

# SLNMAS 04.10

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## Non-Technical Survey

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## Introduction

As part of the land release process, Non-Technical Survey (NTS) is the starting point used to systematically gather information and evidence about a new claim of hazardous area or an existing hazardous area recorded previously in the national database.

NTS is a cheap operation in comparison with Technical Survey (TS) and clearance and to a large extent will increase the effectiveness and efficiency of TS and clearance operations.

Before conducting any physical intervention into the hazardous areas, NTS should be conducted for classifying the hazardous area either as Confirmed Hazardous Areas (CHA) or Suspected Hazardous Area (SHA). Experience in many mine action programmes where there is already a database indicates that because of poor NTS operations, large areas of many SHAs and some CHAs are, in fact, hazard free when cleared.

Through proper NTS, the information collection process about existing and new claim of Explosive Ordnance (EO) contamination can be more reliable and accurate information will be recorded in the databases for the subsequent TS and clearance operations.

Well managed and effective NTS not only identifies the nature and extent of hazardous areas but also provides information to help all subsequent stages of the land release process be more efficient and reliable.

To ensure this, the mine action operators shall deploy qualified and competent staff for NTS operations.

## Non-Technical Survey

### 1. Scope

This standard describes the non-technical survey (NTS) process and establishes the minimum requirement that shall be followed by all mine action operators involved in the conduct of NTS operations in Sri Lanka.

### 2. Terms and Definitions

The term “**Suspected Hazardous Area**” (SHA) refers to an area where there is reasonable suspicion of Explosive Ordnance (EO) contamination on the basis of indirect evidence of the presence of EO.

The term “**Confirmed Hazardous Area**” (CHA) 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**” (NTS) 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**” (TS) 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 “**All Reasonable Effort**” describes what is considered a minimum acceptable level of effort to identify and document mined 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.

The term “**Cancelled land**” (m2) refers to a defined area concluded not to contain evidence of EO contamination following the non-technical survey of a SHA/CHA.

The term “**Reduced Land**” (m2) refers to a defined area concluded not to contain evidence of EO contamination following the technical survey of a SHA/CHA.

The term “**Cleared land**” (m2) refers to a defined area cleared through the removal and/or destruction of all specified EO hazards to a specified depth.

### 3. NTS Purpose

NTS is a key activity within the land release process and its purpose is to collect and analyse the information and evidence to make recommendations regarding the absence and presence of EO contamination in an area.

NTS will report the EO contamination either as SHA, CHA or spot EO hazard. It may recommend cancellation of some or all parts of a previously recorded SHA or CHA through repeated NTS if the area meets the cancellation criteria.

Furthermore, NTS operations should:

- a. prioritize the surveyed areas for subsequent TS and clearance operations.
- b. assess and report EO accidents involving human beings and animals.
- c. collect information about physical changes to the environment, such as deposition of soil by flooding and wind, erosion, landslides etc. that may have modified the local situation after EO Contamination in the area.
- d. collect information about the physical circumstances at the site, such as access routes, vegetation, soil, topography, infrastructure, agriculture, the local security situation, and other factors that may be relevant to decision-making processes.

#### **4. Output of NTS operations**

NTS involves collection and analysis of information through desk assessment, engagement and interviews with the relevant authorities, institutions, key informants as well as field observations.

The NTS intervention should result in providing reliable output based upon analysis of the findings of the survey including information about the type, nature and distribution of contamination within the area.

NTS output should include:

- a. Reports detailing what NTS activity was conducted, and 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 EO.
- b.
- c. Classifying the EO contamination either as SHA, CHA or Spot hazard task and provide recommendations for subsequent technical survey and clearance operations including use of appropriate assets.
- d. Recommendations on the basis of “all reasonable effort”, to cancel the existing SHAs/CHAs or part/parts of it through repeated NTS.

##### **4.1 Cancellation**

Following a comprehensive analysis of the information collected through repeated NTS, a previously recorded SHA or CHA should be partially or entirely cancelled, if the repeated NTS findings concluded that cancellation criteria met and no evidence of EO contamination identified in the area.

The repeated NTS shall be conducted based on the NMAS and the mine action operator Standing Operating Procedure (SOP) approved by the NMAC.

At minimum, the following criteria shall be met to recommend an area for cancellation:

- a. The repeated NTS was conducted by an accredited team.

- b. A thorough desk assessment and analysis of historical information and existing reports was conducted which concludes there is no evidence of EO contamination in the area.
- c. All relevant sources of information including women, girls, men and boys identified and accessed to find no evidence of EO contamination.
- d. At least three key informants were interviewed and confirmed absence of EO contamination in the area.
- e. Landowners and land users have been interviewed.
- f. There has been no information indicating an incident or accident in the area after it was recorded through previous NTS.
- g. The area is being regularly used since it was recorded as an SHA/CHA through a previous survey.
- h. The area is cultivated at least three times to the depth required for clearance method specified through previous survey.
- i. Justifiably all reasonable effort has been made and no evidence of EO identified after the area was recorded through the previous survey.
- j. Repeated NTS findings can confirm that the previous survey findings are not valid

The NMAC shall check if the cancellation criteria are met and then make the final decision to approve or reject the cancellation report.

## **5. Evidence Based Decision-making Process**

Any decision to confirm the presence and absence of EO contamination during NTS operations shall be based on the collection and analysis of evidence.

The quality, quantity and detail of available evidence will largely determine the quality and reliability of decisions.

Mine action operators involved in NTS operations shall identify and contact all relevant source of information and ensure to collect reliable evidence including but not limited to:

- a) types of EO hazard and tactics associated with their use, and if possible, the effect of time on their condition, distribution and detectability.
- b) evidence about the reliability of different information sources.
- c) evidence about the relationship between findings and recommendations arising from other surveys and what was subsequently discovered during technical interventions.
- d) evidence relating to accidents and incidents on previously cancelled, reduced or cleared land.
- e) evidence arising from quality management systems about processes and their products associated with EO programmes; and
- f) evidence arising from monitoring and evaluation of land-release process, including non-technical survey.

