

# Convention on Cluster Munitions

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ARTICLE 4

LEBANON EXTENSION REQUEST

**Lebanon Mine Action Center**  
Beirut, Lebanon, 2019

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## Acronyms

<b>BAC</b>	Battle Area Clearance (including CM strike areas)
<b>CLO</b>	Community Liaison Officers
<b>CCM</b>	Convention on Cluster Munitions
<b>CM</b>	Cluster Munitions
<b>DA<sup>1</sup></b>	Dangerous Area, other than a minefield or cluster munitions site
<b>ERW</b>	Explosive Remnants of War (including cluster munitions)
<b>GoL</b>	Government of Lebanon
<b>IA</b>	Implementing Agency
<b>IED</b>	Improvised Explosive Device
<b>LAF</b>	Lebanon Armed Forces
<b>LMAA</b>	Lebanon Mine Action Authority
<b>LMAC</b>	Lebanon Mine Action Centre
<b>LMAP</b>	Lebanon Mine Action Program
<b>MAG</b>	Mines Advisory Group
<b>MRE</b>	Mine Risk Education (including CM Risk Education)
<b>MVA</b>	Mine Victim Assistance (applicable to all explosive hazards)
<b>NMAS</b>	National Mine Action Standards
<b>NPA</b>	Norwegian Peoples' Aid
<b>NTS</b>	Non-Technical Survey
<b>RMAC</b>	Regional Mine Action Centre
<b>SDGs</b>	Sustainable Development Goals
<b>SOPs</b>	Standing/Standard Operating Procedures
<b>TS</b>	Technical Survey
<b>TSG</b>	Technical Standards & Guidelines
<b>TWG</b>	Technical Working Group
<b>UNDP</b>	United Nations Development Program

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<sup>1</sup> The database of LMAC is divided under 3 main categories. The first is called "MF" and contains all minefields. The second is "BAC" which represents all cluster munitions sites. The last is "DA" referring to all other type of hazardous areas including IED, Booby Trap, UXO, AXO, SHA, ... Suspected Hazardous Areas (SHA) needs Technical Survey (TS) to define the type of hazard. Based on information of cluster munitions strikes SHAs will not move into BAC, if an evidence is found during TS.

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## Forward

On December 3<sup>rd</sup>, 2008 Lebanon signed the convention on cluster munitions. It was ratified on November 5<sup>th</sup>, 2010 and it entered into force on May 1<sup>st</sup>, 2011. At the end of 2018, 79% of known areas contaminated with cluster munitions had been cleared and released to end-users. However, it has become clear from the rate of square meters cleared per year and the available resources, that Lebanon would be unable to achieve the objective to locate, clear and destroy cluster munitions in all of the areas under its jurisdiction by May 1<sup>st</sup>, 2021.

In accordance with article 4.5 of the Convention, which refers to a state party not being able to fulfill its obligation within the ten years, Lebanon is submitting this request for a five-year deadline extension to the Meeting of States Parties. This request includes an explanation of the circumstances that have prevented Lebanon from clearing all known areas from cluster munitions, and presents a detailed plan for the period of extension that should allow Lebanon to meet its obligations within the extended timeframe.

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# Executive Summary

## 1- The Extension Request Period

As a member of the convention on cluster munitions, and to comply with its 10 years period to finish releasing all land contaminated with cluster munitions, Lebanon has the obligation to finish by May 2021. Due to multiple factors detailed in this document, it is clear to Lebanon Mine Action Centre (LMAC) that it will not meet this objective.

This document is prepared to explain the progress achieved by LMAC on clearance of cluster munitions to date. It also present a future plan for the requested period in order to comply with the convention. This plan is based on existing inputs, and was developed to be as realistic as possible. Based on the analysis incorporated in this document, Lebanon cordially asks for an extension period of 5 years, demonstrated by this study to be sufficient to finish all CM contamination.

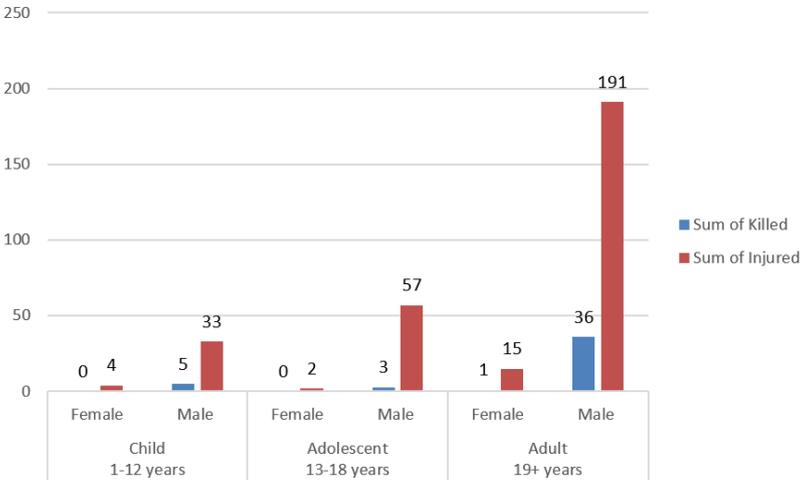
## 2- Brief History of Contamination with Cluster Munitions

