NTS Field Studies: General Findings

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Purpose of the studies

- Gathering information and comparing applied practices and methods in order to critically and constructively review existing standards and training and establish recommendations for best practice.

- Improve efficiency of NTS implementation globally through the international standardisation of a NTS training package in close coordination with operators and national authorities.

Research methodology

- Documents review
- Interviews with stakeholders
- Practical observation (visits to field operations)

Focus:
– Applied Land Release & Non-Technical Survey with focus on country specific applied practices
– NTS; outcome, standardisation, organisation, **reporting**, integration with TS, equipment, training, team composition and capabilities.

- Three studies have been conducted in Cambodia, Sri Lanka and Tajikistan between May and October 2017.

- Two studies are planned for 2018 in Iraq and Colombia.

Country context: Cambodia

- **Conflict:** Activities of the Khmer Rouge / Vietnamese (1973–1991), border dispute with Thailand, US bombing during the Vietnam war.
- **Contamination:**
  - K5 mine belt along the Thai border, heavy contamination with mines & ERW in the Northwest, less contamination in the East (mainly aircraft bombs, CM and ERW).
  - 946 km^2 AP / AT; 1024 km^2 ERW incl. CM (data from May 2017)
  - Re-survey ongoing (collecting up-to-date information and release/correction of SHAs / parts of SHAs, where possible)
- **Treaty obligation:** Deadline 1. January 2020 (non-signatory to the CCM).
- **Main operators:** CMAC, HALO Trust, MAG, NPA, NPMEC among other national NGOs.

Country context: Cambodia

- **LR concept:** Evidence-based system, application of LR methodologies based on clear classification / criteria system.
- **NTS:**
  - MTT: not tasked with NTS-tasks specifically, but report on new findings if reported to the team. Use of technical means to confirm evidence; single items are disposed (spot tasks)
  - CL teams: conducting detailed NTS in combination with CL
- **Current discussions:** Prioritisation of clearance (land classification system in use versus types, density and functionality of mines versus fear and need of population to use the land).

BLS Land Classification	LR Methodology	LR Technique	Criteria	End State Land
A1 (land containing dense concentration of APM) **A4** (land containing scattered or nuisance presence of APM) **B2** (land with no verifiable mine threat)	NTS	Land cancelation	Applicable to areas where subsequent non-technical survey established that there is no evidence[1] of a hazard.	C1
		Land reclamation	Applicable to areas that have been ploughed for at least 3 times without accident or evidence of mine presence.	
	TS	Systematic investigation	Applicable to areas where mine presence cannot be determined by non-technical survey	C2
		Target investigation	Applicable to certain areas which are more likely to contain mines than others (previous accident sites or other evidence points) by non-technical survey.	
		Full coverage investigation	Applicable to areas where there is evidence of ERW and where it is deemed necessary to build confidence.	
	Clearance	Clearance	Applicable to shallow search that should concentrate on areas where there is evidence of mines	C3
A2 (land containing mixed APM and ATM)	NTS	Land cancelation	Applicable to where subsequent non-technical survey established that there is no evidence of a hazard	C1
		Land reclamation	Applicable to areas that have been ploughed by heavy tractors for at least 3 times without accident or evidence of mine presence	
	TS	Systematic investigation	Not applicable	C2
		Target investigation	Not applicable	
		Full coverage investigation	Applicable to areas that have been ploughed by cattle/rotivators/light tractors or by heavy tractors less than 3 times	
	Clearance	Clearance	Applicable to shallow search and deep search and should concentrate on areas where there is evidence of mines	C3
A3 (land containing ATM)	NTS	Land cancelation	Applicable to areas where subsequent non-technical survey established that there is no evidence of a hazard	C1
		Land reclamation	Applicable to areas that have been ploughed by heavy tractors at least 3 times without accident or evidence of ATM presence	
	TS	Systematic investigation	Not applicable	C2
		Target investigation	Not applicable	
		Full coverage investigation	Not applicable	
	Clearance	Clearance	Applicable to deep search	C3