The use of all appropriate evidence in support of decision-making should be documented in order to establish and maintain confidence in NTS and in the overall

land release process. Such evidence should also be made available to support investigations into matters relating to liability.

### **5.1 Evidence:**

A CHA shall be defined on the basis of **direct evidence**. Examples of direct evidence include:

- a) EO records, where the reliability of such records has been confirmed during previous operations.
- b) Visual observation of EO, EO parts, fragmentation, or craters.
- c) Detonations during fires or by animals.
- d) Mine signs, fencing, ancillary equipment (boxes, canisters) etc. associated with contamination.
- e) EO accidents or incidents where the location of the event can be accurately determined.
- f) Visible evidence of IEDs or IED components such as partially exposed wires, pressure plates, locally manufactured main charges etc.

A SHA shall be defined on the basis of analysis of **indirect evidence** of the presence of EO. Examples of indirect evidence include:

- a) Potentially productive land not in use.
- b) Verbal reports from local population/former combatants.
- c) EO records, where the reliability of such records remains open to doubt or has not been assessed.
- d) Analysis of other known contamination areas, tactics, and historical sources.
- e) Former combatant zones.
- f) Evidence from previous surveys, not supported by direct evidence of the presence of contamination.
- g) EO accidents or incidents where the location of the event cannot be accurately determined.

More information on the evidence and source can be found in annex A of this standard.

## **6. Principles applicable to NTS**

The following principles will help to promote accurate NTS operations, every time it is conducted:

- a. Qualified and competent staff shall be deployed with the capability to reach all relevant information sources including women, girls, boys and men.
- b. Only relevant and reliable sources of information shall be identified and accessed by the NTS team.
- c. Sufficient evidence should be collected to make credible conclusions based on the analysis of the evidence.
- d. The information collected during NTS operations shall be properly documented and reported for the subsequent technical interventions.

- e. A forward-thinking approach should be adopted during the planning phase through analysis of all existing relevant information about a specific area. Some information may seem less important at the time of the survey but may prove very useful in the future. Careful consideration should be given to a detailed analysis, together with all relevant stakeholders, of the desired output(s) from the NTS operations.

## **7. The Non-Technical Survey Process**

NTS typically involves a desk assessment and analysis of the available information, seeking and collecting information from the key informants as well as field observations.

It should follow the following stages:

- a) Planning and preparation.
- b) Information collection.
- c) Collation and evaluation.
- d) Analysis, integration, and interpretation.
- e) Dissemination and use.
- f) Review.

### **7.1 Planning and Preparation**

Planning and preparations for a non-technical survey is an essential step and shall be carried out prior to the survey being conducted. When planning for such a task, it should always be remembered that safety will always be of the highest priority.

Planning and preparation are essential in order to ensure that NTS objectives can be achieved.

The MA operator should be responsible for planning and preparation of their NTS operations in coordination with the NMAC.

#### **7.1.1 Determining of Priorities**

During this phase of the planning and preparation it is important that priorities are determined for the areas to be surveyed. When determining priorities, it is of utmost importance that the NMAC takes all stakeholders in consideration. The following stakeholders shall be taken in consideration to determine the priorities:

- a) The District Government Agents of the EO contaminated districts.
- b) The District Secretariats of the EO contaminated DS divisions.
- c) The Grama Nidhari (GN) of the various EO contaminated GN divisions.
- d) The relevant mine action operators
- e) The local population is directly influenced by the threat.



### 7.1.2 Survey Plan

When priorities are determined and approved a plan is to be compiled to address the process, the utilization of survey resources and the survey activities to be conducted to address the priority areas in the most effective manner.

The plan shall indicate the NTS resources, priority areas to be surveyed and the time schedule to conduct the activities.

All available background information should be provided to the NTS team prior deployment to the field. The following are examples of information that may be available:

- a) Reports of the previous survey and clearance conducted applicable to the tasking order.
- b) List of possible points of contact (available names and location of people that should be interviewed).
- c) Available information on EO incidents that occurred within the area to be surveyed.
- d) Contact information of administrators, military commanders, hospitals, previous reliable sources, etc.
- e) IMSMA records indicate all SHA and CHA already recorded in the area to be surveyed.
- f) Maps, satellite images, aerial photographs and sketches.
- g) SLA minefield records if available.

After completion of the survey, the NTS team leader should add all gathered information (NTS relevant reports, all notes taken during the survey, photos, maps and sketches made) and submit it to their office.

Desk Assessment. After receiving the available background information, the NTS team shall conduct a desk assessment of all available information before deploying to the field for NTS operations. It shall use all available documents, data records and sources that are relevant to history of conflict and EO accident in the relevant community, previous records of mine action operations, cultural assessment, language spoken in the area, gender considerations, security analysis, potential land right disputes, socio/economic development plans or similar.

The following should be done by the NTS team:

- a) Review all the available background information and determines the task at hand and the reason for the survey.
- b) The location of the areas to be surveyed.
- c) The time allowed for completing the survey.
- d) The best route to the areas and distances to travel.
- e) Date and time for departure. Allow time for briefing of the team, briefing of the Project Leader/Ops department personnel, preparation of equipment and vehicle, and administrative preparations.
- f) An initial data collection plan. Identify initial points of contact and make appointments for interviews if possible.
- g) Availability of accommodation in the areas to be surveyed for the survey team if necessary.
- h) Stores and equipment to be taken along. See Annex B for a suggested list of equipment for NTS operations.
- i) Compile a list of information to be gathered and possible sources of information.