The contamination in Lebanon with cluster munitions occurred over multiple phases. The first phase is that of the Israeli occupation from 1978 till 2000, during which multiple areas were bombarded but mainly the region of West Bekaa was the most affected.

The second phase is where the majority of contamination comes from. The Israeli aggressions between July and August 2006, resulted in over 1,278 locations bombarded with huge numbers of CM, covering large areas all over Lebanon.

The last phase came as a spillover from the Syrian crises between 2014 and 2017. New contamination was identified in the north-east region of Lebanon.

The impact of CM contamination on the life of local population is clearly huge. The toll of casualties from CM between 2006 and 2019 is equal to 347, distributed as follows:



Distribution of CM casualties by age and gender

In addition, we need to consider the effects on continued economic productivity and welfare of individuals, agriculture and grazing, investments in building and development, and touristic and environmental values. A study done by LMAC came to the conclusion that for every \$1 spent in mine action, there is a return of \$4.11 in economic benefits.

### 3- Level of contamination

The first impact survey was conducted in 2003. By end of 2006 the whole picture about CM contamination changed dramatically, and another survey was done that resulted in the identification of 1227 locations. Between 2013 and 2014, NTS project was executed to update information on contamination sites. Today LMAC relies increasingly on surveys. NTS teams work on a continuous basis not only to report changes in status of each site, but also the change in their priorities, and to make sure that fencing and marking is in place.

The baseline of CM contamination had been a challenge for years. In 2011, when the LMAC strategy was launched it was 55.4 km<sup>2</sup>. Although clearance operations were going on throughout the years, the baseline kept on increasing. Two main reasons were identified, the first was the extra square meters cleared as “fade out”, which is a required safety measure that in many cases makes the final cleared area bigger than the original size. The second reason is that these extra cleared m<sup>2</sup> were added to the original baseline and then the whole cleared size was subtracted. LMAC resolved this issue by separating extra cleared m<sup>2</sup> from those that should be removed from baseline.

On the other hand, a review of the database with regards to the size of each CHA, based on the operational expertise in LMAC and taking into consideration the required fade out for each located evidence, led to a decrease in the baseline and the final adjusted one as of the beginning of 2019 was **54.78 km<sup>2</sup>**.

### 4- Achievements

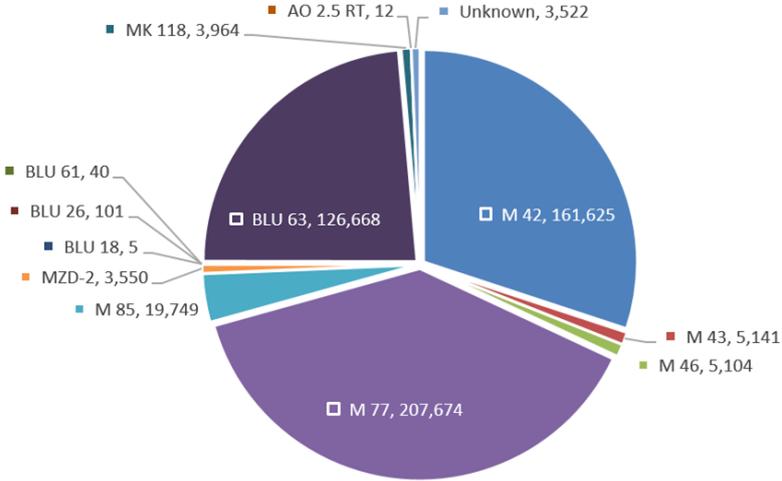
Since Lebanon ratified the CCM, the cleared land size and the respective amount of donations to CM clearance were as follows:

	2012	2013	2014	2015	2016	2017	2018	TOTAL
Released km <sup>2</sup>	2.836	2.472	2.102	1.637	2.001	1.413	1.167	13.628
Funds \$M	10.08	7.92	8.23	8.43	7.01	6.35	6.47	54.49

Table 1: Funds and cleared areas during CCM period

There is an obvious parallel between the decrease in funding and the area cleared. However, other factors also affects this amount of cleared m<sup>2</sup>, inter alia, the difficulty of terrain and the vegetation cover as the work advance more into ‘Priority 3’ land. As

of the beginning of 2019, the remaining area of CM contaminated land was **11.78 km<sup>2</sup>**, and the total number of CM disposed of is **537,155** items, among them **30,026** items were found and destroyed between 2011 and 2019.



