the metal shall be carefully removed from the ground and placed in the metal contamination pit. The area where the metal was removed from shall be checked visually and by the metal detector for additional signals, prior to moving forward.

The following should be considered when conducting the visual search:

- 1) Protruding fuses, EO, booby-traps.
- 2) Disturbance to the ground.
- 3) Depressions, holes, mounds.
- 4) Suspicious objects.
- 5) Other EO indicators (packaging, components, animal remains).

### **14.4 Buildings Clearance Procedures**

Building Clearance Procedures and techniques used during each project may differ according to equipment, the terrain, type of EO etc. All procedures used in clearance operations are to be fully explained step-by-step detail in the mine action organizations SOP.

The following are established humanitarian building clearance procedures and although, certain techniques required by the NMAC in Sudan.

The organization conducting building clearance may use one or a combination of the following recognized land released methods:

- 1) Non-Technical Survey (NTS).
- 2) Technical Survey (TS).
- 3) Battle Area Clearance (BAC)
- 4) Clearance (MMC).
- 5) Explosive Ordinance Disposable (EOD).

Confirm that the buildings have been cleared according to SNMAS and IMAS details guidance

The function of “finding” EO within the buildings is achieved through three functions:

- 1) Detect.
- 2) Locate; and
- 3) Recognize.

Procedures shall be based on the assessed threat and evidence that is properly recorded, and in keeping with an accredited quality management system. The greatest threat posed by EO that is tripwire or victim-operated. Once suspected or identified, it should be marked and qualified. EOD / IEDD should deal with it.

Following table provides a matrix of appropriate search procedures and techniques so that the appropriate clearance activity can be selected in accordance with a Threat Assessment.

Category	Threat Assessment	Activity	Appropriate Search Techniques
1	ERW only	BAC	<ul style="list-style-type: none"> <li>•Surface visual search, use of controlled and approved manual techniques to move furniture, doors, windows, appliances, debris and small rubble. Use of rakes and other hand tools may be appropriate.</li> <li>•All areas where ERW could have been placed, projected, thrown or dropped should be searched. This includes the roof, outer walls and piles of clothing, rubbish and debris.</li> <li>•PPE and safe separation distances should be risk assessed based against the ERW hazard with the highest probability of detonation.</li> <li>•Sub-surface detection, location and excavation techniques are not normal in buildings but may be considered in order to remove explosive ordnance depending on the requirements of the task.</li> </ul>
2	Sufficient evidence to discount specific threats	Adapted Clearance	<ul style="list-style-type: none"> <li>•Carefully controlled visual search of hard surfaces, furniture, household fittings and loose objects.</li> <li>•Avoidance of assessed firing switch locations until other areas have been searched. This is intended to increase the probability of identifying another component such as a main charge or battery pack to increase safety.</li> <li>•Use of aids and tools to increase the effectiveness of visual techniques. These include light sources, laser pens, finger-tip search and trip wire feelers.</li> <li>•Use of suitable detectors when appropriate.</li> <li>•Any manual movement of objects that could be incorporated into an IED or mine should be avoided.</li> <li>•When absolute assurance cannot be achieved that a surface or object is not part of, or connected to, an IED, it shall be moved via semi-remote techniques. This may include hook, line and weight droppers.</li> <li>•PPE and safe separation distances should be risk assessed based against the expected hazard in terms of fragmentation and blast. The structure of the building should be considered and the risk of collapse due to an unintended detonation assessed</li> </ul>
3	insufficient evidence to discount specific threats	Full Disruptive Clearance	<ul style="list-style-type: none"> <li>•Any area in the specified building must be considered to contain victim-operated EO and booby traps. Firing switches, although still may be more likely to be encountered in certain locations, cannot be discounted anywhere in the building with confidence.</li> <li>•Full systematic search and mitigation measures taken throughout the clearance operation.</li> <li>•PPE and safe separation distances should be risk assessed based on the worst-case scenario in relation to the assessed fragmentation and blast hazard.</li> </ul>

#### **14.5. Specification of Clearance**

Clearance of the building will be accepted as cleared when the MA organization applied all reasonable efforts and ensured that all structural surfaces and floors within the tasked area are free from EO.

Evidence gained through the interventions of non-technical and technical survey shall specify the boundary of the hazard area parameter in line with an assessment of the future use of the building and the clearance parameters shall depend on the intended use of the building, the likely EO contamination, as well as other environmental factors and the buildings clearance categories to be used.