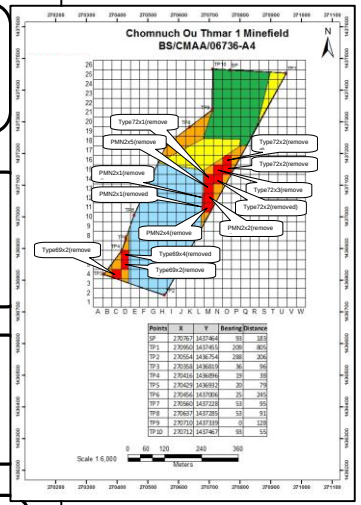
Definitions of technical terms used in this Guide:

Terms	Suggestion
Cancelled Land	Cancelled land is previously suspected land that has been incorrectly surveyed and where subsequent non-technical survey has established that there is no evidence of a hazard.
Reclaimed Land	Reclaimed land is previously suspected land that has been put back into productive use involving ground-intrusive activity and ploughed a minimum of three times without accident or evidence of mine.
Systematic Investigation	The systematic investigation refer to the systematic process of applying technical survey in a polygon. It is typically used where there are no areas within a polygon that are more likely to contain mines/ERW, than others.
Target Investigation	Targeted investigation is technical survey conducted in certain areas of a polygon which are more likely to contain mines/ERW than others (e.g. previous accident sites or other evidence points).
Full Coverage Investigation	Full Coverage Investigation is the method involves the processing of the entire area by an asset which does not meet standards considered as clearance (eg a flail without follow-up), in a technical survey role. If no further evidence of mines/ERW is found the area may be released, or further survey/clearance may be carried out.

[1] The term "evidence" of mine presence in this Guide is meant when mine(s) was/were physically seen by surveyor or local people or accident was occurring on land in question.

E5

- Visual evidence (mines/UXO, parts of mines/UXO, blastholes, etc)
- Confirmed,first hand reports of accidents
- Confirmed,first hand sightings of mines/UXO by local population
- Confirmed,first hand reports of minelaying activities from former combatants
- Confirmed,first hand reports off eatures indicative of a battlefield (trenches, improvised bunkers, bomb craters, presence of military installations, gunpositions)



E4

- Unconfirmed,third party sightings of mines/UXO by local population
- Unconfirmed,third party reports of accidents
- Unconfirmed,third party reports of minelaying activities from former combatants
- Unconfirmed,third party reports of former combatant activities in the area
- Unspecified location of military installations or frequent change of control of an area
- Unconfirmed, third party reports of features indicative of a battlefield

NE3

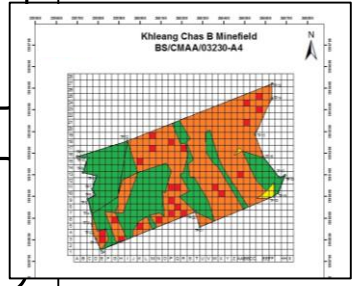
- Previously suspected land that has been put back in to productive agricultural use but has been ploughed only once time, without accident tor evidence of mines/UXO

NE2

- Previously suspected land that has been put back in to productive agricultural use but has been ploughed only twice times, without accident or evidence of mines/UXO

Note:

- A1 and A4 BLS land classification, at lease have been ploughed 2 times.
- A2 and A3 BLS land classification, at lease have been ploughed 2 times by heavily (4 wheels) tractor.



NE1

- Previously suspected land that has been put back in to productive agricultural use and that has been ploughed 3times or more, without accident tor evidence of mines/UXO.

Note:

- A1 and A4 BLS land classification, at lease have been ploughed 3 times.
- A2 and A3 BLS land classification, at lease have been ploughed 3 times by heavily (4 wheels) tractor.