Distribution of destroyed items

### 5- Past and future Challenges

Although funding will always be the biggest challenge for every mine action program, LMAC has learned that we can achieve a lot with available funds. LMAC has developed a transparent relationship and mutual trust with donors through the Mine Action Forum. The study in this document is based on average available funds for the past 3 years, and assuming it will be the same for the period of extension, all known CM contamination will be released. LMAC will exert all effort to raise needed funds.

The ten years strategy (2011-2020) was not realistic in its objectives. It was built upon data from the previous period, when surface clearance was the most used way of clearance to ensure fast removal of hazardous items and protection for returnees. LMAC is developing a new 6 year strategy (2020-2025) that makes use of actual averages of clearance achieved using the current clearance methods.

The huge amount of unexploded CM distributed over a large geographical area, and the large number of refugees added to the challenges LMAC faces. NTS teams are updating information on a daily basis in accordance with a systematic plan, and LMAC is developing an EORE strategy to raise awareness among refugees.

The geographical features of CM contaminated land, especially on steep slopes and where there is dense vegetation are a major concern for LMAC. Building upon the concept of 'all reasonable effort' and the concerns about the safety of those conducting clearance in such places, these areas represent a real challenge. In this document LMAC is proposing a joint study that should result in a suitable solution for this issue.

## 6- Plan for the Extension Period

The first 5 months in 2019 resulted in the cancellation of 1.87 km<sup>2</sup>. The remaining CM contamination for the purpose of this study is therefore taken as **9.91 km<sup>2</sup>**. The projected average daily cleared m<sup>2</sup> per team used is the same as had been achieved in previous years, despite the fact that the new methodologies adopted should increase this average. This increase will be considered as compensation for the difficult terrain of 'priority 3' land.

NTS teams will continue updating information for all existing CM sites. Depending on the 'status' of each site, a certain probability for its cancellation is calculated. This study shows that with 6 available NTS teams, all sites will be re-surveyed by the end of 2020. The conservative calculated amount of m<sup>2</sup> that will be cancelled is **1.46 km<sup>2</sup>**, at a total cost of **\$168,000**.

TS in cluster munitions land release using Explosives Detection Dogs (EDD) has proved to be successful in Lebanon. TS will help release some sites with a reduced percentage of the land needing clearance because of the absence of evidence of contamination. However, EDD need special conditions to work with. Manual TS will be applied on a case by case basis. TS will be considered as an extra positive factor that will help achieve the objective of this request.

Full clearance will be calculated for the total amount of **8.7 km<sup>2</sup>** starting May 2021 the beginning of the extension period. The average yearly clearance for the past 3 years is **1.527 km<sup>2</sup>**. With the fund allocated from the Government of Lebanon (GoL) this average will increase by **0.4 km<sup>2</sup>** per year for the first 3 years of extension only. The total amount that can be cleared during the period of extension is then **8.8 km<sup>2</sup>**.

As a conclusion, **IF** LMAC is capable of securing the **SAME** yearly average of funds that LMAC has received for the past 3 years, and GoL continues with the declared contribution for the first three years of the extension period, **ALL** known contaminated lands with CM in Lebanon should be safely released by end of 2025.

## 7- Needed Funds

In addition to the yearly contribution through LMAC, the provision of LAF teams and contributions from other ministries, GoL has allocated LBP 50 B. (\$ 33.3 M.) over 5 years for CM clearance. Despite current financial difficulties in the country, GoL is still committed to the sum of \$ 3 M. a year. The total amount of external funds needed in order for Lebanon to comply with the CCM is **\$ 33 M.** distributed evenly over 5 years means that the yearly amount needed is **\$ 6.6 M.** this amount is calculated with costs as of 2019. The average external contribution has been for the past 3 years **\$ 6.61 M.**