Preparation of equipment. The equipment necessary to conduct a non-technical survey is listed in Annex B. It is the minimum equipment necessary for non-technical survey and any additional equipment is at the discretion of the relevant mine action operator. All the team members are to be conversant with the use and performance of each item. Rehearsals are to be conducted where necessary. Prior to the departure for NTS, the following is shall be carried out:

- a) Equipment is to be checked for serviceability and exchanged if found to be faulty.
- b) The vehicle is to be thoroughly checked, prepared and fueled up.
- c) Ensure enough stationery for taking notes, to complete survey reports and to draw the required sketches.
- d) Ensure that all the maps required are obtained and that routes are determined and marked out.
- e) All water containers are to be filled up.
- f) Check communications (radio, telephone, etc) and maintain contact throughout their mission.

Briefing to the Project manager/TA and Operations officer. The clearance organisation's project manager or TA and the RNMC Operations officer (if available) are to be briefed by the team leader of the NTS plan, any problems the team may have had with their planning, any problems they can foresee, and provide an update on the general situation.

#### **7.1.4 Movement to the survey areas**

Unless a member of the survey team is familiar with the route to the areas a guide must be asked for from the GS and/or GN administrator. The survey team should not attempt unknown routes without a guide.

All off road driving is to be kept to used vehicle tracks only and under no circumstances is the vehicle to leave these tracks. Personnel should wear seatbelts at all times, when available, while travelling. If personnel are required to leave the vehicle, they are to stay on the vehicle tracks and conduct any necessary function from there.

The route and the road conditions are to be recorded in the survey report and an assessment of what the road conditions may be like in various weather conditions.

### **7.2 Information Collection**

The second stage of the NTS involves the collection of information. The trained NTS teams shall be responsible for the collection of the information. The method used by the teams to collect the information during NTS will be through interviewing of key informants and the recording of what they observe during their visit to the area under survey.

The NMAC should also establish special arrangements and procedures with other agencies and government institutions, including the use of liaison officers and/or special arranged meetings to improve access to information that will assist the planning and conducting of NTS and other mine action activities.

#### **7.2.1 Sources of Information**

The NTS teams should ensure to seek and identify all relevant sources of information and that information from these sources is appropriately collected and recorded.

NTS teams shall assess the reliability of the sources of information.

The following are possible sources of information and should be interviewed by the NTS teams where possible:

- a) GS and GN Administrators. The administrators normally have some idea where the mine affected areas within their areas of responsibilities are. They can also bring the survey teams in contact with other informants. They may also provide a general idea of what type of resources are blocked by EO from the local population.
- b) Local police. These members live amongst the population and should have a good knowledge of the existing EO threat in their area. The possibility that the population reported hazardous areas and EO incident to them is great. They can also bring the NTS teams in contact with other informants.
- c) Military Commanders. The military currently deployed in the areas can also provide some information about hazardous areas encountered by them during their routine activities in the area. The possibility also exists that some of the commanders were also deployed in these areas during the conflict and therefore may know where landmines were laid and/or encountered. Military Engineers may have been involved in the removing of EO in the affected areas and it is important to obtain information about the locations of such activities.

*Note: A letter of introduction may be required to introduce the NTS team to the local military commanders. Or a letter of authorization may be required to explain the purpose of NTS Team's visit to the AOR of local military establishments.*

- d) Local hospitals and clinics. Local hospitals can provide information concerning EO victims. It is important to obtain the sex and age disaggregated details of such victims as well as the type of injury sustained, and treatment provided.
- e) EO victims. The information obtained from EO victims can give a clear indication of the location of hazardous areas, the level of contamination, the tendencies of local population and the level and impact of Explosive Ordnance Risk Education (EORE) programmes. It is very important to get an accurate location (as close as possible) of where the incident occurred and what the victim was doing at the time of the incident.
- f) EORE teams. EORE teams are in constant contact with the local population and gather information regarding the location of some hazardous areas. EORE teams also collect information concerning EO victims in their areas of responsibility and may also have information on how much EORE that has been provided in their areas, what areas still need EORE, which part of the population is mostly affected by the presence of EO and what is the local population's tendencies and reaction towards the presence of EO.

- g) Local population. The local population, comprising women, girls, boys, and men that are affected by the presence of the EO. They can provide a clear indication on the ground where the EO threat is and what accesses to resources are blocked by the threat. The population may also indicate what types of EO are present, who laid it and when it was laid. Where local population lost livestock (like cattle, goats, dogs, etc.) due to the EO explosion, the location of the incidents will give a clear indication of the location of the hazardous area. Local population can also provide an indication of what the contaminated land was used for before it was mined and what it is planned for after it is cleared.
- h) The local religious leader plays a vital role in the lives of the local community, and they have lots of access to the information in the contaminated land. They can lead to the most of the reliable information sources of the local community.

See annex A for more information on the evidence and source information.

### **7.2.2 Information to be collected.**

NTS is providing recommendations regarding the absence and presence of EO contamination in an area. Information shall be collected about EO contaminated areas and areas that are not contaminated.

Information collected during NTS operations should include but not be limited to:

- a. Location of all SHA or CHA
- b. Geographical reference point for the area that is easily identifiable, fully described, marked and coordinates fixed.
- c. Historical information on the area (was there fighting in the area and when the area contaminated by EO)
- d. General remarks and severity of the SHA and CHA in the area.
- e. Visual evidence of EO in the area.
- f. EO accidents history.
- g. Uncleared military installations in the area.
- h. Suspected ordnance in the area.
- i. Locations of military installations, bunkers, defence bunds etc.
- j. Terrain data in terms of vegetation and ground profile.
- k. Blockages caused by EO contamination
- l. EORE activities that have taken place
- m. Estimated population figures.
- n. Any mine marking and clearance (By whom and where).
- o. The best routes to the area (geographical reference)
- p. Medical facilities
- q. Names and contact details of all key informants and other locals interviewed, indicating gender of all informants.
- r. Contact details of GN administrator

Where NTS is to be conducted on an existing SHA or CHA, it is also very important to record what the survey team observes, for example:

- a) Ground that is supposed to form part of a hazardous area is freshly ploughed.
- b) Grass is freshly cut within the area.
- c) Animals are grazing in the area.
- d) Children are playing in an area that was recorded as SHA or CHA before

- e) Construction is taking place within the area.
- f) Safe routes/paths taken by local population through hazardous areas.