The hazard area should not be cancelled based on being classified as a lower priority.

#### **14.6. Establishing Buildings Clearance Parameters**

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. Buildings clearance (CHA) or tasked area shall be divided into sectors or blocks and each sector or block to be marked by numbers or letters to specify the exact parameter of each tasked area, and the buildings clearance method shall be applied to the floor and the roof for houses that consist of one floor and for the buildings that consist of several floors based on the evidence gained through the non-technical surveys and the assessment, the buildings clearance shall start first by threat assessment to identify the vulnerable points that could be tripwire or victim operator to be avoided when initially gaining access to the building including:

Main entrances.

Doors and gates.

Approach routes and paths.

The buildings clearance productivity shall be registered in two ways vertical and horizontal as follows:

- The first land floor the square meter shall be registered as horizontal square meters.
- All the floors above the surface floor shall be registered as vertical square meters.

The organizations operations managers and quality management bodies shall conduct close and continuous monitoring to improve the building clearance process and procedures.

The buildings clearance will be accepted when the MA organization proves that all the tasked area is cleared to required depth according to the circumstances of the building to ensure that the buildings are free from EO.

If there is presence of large air dropped bombs, guided weapons, large caliber projectiles partially or completely buried or debris and rubble that required removal then the clearance depth could be several meters, apply all reasonable effort to achieve to ensure that no more hazard remain.

The approved clearance plan may be amended at any time during the operations however any changes or amendment shall be justified based on evidence and to be agreed and approved by

NMAC and detailed records and mechanisms for monitoring potential changes should be established.

#### **14.7. Buildings with Debris**

During Building Clearance there may be the requirement to remove debris. This could take the form of physical objects that are present as a result of damage to the building but may also include large discarded piles of clothes, books, rubbish or food. It may be possible to remove light debris through manual procedures, although this may be extremely time-consuming, particularly where a victim operated EO has been assessed.

### **15. Application of Assets for Buildings Clearance**

#### **15.1. 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.

#### **15.2. Demining machines used for Obstacle removal**

1) Armored tractors have been used to remove obstacles and debris from the building to exfiltrate the clearance operations, EO Risk Assessment in Debris Management (Rubble Removal) shall considered if IEDs are likely to be encountered, once clearance has reached a point where the debris can be gained, a tractor moves into the location and drags it out from a position on the edge of the building, this task is usually conducted by a backhoe on a hydraulic arm, once the obstacle is removed and manual demining can continue.

2) The buildings and targets can also be destroyed using mechanical means only for example bulldozers. These types of buildings tend to be low rise and result in the building being completely destroyed with rubble created is often pushed into piles, as opposed to a detonation spreading debris outwards in a radial pattern. Additionally, the target will lack signs of explosive detonation as will the surrounding buildings. Due to the large size and heavy weight of construction equipment, the target would usually require road access.

**15.3. Mine Detection Dog Clearance**

16. Mine Detection Dogs (MDD) can be applied to aspects of Building Clearance operations. Any deployment should be considered carefully; especially where the threat from victim operated EO is assessed to be present. Additional guidance on the use of MDD is provided in SNMAS.

**16. Composition of Manual clearance team (MMC)**

The following is required team composition of building clearance:

- 1x Technical supervisor holding the third level of blasting.
- 2x Team leaders (so that the team can be divided into two groups managed by the team leaders, and the overall supervision is with the team supervisor).
- 8x Deminers.
- 1x Paramedic.
- 2x Community liaison officers (CLO) to carry out the coordination, collect information, and provide EORE to citizens.

**17. Non-explosive Hazards**

Non-explosive hazards should be identified at the earliest opportunity.

Non-Explosive Hazards may include the following:

- 1) Structural integrity.
- 2) Hazardous enclosed spaces.
- 3) Working at heights.
- 4) Toxic Industrial Chemicals; and.
- 5) Toxic Industrial Materials.

The secondary hazards present by non-explosive hazards may pose a very significant challenges thus the clearance organization shall be capable to dealt with safely and effectively during the build clearance, if not have the capability to do so they should be clearly marked and recorded.

MA organization during the accreditation shall prove that the teams have the suitable qualification and experiance to deal with specific non-explosive hazards.