## Background

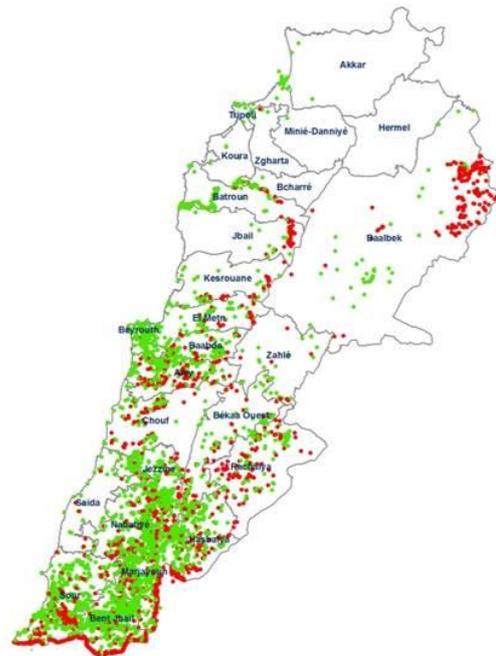
### 1- History of contamination

The contamination of Lebanon's territories with landmines, cluster munitions and other explosive remnants of war (ERW) is the result of internal conflicts and external aggressions and hostilities over three decades. Very little contamination dates back prior to 1975, the year the civil war began. The most significant forms of contamination can be classified as follows:

- 1975 - 1990 the civil war. **Landmines** were laid by combating factions on the demarcation lines. After the 1978 and 1982 Israeli invasions, **landmines** and **booby traps** were laid by Israel's army or its ally. It is estimated that 100,000 mines were laid during this period.
- 1978 – 2000 the Israeli occupation of south Lebanon. Israel's army bombarded Lebanon with **cluster munitions** in various areas but mainly the west Bekaa. After its withdrawal in 2000, more than 550,000 **landmines** were laid along the Blue Line (BL) area, which is a line running along the southern border of Lebanon.
- 2006 the Israeli aggressions. Over 1,278 locations were bombarded with approximately 4 million **cluster munitions**, covering an area of 54.8 million m<sup>2</sup>.
- In 2017, after the terrorist groups were expelled from the north-east of Lebanon, newly contaminated areas (2014-2017) were discovered, where the main threat is **IED**. Nevertheless, conventional **mines** and **cluster munitions** were also found.

After the civil war, and in an attempt to reunite the country, the Lebanese Armed Forces (LAF) initiated in 1990 clearance of demarcation lines and dangerous areas.

Following the entry into force of the convention on cluster munitions (CCM) on May 1, 2011, the LMAC developed a 10 years National Mine Action Strategy, based on the expected end-state for the previous long term plans 2008-2012, and 2009-2013, and on existing data. The strategy was published in September 2011. The objectives and time frame were based on some resources assumptions.



Distribution of remaining contamination  
September 2019 (Annex B)

For cluster munitions land release, it was assumed that 30 BAC teams would be available for 5 years, with a total cost of 75 M USD, and that by end of 2016, Lebanon would be free from the impact of CM.

## 2- Mine Action Structure in Lebanon

The Lebanon Mine Action Authority (LMAA) is the legislative body assigned by the Lebanese Government to support efforts to address the mine and ERW problem in the country. It is chaired by the Minister of Defense and it coordinates any cooperation process with national authorities and between the State, civil society, and the international community aimed at Humanitarian Demining, victim assistance and mine risk education. The Lebanon Mine Action Center (LMAC) executes and coordinates the Lebanese Mine Action Program (LMAP) on behalf of the LMAA. LMAC is staffed with army personnel, and supported by UNDP.

LMAC structure includes the following sections (Annex A):

- Operations
- Quality Assurance/Control (QA/QC)
- Information Management (IM)
- Mine Risk Education (MRE)
- Mine Victim Assistance (MVA)
- 2 Regional centers (RMAC)
- Regional School
- Administrative (Admin)



In 2019, the total number of LMAC personnel from the Lebanon Armed Forces (LAF) is 142. UNDP support LMAC with a team of 6 persons. At the implementing level, the engineering regiment in LAF and national and international NGOs undertake demining operations.

## Strategy and Standards

In September 2011, Lebanon issued its national mine action strategy for the period 2011-2020 that provided a framework of how to deal with every type of Explosive Remnants of War (ERW). The strategy also provided a summary of resources needed to meet the specified targets. The objectives and proposed timeframe were based on experience gained and data collected from previous years. The strategy tackled all areas related to the 5 pillars of mine action.

Focusing on the socio-economic impact of the contamination by mines, cluster munitions and ERW, and in order to lessen the plight on the community, 3 simple

categories of priority were chosen. The first is land with direct contact with population, the second is agricultural land, and the last is uncultivated land.

In order to protect the population against the dangers of contamination, all sites were marked. LAF units deployed all over Lebanon are required to check and maintain the marking on a yearly basis. They have rapid response teams that can reach any location within hours. LMAC has a hotline 24/7 shared with the community by SMS through MRE campaigns.