### 7.2.3 Interviews

NTS team shall engage with the communities in an inclusive manner.

The NTS team shall engage with landowners, land users, key informants and the representatives of the different socio-economic, age, gender, and language groups present in the community.

The Sri Lankan Data Collection sheet for NTS that is IMSMA compatible should be the source of what questions to be asked during the interviews. It is important to determine beforehand what information to gather before an interview commences. A suggestion is to compile a list of questions to be asked before a source is interviewed. This will ensure that nothing is missed during the interview.

When interviewing key informants, the survey team shall keep the following in mind:

- a) It is important to seek the permission of the respondent before carrying out the interview.
- b) Declare the purpose for which the interview information is being collected.
- c) Mention the agencies responsible for authorizing the interview process (for instance, it is sanctioned by RMAO and the GA, DS and GN administration).
- d) Explain that the identity of the interviewee will remain strictly confidential.
- e) Start the interview process with the least contentious questions to build confidence between the interviewer and the interviewee.
- f) Questions should be easy to understand, culturally sensitive and specific and should not prejudice the response.
- g) If the interviewee knows the location of EO contaminated area and/or incidents location, do not follow him/her into the hazardous areas but ask him/her to indicate the locations from a safe area. Always observe, take measurements, bearings, photos, etc. from a safe area. Never enter a hazardous area.
- h) Where specific locations cannot be pointed out on the ground by interviewees let him/her indicate it on a map to determine the approximate coordinates or let him/her draw a sketch from the identified Viewpoint (grid referenced) with estimated distances, landmarks and directions.
- i) Gathered information should always be verified.

## 7.2.4 Field Observation

Staff conducting NTS shall not intentionally enter SHA nor CHA. Observation shall be conducted from a safe area outside of the possible hazardous area.

Personnel shall always display common sense when conducting field visit and shall not attempt to enter the hazardous area. When conducting field observation, they shall be accompanied by a key informant who knows the area and the location of the EO contaminated area. Personnel shall not leave the safety of vehicle tracks or hard standing, however, where a reliable guide can be used then it will be acceptable to do this. If this is the case, then below points shall be followed:

- a) Clearly explain to the guide that you are not to enter the hazardous area and require only the approximate boundaries.
- b) Site the vehicle in an accessible location (the vehicle should be parked such that it can exit without further manoeuvring), and the driver prepare it as an emergency evacuation vehicle.
- c) Tell the guide to move slowly, so that you may follow easily.
- d) Establish radio communication with the team paramedic and maintain it during the movement.
- e) If available, establish also communications with the clearance team and inform them about your planned movements.
- f) If needed leave the survey assistant at the vehicle or a safe point where it will be possible for him/her to observe your movements.
- g) Follow the guide at a safe distance of at least five meters.
- h) Walk in the footsteps of the guide.

Personnel should remember that guides are not always EO Risk Education (EORE) trained and may carelessly take you within centimetres of an EO to show it to you. The likelihood of other EO being in close proximity shall be explained to them.

## 7.2.5 Navigation

Survey personnel should be competent navigators and are required to find, and plot on a map, the approximate boundaries of hazardous areas. This can be achieved by shooting bearings from several known safe points to a boundary extremity (given to you by the guide). Marking out the bearings that intersect with each other will reveal the approximate size of the hazardous area.

The GPS is the primary tool for finding fixed positions. Where it is impossible to take GPS readings the method of resection using a compass, map and paces shall be used. The vehicle trip meter should also be used where recording routes. All necessary coordinates are to be recorded in the Survey report.

All reference points are to be clearly identified, permanently marked on the ground and accurately recorded. The following reference points are applicable to NTS operations:

- a) Geographical reference. A fixed point of reference, some distance outside hazardous areas. This point is normally fixed in the community/village where the survey is initiated. It should be an easily recognized and permanent feature (such as a school, church, cross-roads or a bridge) which can be used to assist in navigating to one or more viewing points and/or starting points. The exact position should be identified by GPS and its coordinates shall be recorded in WGS 84 as datum. The geographical reference must be described in detail in the survey report.
- b) Benchmark. A fixed point of reference, some distance outside hazardous areas. The position from where one or more hazardous areas were viewed by the survey team. It should be an easily recognized feature and permanently marked on the ground which can be used to assist in navigating to one or more starting points. The exact position shall be identified by GPS and its coordinates shall be recorded in WGS 84 as datum. These should be accurately recorded to a minimum error of 3 meters.
- c) Starting Point. Indicating the starting point of the boundary of the hazardous area and is a permanent point of reference. The point must be permanently marked. The exact position should also be identified by GPS and its coordinates shall be recorded in WGS 84 as datum. The position shall also be fixed by a compass bearing and distance from the viewing point and/or geographical reference.

### 7.3 Analysis of collected information.

NTS team shall analyse the collected information before making recommendations and reporting of the NTS findings.

When recommending the creation of a SHA or CHA, the NTS team shall justify how the analysis of information leads to that recommendation.

If the NTS identified and engaged with all relevant sources of information and that it did not collect information indicating the presence of EO, the area shall:

- a. Not be recorded as a SHA or CHA if subject to NTS for the first time; or
- b. Be cancelled if it was already recorded as a SHA or a CHA.