Country context: Sri Lanka

- **Conflict:** War between the Sinhalese and Tamil between 1983 and 2009.
- **Contamination:**
  - Mines, ERW and IED. Some minefields can be mapped accurately (between agricultural land in use), others are difficult to access and not easy to identify (jungle area). Minefields are often laid in patterns, but several patterns can overlap often.
  - 66% of the initial SHAs were cancelled through NTS on using a strictly evidence-based approach (unreliable reports, duplicates and reports not identifying a specific area were discarded).

Treaty obligation: acceded on 13 December 2017. The Convention will enter into force for Sri Lanka on 1 June 2018. Sri Lanka has not yet acceded to the CCM.

- **Main actors in LR:** SLA, HALO Trust, MAG, DASH and SHARP

Country context: Sri Lanka

- **LR concept:** Sri Lanka changed to a strictly evidence-based approach over the last few years, (prior to that the mapping of SHAs was sometimes based on mere suspicion). Sri Lanka cancels land formerly suspected of hazard, but has been put back in use since (similar to Cambodia).
- **NTS:**
  - Combined CL / NTS team conducting “pure” NTS
  - Combined TS/NTS teams will also use technical means to confirm evidence and/or identify spot tasks (instead of a SHA)
- **Ongoing discussions:** Use of technical means by NTS team.

Country context: Tajikistan

- **Conflict:** Border to Afghanistan mined by Russian forces, border to Uzbekistan mined by Uzbek forces, contamination in the central region as result of the civil war.
- **Contamination:**
  - More than 10 km^2 (from initial 50 km^2 in 2005), 99% mines and 1% ERW. For most of the minefields a minefield record is available
  - Estimation of contaminated land decreased with ongoing LR activities and evidence-based (re)survey.
- **Treaty obligation:** Deadline 1. April 2020 (non-signatory to the CCM)
- **Main actors:** MoD, Union of Sappers Tajikistan, NPA and FSD.

Country context: Tajikistan

- **LR concept:** Evidence-based system, uses NTS, TS and clearance.
- **NTS:**
  The nationally applied concept is called "*Non-Technical Survey with technical intervention*". The main purpose is to identify the starting point of minefields with a minefield record and/or to identify direct evidence in SHAs that are currently re-surveyed (in order to identify them as CHA and define them accurately).
- **Current discussions:** Operational efficiency (in order to fulfil the Treaty obligations), standardisation of the NTS with technical intervention methodology, criteria for the cancellation of land and the LR terminology respectively.

NTS with technical intervention

- Several survey lanes In a distance of 25 up to 50 m / 2 m wide.
- Within lane: move forward 6 m on a width of 1 m, go back, move forward 6 m on the second half of the lane. Restart process.
- Simplified marking system is used.
- Lanes can turn in any direction (as long as safety distance is hold).
- Process continues until direct evidence has been found or stops in agreement with the national authority and according to the NTS with technical intervention SOPs .

Overall findings

- **All visited countries use an evidence-based NTS approach.**
  There is a trend to combine TS and NTS, but the extent and acceptance of it differs notably between the countries and the operators.
- **All countries are conducting re-survey (to a certain extent) to identify and define hazardous areas more accurately.**
  But only a few are using remote data entry technology so far.
- **Previous SHAs that were subject to re-survey and where land is put back into use is generally cancelled.**
  Criteria applied for cancellation in such cases differ though.

Overall findings

- **All countries identify that classifying area as SHA based on a finding of a single items was a problem in the past.**
  No clear guidelines how to handle such cases are available though.
- **All participating stakeholders use their most capable staff for NTS.**
  These are either former deminers or specifically recruited and trained persons with a suitable background.

Conclusion

- In general, evidence-based NTS approach corresponding with the IMAS is in use and influences the efficiency of land release in a positive way. However, there is an evident trend of combining NTS with TS which in some cases may cause confusion/inconsistency with reporting. This needs to be looked at further.
- More discussions are needed to identify the most effective and efficient way to identify and to agree on what constitutes best practices.
- There is an evident need for further standardisation of NTS and clear guidance from national authorities to support the operators on the ground through up to date NMAS and data management (country context appropriate).