The National Mine Action Standards (NMAS) of Lebanon were first developed in the form of Technical Standards and Guidelines (TSG). These TSG were edited into the first edition of the NMAS in 2010 and were written to comply with the International Mine Action Standards (IMAS). The NMAS are reviewed as needed to reflect amendments in the IMAS as well as incorporate changes to international obligations and local requirements.

In 2017, LMAC initiated a comprehensive review of the NMAS with the support of a UNDP international expert. The official new version was released on March 2018, and was followed by a workshop with all IAs in order to explain the amendments and accordingly to modify their SOPs.

The main changes were:

- Change of minimum depth of search during clearance.
- Change in the methodology of clearing patterned minefields.
- Change in the methodology of clearance in BAC.
- Re-arrangement of content to comply with updated IMAS.
- Introduction of a new chapter related to IED clearance.
- Separation of all forms into an annex file to simplify the changes of these whenever needed.

The Technical Working Group (TWG) that meet quarterly discuss multiple operational issues. All amendments agreed on with LMAC are introduced into the NMAS.

## Nature and Extent of the Progress to Date

### 1- Baseline

The impacted areas with cluster munitions were as follows:

Year	Level of contamination (Million m <sup>2</sup> )	Cleared lands (Million m <sup>2</sup> )	Explanation
1990 – Sep 2011	54.97	36.72	Data collection from LAF, LMAC Community Liaison Officers (CLO), and reports of affected communities. Data provided through UNIFIL on strike locations of 2006 came three years late, was incomplete, and did not match findings on the ground.
2011-2012	55.37	1.24	Sep 2011 till Apr 2012
2012	56.73	2.84	Continuous increase in the baseline
2013	57.87	2.47	
2014	58.74	2.10	
2015	60.17	1.64	
2016	62.93	2.00	
2017	63.27	1.41	Baseline fixed – new contamination introduced
2018	63.27	1.15	End of 2018, baseline was corrected

Table 2: Baseline movement

After the second milestone review of the national strategy, it was clear that the baseline fluctuation should be resolved. The main causes of the unstable baseline were the number of newly discovered contaminated areas, and this number has decreased over the years, but more importantly the extra square meters that need to be searched and cleared as fade out to already recorded areas. In each year, the additional m<sup>2</sup> have been added to the baseline before subtracting the total cleared m<sup>2</sup> throughout a certain year from it. The growing baseline makes the clearance achieved in each year appear to have reduced the contaminated areas less than it actually has.

To solve this problem LMAC decided to record the extra m<sup>2</sup> that are the result of fade out as productivity. Which means that the original size of the cleared sites will be subtracted from the baseline and the extra cleared m<sup>2</sup> will be recorded as productivity for the IAs, and released at each site handover.

The baseline for cluster munitions contamination in Lebanon was estimated to be 63,272,091 m<sup>2</sup> in 2018. A recent analysis of the LMAC database and maps indicated that this baseline was inflated and needed review. After the impact survey was made in Lebanon, hazardous areas were defined with basic information. Areas with no defined polygons were estimated with a circular shape boundaries. The sizes of these estimated

circular boundaries were enormous and unreasonable. LMAC decided to change these to more logical sizes.

Based on the fade out distance for cluster munitions (50 m) which forms an area of 10,000 m<sup>2</sup> in Lebanon for each identified CM in Lebanon, all hazardous areas with no threat of mines and where evidence of cluster munitions was found, were changed in size to 10,000 m<sup>2</sup> with the center of area being the location of evidence. The result was a reduction of the initial baseline by 4,448,942 m<sup>2</sup>. In 2018, NTS teams visited large areas to update the survey and implement this new concept.

Another important issue was the difference in data entry concept between RMAC and LMAC, due to fade out. Every task has an initial size registered in the data base, but most of the time this size increases while working because of the fade out for each item found. When a task ends, LMAC reduces the initial baseline in the data base by the original size of the task only, while RMAC add to the initial baseline the difference in size and then reduces the whole size from the database. LMAC used to adopt the “moving” initial baseline used by RMAC. By adopting the concept of “productivity”, the result was a reduction in the initial baseline by 4,290,513 m<sup>2</sup>. This change affected also the aggregated cleared area. **The new cluster munitions baseline calculated in 2019 is 54,779,558 m<sup>2</sup> of which 21.48% remains to be cleared** (end of 2018). The addition of cleared m<sup>2</sup> as productivity is taken into consideration when planning for clearance in this document.