Cancellation of a previously recorded SHA or CHA shall follow the cancellation criteria detailed in annex C of this standard.

#### 7.3.1 Recording

Wherever possible the original documentation (such as questionnaires and interview notes) should be retained, although additional information may be added for clarity or amplification. However, no attempt should be made at this stage to analyse or interpret the information as this may lead to early and false deductions being drawn from an incomplete set of data; and these deductions may, in turn, influence the way in which the remaining information is collected and interpreted.

NTS findings can easily be wasted if information gained has been recorded incorrectly. The survey team are to ensure the information they record is as accurate as possible. Coordinates and bearings in particular need to be very accurate and precise. Coordinates to the following need to be supported with a sketch and a description of the area:

- a. Geographic reference.
- b. Viewing points.
- c. Starting points.

- d. Safe areas around a hazardous area.
- e. The approximate boundaries of the identified hazardous areas.
- f. Visible EO within the area.
- g. Locations of EO incidents.
- h. Military positions like bunkers, trenches, defence bunds, etc.
- i. Other facilities that may support the follow-up technical survey and clearance operations.

Not always will the NTS team return to a site to act as guides, therefore all information that is recorded shall be accurate so that others may find it easy to follow. The survey team shall complete all the recording, sketches, overlays, etc. before leaving the community to ensure that no information is missed and if more information is needed it can be collected before departing.

All the accidents and incidents identified during the desk assessment and the accidents and incidents reported by the members of the communities during engagement with them shall be further assessed.

The information should be collected in a systematic manner and the data collection sheets as part of the NTS process shall be used to record all information. Writing on the Data collection sheets shall be readable, clearly understandable and the sheets shall be kept clean. All efforts shall be made to complete the data collection sheet in its entirety (All fields to be filled in as accurate and comprehensive as possible). The handwritten data sheet may be retyped or entered into a digital form and printed for submission to the RMAO, but the handwritten form shall still form part of the submitted task dossier.

After completion of the data collection sheet, map overlays and sketches the survey team leader shall insert it into the task dossier with all the notes made during the survey. The team leader will review the information for completeness before submitting it to the Project Manager/TA or RMAO Operations Section.

### **7.3.2 Mapping and Sketching**

The NTS team shall produce the following maps and sketches during NTS operations:

- a) Map Overlay. A map overlay shall be done of the survey team's area of responsibility indicating the geographical reference points, routes, identified SHA or CHA, viewing points and starting points. State the map name, scale and datum of the map used. Ensure that the GPS and map datum correspond every time when using the GPS.
- b) Sketch per each SHA or CHA. A scaled sketch map shall be drawn for each SHA or CHA identified during the NTS. The minima that are to be plotted on the sketch are the geographical reference, routes, the determined boundary of the hazardous areas, the viewing point and starting point with grid references, turning points, bearings and distances.

### **7.3.3 Marking of Hazardous Areas**

If SHA and CHA are found not to be marked, the NTS team shall use the markers and marking tape in their equipment and mark the most obvious entrances to the hazardous areas to warn the local population of the threat. It is also important to inform the local population of the markings and its location and request them not to tamper with the markings.



## 7.4 Evaluation of Information

The Operations Section shall conduct the evaluation of the NTS reports received from the MA operator. It involves the assessment of each piece of information as it is received for its relevance and accuracy. Duplication and obvious errors such as transposed coordinates/grid references shall be corrected.

Each source of information shall be assessed in terms of its proven reliability and credibility according to the following three criteria:

- (A) **First-hand sources of information;** people and institutions with first-hand knowledge of when and where mines were laid or the EO accidents happened. This information may be considered more accurate than second and third hand information. First-hand sources of information may include military, police, EO victims, others who observed mine laying or accidents etc.
- (B) **Second-hand sources of information;** people and institutions that did not observe the EO contamination or EO accidents but have been told by others about the EO threat. Second-hand sources of information may include villagers, pedestrians, local authorities, farmers, hunters, hospitals etc.
- (C) **Physical evidence of mines;** physical observable information that indicate various degrees of evidence of EO. Physical evidence may include craters, military positions, trench lanes, local mine marking etc.

Each piece of information should also be assessed in terms of its accuracy according to the following four criteria:

- (1) Confirmed by other sources.
- (2) Probably true.
- (3) Improbable.
- (4) Accuracy cannot be judged.

It is most important to reduce uncertainty and to correct inaccuracies at this stage. Inaccurate and misleading data will impact on later stages of the process and may reduce confidence in other (and more accurate) information collected during the survey. Greater effort at this stage enables resources to be focused more effectively on follow-on activities such as EORE, technical survey and clearance.

### 7.4 Analysis, integration and interpretation

The Operations Section shall be the main player during this stage supported by the Information Section.

Analysis involves the detailed examination of each piece of information, once it has been evaluated, to identify significant facts and to draw appropriate conclusions. At this stage it may be considered necessary to revisit the source of information to confirm its accuracy or completeness.

Integration involves the detailed examination of two or more pieces of information to establish patterns and to draw conclusions. Examples are the integration of the existing hazardous area survey reports and the new reports from local communities, the latest movement of population observed in the surveyed areas, or the integration of information from EORE/victim assistance assessments regarding EO casualty data.

Interpretation is a systematic process that leads to deduction. It relies on experience, professional judgement and an understanding of the local context in which the data was collected. New information is compared with what is already known or suspected. This may increase confidence in the reliability of a source of data, or it may raise new questions or uncertainty.

Effective analysis, integration and interpretation require specialist skills such as photographic/imagery interpreters, linguists and experienced deminers. Such skills may be in short supply and will take time to train.