**18. Central Demolition Site (CDS)**

A location designated for the disposal, by explosive demolition, of mines and unexploded ordnance. The Central Demolition Site (CDS) must be at a safe distance minimum 5km from the city and populated areas in order to avoid any fragmentation falling, the central demolition site shall be identified by NMAC and to be secure by guards, may be use as EO store point unit. The supervisor shall be responsible for ensuring all actions relating to the removal or destruction of the EO in situ or in the CDS under his command and control, Further guidance can be found in (SNMAS 06.03).

## **Reporting and Handover**

### **19.1 Report**

The Building Clearance operation reports and information related to all aspects of the operation should be made available to confirm what Building Clearance activities have been conducted, the reports should be accurate and to be submit in timely manner to inserted into the information management system to facilitate access to data and decision-making process.

### **19.2. Handover**

The organization shall conduct all reasonable effort to clear the buildings according to NMAC tasking requirement and approve implementation plan, and the internal and external quality control process to be conduct during handover

Quality is often defined as the satisfaction of the stakeholder requirements, but it is also important to be confident that the requirements fit into the wider strategic goals, policy and direction:

To facilitate the process of the handover of the building clearance the clearance organization with NMAC operations and QA representative can agree to hand over parts of the tasking areas during the execution of the task to facilitate the final hand over.

## **19. Quality Management**

Quality Management is primarily on the implementation of effective and appropriate procedures to deliver expected outputs and outcomes, there are fundamental links to wider concepts such as Results Based Management and the need to 'make a difference'.

The organization shall develop the quality management (QM) system, internal monitoring procedures and the quality control (QC) to reduce the chances of tolerable risk level.

The primary means of reducing uncertainty, in any situation or circumstance, is the systematic collection and analysis of sufficient relevant information.

### **20.1. Quality Management Principles**

The following are the three key principles of the Explosive Hazard Risk Assessment Debris Management operations:

#### **20.2. process Approach**

The process approach is based on the confidence in the quality of the outputs and outcomes, it is necessary to have confidence in the inputs to that process and the activities within the process.to achieve the goals close monitory to be conduct by the clearance organization and the tasking manager quality management bodies.

#### **20.3. Continual Improvement**

The continual improvement of quality management system to reflects the professional commitment and identifying the problems within the system and find better solution.

#### **20.4. Evidence based**

Evidence based support decision-making, Explosive Hazard Risk Assessment threat level decisions and quality management

#### **21. Environmental Management for building clearance**

Mine Action operations and activities of building clearance involve preparations for searching for EO, Remnants of War (ERW) contaminated areas, which may include removal Depleted Uranium (DU) munitions could have produced a radio-active or toxic hazard and may well be part of the turret stocks of the AFV 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.

Sudan National Mine Action Centre (NMAC) responsible to ensure that all mine action activities including Building clearance 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,

National Mine Action Center (NMAC) with National center chemical and biological center and the national radiation-active or toxic munitions center signed a memorandum of understanding to coordinate together so as to improve the safety of mine action staff, civilian and the environments by further cooperation and coordination to provide training, equipment and awareness with regard the chemical, biological and radiations munitions.

#### **Risks and Liability**

Liability refers to any legal responsibility, duty or obligation with regard to destroyed in suite within the contaminated building shall be discussed with approved building owners for further damage as the result of the explosion and the format for the purpose to be arrange by clearance organization to prevent any further argument.

#### **22. Responsibilities and Obligations**

##### **22.1. Sudan National Mine Action Centre (NMAC)**

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

- 1) Develop, review and maintain Sudan National Mine Action Standard (SNMAS) and Standard Operating Procedures (SOPS).
- 2) Accredite organizations as capable and competent of undertaking buildings clearance.

- 3) Develop, manage and maintain Monitoring of Buildings clearance 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 for Building clearance 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.

**23. Mine Action building clearance Organizations**

Buildings clearance organizations working in Sudan shall:

- 9) Obtain accreditation from NMAC to operate as a building's clearance organization.
- 10) Apply the requirements of SNMAS throughout the building's clearance and land release operations, as specified in their contract agreements.
- 11) Develop SOPs for Buildings clearance and land release activities.
- 12) Maintain and make available documentation of Buildings clearance to NMAC and properly report their outputs in standard IMSMA forms as specified in SNMAS 10.05.
- 13) 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.
- 14) Ensure that the clearance priorities are considered throughout the building's clearance and land release operations.
- 15) Undertake internal monitoring and QC of buildings clearance activities and outputs, and regularly report to NMAC on the quality of the activities.