## 2- Survey and Marking

In 2003, a landmine impact survey was conducted in Lebanon. By December 2005, it was estimated that 70% of identified contaminated land remained to be cleared. All sites were marked and fenced by LAF to protect the population. Until that time landmines were the main problem that affected the life of local communities. The hostilities of 2006 made cluster munitions a major threat to the people. 1,227 locations were identified with an estimated one million unexploded cluster munitions. All of those were subsequently marked and fenced.

One major continuous problem with marking and fencing is that people remove the marking for their own use. Metal markers are sold for money. Wooden pickets are taken to be used as fuel for heating. LAF units are tasked on a yearly basis to check all sites within their areas of responsibilities, and make sure that they are marked and fenced.

In September 2013, LMAC launched a project of non-technical survey to update information on all recorded cluster munitions sites. The IA Mines Advisory Group (MAG) was tasked with the project which involved surveying 636 sites. The objectives were to identify areas where land release by cancellation was possible, and to enable more

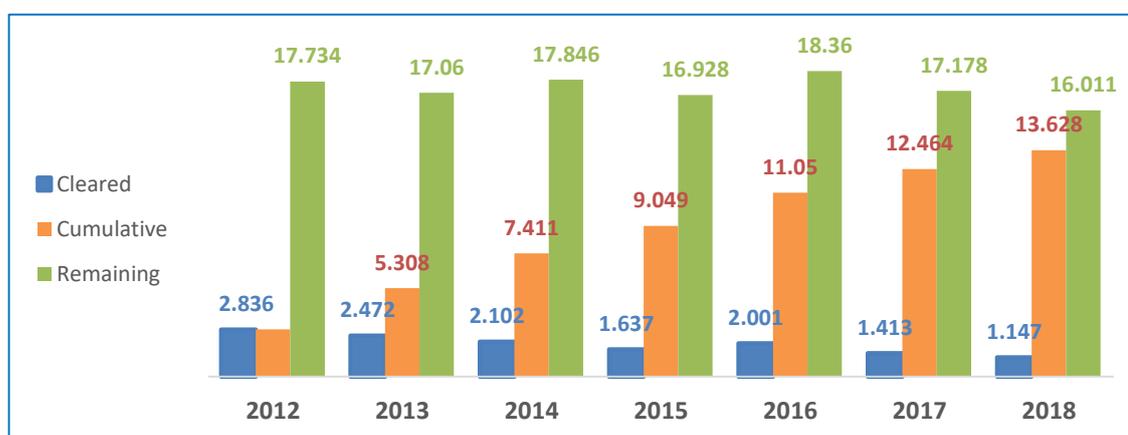
effective prioritization of clearance work. Marking and fencing was restored where needed. The project was completed in 2014 and the results showed that 96 sites were recommended for cancellation and the rest for clearance.

In 2017, LMAC started to increase reliance on non-technical survey (NTS) to enhance operational efficiency. LMAC has 3 NTS teams, and starting in 2018, some IAs also receive funds to support NTS teams. In 2019, support for 6 NTS teams was available for IAs and, NTS became a requirement for all hazardous areas, with higher focus on those with CM contamination.

### 3- Clearance Operations

The following table (Table 3) shows the total CM hazardous areas cleared during the period since 2012.

Millions m <sup>2</sup>	2012	2013	2014	2015	2016	2017	2018
NTS – Cancelled	-	-	-	92,614 m <sup>2</sup>	14,865 m <sup>2</sup>	-	20,314
TS – Reduced	-	-	-	-	-	-	-
<b>CL – Cleared</b>	2.836	2.472	2.102	1.637	2.001	1.413	1.147
<b>Cumulative</b>	2.836	5.308	7.411	9.049	11.050	12.464	13.628
Remaining end of year	17.734	17.060	17.846	16.928	18.360	17.178	16.011
<b>Change in Baseline</b>	<b>+2.82</b>	<b>+1.798</b>	<b>+2.888</b>	<b>+0.719</b>	<b>+3.433</b>	<b>+0.231</b>	<b>-0.001</b>



The trend in the yearly **CL – Cleared m<sup>2</sup>** is downward. There are two main reasons for this. The first reason is that a reduction in the funds available has limited the number of working teams. The second reason is the change in the type of land where the work is being conducted. Work on third priority sites has started and these are often remote, steep, and with heavy vegetation, all of which can slow work down considerably.

The increase in the Baseline makes the achievements of clearance efforts on the ground appear less than they are because while the amount cleared is high, the reduction to an

increasing baseline has been small. During the year 2018, the measures taken by LMAC to adopt a fixed baseline has stopped this misleading fluctuation.