This stage of the process should be well documented with assumptions clearly stated and reasons given for all deductions and conclusions. This provides a 'review trail' which can be re-visited should new information become available or should assumptions subsequently be revised or refined.

#### **7.4.1 Recording and Filing**

The IMSMA shall be used to enter all approved information and to manage it. Only completed, accurate and approved information shall be entered into IMSMA. The Operations Section is responsible for approving information that is to be entered.

The Information Section shall develop and maintain a proper filing system for the NTS reports

#### **7.5 Dissemination and use**

Dissemination involves the publication of the information collected during the NTS so that it can be readily and easily used and exploited. The form and means of dissemination should be agreed with the NMAC Operations Department at the start of the survey but may need to be revised to reflect changing requirements such as the handling of restricted information.

Information should be made available in a form that is appropriate for its local use and exploitation, and subsequent review. This may include reports, summaries, maps, verbal briefings, and electronic media. Maximum use shall be made of the IMSMA. It is therefore important that all information shall be compiled in the standard IMSMA formats developed for Sri Lanka.

#### **7.6 Review**

NTS is not an end in itself. As stated earlier, it should normally be subject to continuous review with new information being added, and the implication(s) of that information being adequately addressed. In particular, changes to assumptions and to the reliability of sources of information should be revisited on a regular basis, and the implication(s) of these changes examined fully.

## 8. Quality management

The mine action operators shall obtain accreditation from the Sri Lanka NMAC to conduct NTS operations.

Mine action operators involved in NTS operations shall have approved SOP and develop training management packages in accordance with their SOP for training of their NTS teams.

NTS shall be conducted by well-trained and competent staff.

Competences for NTS shall include but not limited to:

- Knowledge of land release and the role of NTS according to SLNMAS.
- Knowing and understanding the criteria for the classification of SHA and CHA according to SLNMAS.
- Appropriately recommending cancellation of SHA and CHA according to criteria specified in SLNMAS.
- Understanding and recognizing the type of EO contamination in Sri Lanka.
- Knowing what outputs are expected from NTS.
- Appropriately and correctly using the equipment listed in the SOP of the mine action operator.
- Ability to Conduct desk assessment and analysis of available information.
- Ability to plan and prepare for NTS operations.
- Understanding and applying safety procedures requirements
- Ability to engage with relevant authorities and communities.
- Engaging with the population including organizing meetings and conducting interviews.
- Observing areas and identifying evidence.
- Analysing the collected information.
- Installing improvised marking.
- Preparing and submitting relevant reports in accordance with SLNMAS.
- Ability to effectively communicate the initial findings of the NTS to the community after completion of the survey.
- Ensure the community, including the landowners and the land users, understanding of the marking,
- Understanding and applying the quality management requirement related to NTS operations.

Mine action operators conducting NTS operations shall consider the variety of local languages and ensure that their NTS teams can communicate with the local population.

### 8.1 Monitoring of NTS operations

The monitoring of NTS shall be conducted in accordance with SLNMAS 08 on QM.

The mine action operators conducting NTS operations shall conduct internal monitoring of NTS operations. Mine action operators shall ensure and be capable of demonstrating that the staff conducting NTS have received suitable and sufficient training. Both training and experience of relevant personnel shall be documented in the training records. The NMAC should verify that the staff conducting NTS has received required training in accordance with the accreditation agreement.

Demining organizations conducting NTS shall maintain detailed records of:

- Competences of the staff conducting NTS; and
- Training and refresher training.

## **8.2 Quality control**

The mine action operators shall control the quality of NTS reports including the analysis of evidence before sending these reports to the NMAC.

NMAC shall control the quality of NTS reports including the analysis of evidence.

## **9. Responsibilities**

### **9.1 NMAC**

The NMAC is ultimately responsible for all phases of the land release process within Sri Lanka, including NTS.

- a. shall establish and maintain a system for the collection, analysis, recording and dissemination of information on the EO threat as part of NTS operation.
- b. Shall accredit MA operators as fit to undertake NTS operation.
- c. Shall develop and keep update national mine action standards including standard for NTS operations.
- d. Shall develop forms for field operations reporting.
- e. Shall develop criteria for cancellation of previously recorded SHA/CHA.
- f. Should identify the NTS tasks to be conducted in accordance with the approved priority list of contaminated areas.
- g. Should monitor NTS team activities and their progress.
- h. Should check and evaluate the NTS reports.
- i. Should utilise the NTS information to understand better the nature, extent and distribution of contamination

### **9.2 MA Operators**

- a. Shall gain accreditation from the NMAC to conduct NTS operations
- b. Shall deploy competent and trained staff for NTS operations.
- c. Shall provide administrative and logistical support to survey teams.
- d. Shall conduct internal monitoring of the NTS teams' activities and their progress.
- e. Shall ensure the submitting of complete and comprehensive survey reports.
- f. Shall develop SOP in accordance with this SLNMAS for the implementation of NTS operations.
- g. Should consult closely with men and women in the affected communities, as required, with regards to all decisions made by non-technical survey

- h. Should collect the necessary information as required by the non-technical survey documentation.
  - a. Should keep the RNMAC update of the NTS progress and findings.
  - b. Should conduct a formal handover of assessed sites to organizations conducting follow-on activities if requested

## Annex A Source and evidence

### General

The reliability of the sources and the accuracy of the information shall be systematically assessed.

### A.1 Sources of information

The NTS operator shall demonstrate that all reasonable effort to identify and access the relevant sources of information has been made.

Sources of information shall be categorized and reported as follows:

- a) Type 1 sources of information.
- b) Type 2 sources of information.
- c) Type 3 sources of information
- d) Completion survey teams

### A.2 Type 1 Sources

Persons or institutions with the first-hand knowledge about the presence of EO because:

- They have been directly involved in the action resulting in the presence of EO.
- They have directly witnessed the action resulting in the presence of EO.
- They have seen the presence of EO.