Throughout the 7 years of clearance from 2012 to 2018, a total of **13.628 million m<sup>2</sup>** were cleared. However, the remaining contamination that was at the beginning of 2012 equal to 18.749 million m<sup>2</sup> had decreased by only 2.739 million m<sup>2</sup> by the end of 2018. This means that only 20.12% of the total cleared land throughout the 7 years was of areas that had been registered originally in the database at the time of its inception and the first baseline data. The rest of the clearance was of fade out outside of the original survey boundaries, and the essential re-clearance of previously cleared lands that had been inadequately searched.

Review of the annual reports shows that LMAC conducted a lot of re-clearance of land that had already been recorded as cleared in the period immediately following the 2006 aggressions. Back then, it was critical to reduce the hazard for returnees as quickly as possible. For this reason, most clearance was limited to rapid surface clearance and sub-surface clearance was very limited. Whilst this reduced the immediate impact of CM to many returnees, problems often arose when they started to use the land.

After signing the CCM, a more effective clearance involving sub-surface search was adopted by LMAC. However, every time a rapid response was required in an already surface “cleared” area, LMAC tasked the locations for a fade out re-clearance, and sometimes for a full re-clearance. As a result, a large part of the cleared m<sup>2</sup> per year, was actually re-clearance.

In 2013, LMAC acknowledged the need to update the survey data of the CM sites. The Mine Advisory Group (MAG) was tasked with a project to execute a non-technical survey for all cluster munitions sites. This project ended in 2014, and its results included recommendations for cancellation of some areas and the marking of others where technical survey or clearance is needed. In 2015 40 SHAs were confirmed to contain cluster munitions hazards. In 2016, 9 new CM areas were added, 7 more were added in 2017, and 6 more in 2018 after terrorist groups were expelled out of the north east of Lebanon. All newly discovered contaminated areas were added to the baseline.

#### 4- Resources Available

Funds for cluster munitions clearance exclusively were as follows (in millions of \$):

The 10 years strategy for CM clearance started in September 2011. Assumptions were that a BAC team’s monthly average cost was 30,000\$. Based on that, the LMAC’s cost estimation was as follows (in millions of \$):

		2011*	2012	2013	2014	2015	2016	2017	2018	2019	2020
Strategy	M.\$	3.6	10.8	10.8	10.8	10.8	10.8	-	-	-	-
	Teams	30	30	30	30	30	30	-	-	-	-
Actual	M.\$	2.34	9.02	8.77							
	Teams	26	28	22							

\* Only 4 months of work in 2011.

The first milestone in 2013 showed that the number of teams changed a lot during the same year. The average number of teams per year was estimated at 24.

Based on data from before 2011 which gives an average of 630 m<sup>2</sup> per team per day, and on the actual number of teams that was available per year, a new estimation showed that by 2020 the objective could be achieved if there were 24 teams working each year. However, if we were to meet the target by 2016, a total of 43 teams per year would be needed.

		2011*	2012	2013	2014	2015	2016	2017	2018	2019	2020
Milestone 2013	M.\$				8.64	8.64	8.64	8.64	8.64	8.64	8.64
	Teams				24	24	24	24	24	24	24

Keeping up with these objectives, results for the following years were as follows:

		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Actual	M.\$	2.34	10.08	7.92	8.23	8.43	7.01	6.35	6.47		
	Teams	26	28	22	25	29	22	20	22		

Table 4: Finds received for CM clearance

For the reasons explained above, the second milestone 2014- 2016 published in March 2018, showed that despite ongoing clearance operations, the remaining size of contamination did not decrease and therefore Lebanon would not be able to meet the

deadline. Field expertise proved that the average clearance area per team per day was actually 426 m<sup>2</sup>, which is equivalent to 68% of the original assumption.