Type 1 sources of information can include members of the defence and security forces, armed groups, persons who physically observed the EO in the area, victims of EO, persons who witnessed accidents or the use of EO.

### A.3 Type 2 Sources

Persons or institutions who do not have first-hand information about the presence of EO, but who were informed about the presence of EO by persons or institution with first-hand information.

Type 2 sources can include members of the community who received direct information from defence and security forces, administrative and informal authorities, community members, victims of EO, the media, employees of non-governmental organizations, medical personnel, etc.

### A.4 Type 3 Sources

Persons or institutions who do not have knowledge about the presence of EO but whose information may contribute to surveys including desk reviews.

Type 3 sources can include institutions possessing satellite imagery, historians, etc.

### A.5 Completion survey team

Members of completion survey team who, collected information from key informants on the possibility of EO contamination.

### A.6 Evidence

The NTS operator shall demonstrate that all reasonable effort to identify and access evidence if it were available has been made.

### A.7 Nature of the evidence

Evidence shall be categorized and reported by their nature:

- a) Physical evidence.
- b) Documents.
- c) Testimonies.

Physical evidence is observed by the non-technical survey team or technical survey team. Physical evidence may also be indicated by sensors.

During NTS, physical evidence may be observed:

- through vision of the NTS team members including when using binoculars.
- with the support of sensors such as camera.

Information about physical evidence that has not been observed during NTS or TS shall be categorized either as testimony or document depending on the source of the information. For example, satellite imagery or mapping conducted with drones shall be considered as documents and testimony.

### A.8 Indirect and direct evidence

Evidence shall be categorized by their value:

- Direct.
- Indirect.

The NTS team shall demonstrate how the collected indirect and direct evidence contributes to the identification and classification of hazardous areas.

An indicative list of evidence is provided below.

**Table 1 - Physical evidence**

<b>Explosive ordnance</b>	
Visible or partially visible EO	Direct evidence. However, it may lead to a CHA or EO hazard spot depending on other information.
Elements of EO such as components of a submunition carrier or fragments.	May constitute direct evidence. However, it should be supported by other evidence to conclude if it is a CHA or EO hazard spot.
Wires-trip wires	May constitute direct evidence. However, it should be supported by other evidence to conclude if it is a CHA or EO hazard spot.
EO signs, marking, packing, boxing, leftover, notes	May constitute direct evidence. However, it should be supported by other evidence to conclude if it is a CHA or EO hazard spot.
<b>Ground sign</b>	
Indication on the emplacement of mines including hand-made or mechanical holes, indications of regular diffing or camouflage.	May constitute direct evidence. However, it should be supported by other evidence to conclude if it is a CHA or EO hazard spot.
Traces of explosions on the ground including craters, shattered trees, signs on asphalt surface after shelling with cluster munitions, craters with shrapnel rings	May constitute indirect evidence. However, it should be supported by other evidence to conclude if it is a SHA, CHA or EO hazard spot.
Traces of explosions on and within buildings or infrastructures including traces of impact, burns and partial or total destruction	May constitute direct evidence. However, it should be supported by other evidence to conclude if it is a CHA or EO hazard spot.
Other traces of explosion including shattered trees	May constitute direct evidence. However, it should be supported by other evidence to conclude if it is a CHA or EO hazard spot.
<b>Damage on vehicle and equipment</b>	
Destroyed, damaged or abandoned military vehicles, equipment and civilian vehicles and machinery.	May constitute direct evidence if the destruction or damage clearly indicates EO was the cause. Indirect evidence in other cases. Destroyed, damaged or abandoned military vehicles should still be considered EO hazard spots when no evidence indicates a SHA or CHA.
Dead bodies and other human remains	May constitute indirect evidence. It shall be supported by other evidence to conclude that it is a SHA. Dead combatant bodies and remains may constitute EO hazard spots if there is evidence,

	they could have EO (hand grenade, rifle, rocket propelled grenade etc with them even when no evidence indicates a SHA or CHA.
Dead animals and animals remains	May constitute indirect evidence. It shall be supported by other evidence to conclude if it is a SHA or CHA.
<b>Military positions</b>	
Trenches, defensive positions, combat outpost	May constitute indirect evidence. However, it should be supported by other evidence to conclude if it is a SHA, CHA or EO hazard spot.
Logistic and ammunition depot	May constitute indirect evidence. However, it should be supported by other evidence to conclude if it is a SHA, CHA or EO hazard spot.
Point of tactical or operational interest such as channelling point, crossing points	May constitute indirect evidence. However, it should be supported by other evidence to conclude if it is a SHA, CHA or EO hazard spot.
<b>Use of land</b>	
Productive land not in use	May constitute indirect evidence. However, it should be supported by other evidence to conclude if it is a SHA, CHA or EO hazard spot

**Table 2 - Documents**

<b>Media</b>	
Geolocated photographs and videos containing physical evidence as in table one	May constitute direct evidence or indirect evidence as in table one
Geolocated photographs and video containing information on mine and booby trap placement	Direct evidence.
Information on EO accidents and incidents	Direct evidence. However, it should be supported by other evidence to conclude if it is a CHA or EO hazard spot.
<b>Military documents</b>	
War diary of military units	May constitute direct or indirect evidence
Military records and notes on earlier mine laying.	May constitute direct and indirect
Military records on artillery shelling	May constitute direct and indirect evidence
Air bombing data	
Military document on earlier military clearance activities	

**Table 3-Testimonies**

Testimony on the presence of physical evidence as in table one	If confirmed through observation by NTS team it may constitute direct or indirect evidence as in table 1. If not confirmed by NTS, then it may be classified as indirect evidence at best. The information can be dismissed if the source is assessed not to be reliable.
Testimony on mine laying, military clearance, shelling, air bombing	May constitute direct evidence if from a reliable type 1 source (first-hand knowledge) and the activity can be located. May constitute indirect evidence if from a reliable type 1 source but can be precisely located. May constitute indirect



	evidence if from a reliable type 2 source (second-hand knowledge).
Testimony on EO accident and incident	May constitute direct evidence if confirmed by other sources or triangulated with other information or evidence. Should constitute indirect evidence if not confirmed but from a reliable type 1 or type 2 source. In any case, it should be located and supported by other evidence to conclude if it is a CHA or EO hazard spot.
Explosions	May constitute direct evidence if confirmed by other sources or triangulated with other information or evidence. Should constitute indirect evidence if not confirmed but from a reliable type 1 or type 2 source. In any case, it should be located and supported by other evidence to conclude if it is a CHA or EO hazard spot.

## Annex B- Equipment for Non-Technical Survey Team

The following should be the minimum equipment to be carried by a Non-Technical Survey team:

Serial No.	Description	Quantity	Remarks
1	Binoculars	1	
2	Compass	1	Prismatic
3	Maps	Set	Of the area to be surveyed
4	Protractor	1	Degrees
5	GPS w/ spare batteries	1	
6	Digital camera	1	
7	Task Dossier with IMSMA data collection sheets	1	Ensure enough copies of the data collection sheet
8	Notebook & pen	1	
9	Drawing paper and pens/ pencils	Qty	
10	4x4 Vehicle	1	
11	Medical trauma kit with stretcher and oxygen	1	
12	Mine signs	20	
13	Mine marking tape	2 rolls	
14	Red marking paint w/ brush	1 tin	To mark reference points
15	Metal pickets short	20	To mark reference points
16	Binding wire		To fix mine markers to objects
17	Means of communication	1	
18	EO recognition book,	1	

## Annex C- Cancellation form

### 1. General information

1.1 MA operator:		1.4 Cancellation date:	
1.2 Team number:		1.5 IMSMA ID number of SHA/CHA:	
1.3 Team Leader:		1.6 SHA/CHA ID	

### 2. Area location

2.1 Region:		2.2 District:	
2.3 Village:		2.4 DS Division:	
2.5 GN Division:			

### 3. Cancelled area

3.1 Initial SHA/CHA area, m <sup>2</sup>	
3.2 Cancelled area by repeated NTS, m <sup>2</sup>	
3.3 Size of remaining area if partially cancelled, m <sup>2</sup>	
3.4 Classification of area remaining after cancellation	

\* If clause 3.1 does not coincide with clause 3.2 (partial cancellation), then there shall be a description of the turning points of the area to be cancelled and a map attached.

The following criteria shall be used during repeated NTS for cancellation of a recorded SHA/CHA

S #	Questions	YES	NO	Remarks
1	Is there any reliable information stating that the area is still EO contaminated?			
2	Is there any crater of recent EO explosion in the area?			
3	Did any EO related accidents happened in the area after July 2021?			
4	Was repeated NTS of the SHA/CHA conducted by an accredited team?			
5	Does the landowner agree to cancel the area?			For public land, the team shall identify the relevant authority which has the responsibility of the relevant public land.
6	Do the land users agree to cancel the area?			
7	Were at least 3 key informants interviewed and they confirmed the absence of EO in the area?			
8	Is the area being used on a regular basis after it was reported as SHA/CHA through previous survey?			Details should be provided in the explanation box

9	Does the area cultivated at least three times to the expected depth required for clearance method specified by the previous survey?			Details on the farming ancillaries used in the area should be provided in the explanation box.
10	Does repeated NTS confirm that previous survey findings are not valid?			

1. The team should recommend the area for cancellation if “**No**” is ticked for serials 1 to 3 and “**YES**” for serials 4 to 10 and.
2. If “**NO**” is ticked for serials 5 and 6 then the area **may** be recommended for cancellation, however, it shall be explained in the explanation box why **NO** is ticked.
3. The team should not recommend the SHA/CHA for cancellation if “Yes” is ticked for serials 1 to 3 and “No” for Serials 4 ,7, 8, 9 and 10. Rather, further survey will need to be conducted.

*Note: If an area meets all the other cancellation criteria, but only serial 9 is not relevant (the area may not be agricultural land), then this should be detailed in the explanation box.*

**Explanation box** (use a separate sheet if the provided space is not sufficient)

**Conclusion by the team:**

No evidence of EO contamination was detected during the repeated NTS using all reasonable efforts. Therefore, it is recommended that the previously registered SHA/CHA ( ) be cancelled and removed from the national IMSMA database.

**Signature**

We, the undersigned, agree that the declared SHA/CHA should be cancelled and removed from the system in accordance with the IMSMA requirements.

MA operator

RNMAC

<b><u>Team leader:</u></b>	<b><u>QA Team Leader:</u></b>
Full name: .....	Full name: .....
Position .....	Position .....
Signature .....	Signature.....
<b><u>Supervisor/Operation officer</u></b>	<b><u>RNMAC Operations officer</u></b>
Full name: .....	Full name: .....
Position .....	Position .....
Signature .....	Signature.....

<b><u>Head of local Village:</u></b>	
Name.....	Position.....
Address.....	Tel.....
Signature.....	Date.....

**Key informants:**

<b><u>Key informants # 1</u></b>	
Name:.....	Occupation.....
Address.....	Tel.....
Signature.....	Date.....

<b><u>Key informants # 2</u></b>	
Name : .....	Occupation.....
Address.....	Tel.....
Signature.....	Date.....

<b><u>Key informants # 3</u></b>	
Name : .....	Occupation .....
Address.....	Tel.....
Signature.....	Date.....