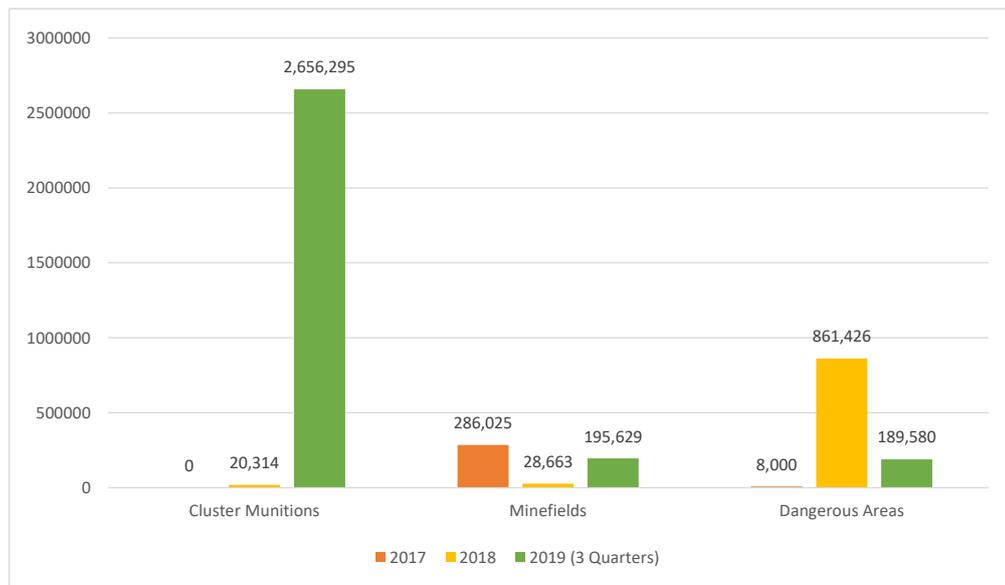
Based on data for the last 3 years, with the assumption that funding support is limited to providing 22 teams in the foreseeable future, and that no new areas are discovered and no re-clearance is done, the timetable projection is that it would take 9.5 years to clear all CM contaminated areas. At the beginning of 2019, the level of known contamination was **11.78** million m<sup>2</sup>. At current levels of clearance, by the end of 2020 the level of contamination should be reduced to **10.488** million m<sup>2</sup>. The extent of this challenge is mitigated in the work plan that is presented later in this extension request.

		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Milestone 2016	M.\$								7.92	7.92	7.92
	Teams								22	22	22
Actual	M.\$								6.47		
	Teams								22		

## 5- Operational Concept Development

While working on the milestone 2014-2016, LMAC realized that funding support ranged around a fixed average. It was decided that steps ought to be taken in order to improve operational efficiency in order to use the available funds to generate better results.

Starting in 2017 there was increased reliance on non-technical survey (NTS) to help identify areas that could be safely released by cancellation. The use of NTS has also helped to adjust the level of contamination to a more realistic level and increase knowledge in a way that supports better planning. LMAC and the IAs are deploying increased number of NTS teams and during 2019, the focus in the NTS teams was mainly on areas recorded as contaminated with CM. The following chart reflects the increased role of NTS in operations Values show the area cancelled m<sup>2</sup>:



Cancelled areas by type – only 3 quarters for the year 2019

Technical survey (TS) to release land by reduction is also starting to be used more effectively. Deploying explosive detection dogs (EDD) for TS of cluster munitions sites in Lebanon was introduced as a pilot project in 2018 and has proved to be successful. In 2019 the EDD team was tasked to CM sites, where only NTS was executed.

In an effort to keep up-to-date with field implementation, and based on recommendations from the Mine Action Forum led by the Norwegian embassy, a technical working group (TWG) was created from LMAC and the IAs. The TWG meets on a quarterly basis to discuss operations, identify problems, share remarks and suggestions about standards and implementation, etc., all with the goal of improving efficiency and effectiveness while ensuring that there is no reduction in safety for the end users of the land or the personnel involved in clearance.

In 2017, LMAC initiated a comprehensive revision of the national standards with the support of a UNDP international expert and in March 2018 the new NMAS edition was released. Amongst many changes made the depth of sub-surface search required was reduced from 20 to 15 cm. and it is anticipated that this should speed up operations in some areas.

As for CM clearance, the fade out distance for any item had been specified as 50 m. Based on data collected from operators, it was found that adjacent CM are not separated by more than 25 m. Based on this evidence, LMAC decide to subdivide the fade out for one item into 2 zones: the first one extends from the item itself to a radius of 35 m and must be sub-surface searched and cleared. The second zone extends from 35 to 50 m and need only be surface cleared. This new approach has helped speed up operations without any reduction in safety. LMAC’s Quality Management cycle includes post clearance site visits during which the effectiveness of the work is assessed. If any

efficiency enhancements are ever found to have reduced safety for the end users of the land, those enhancements must be revised to avoid the increased risk immediately.

## Challenges in Meeting the Treaty Deadline

Under Article 4 of the Convention on Cluster Munitions, Lebanon is required to destroy all cluster-munitions remnants in areas under its jurisdiction or control as soon as possible, but not later than 1 May 2021.

### 1- The magnitude and scope of the 2006 conflict

It is quite difficult to comprehend the degree of challenges facing Lebanon without understanding the unprecedented magnitude of the 2006 war. It is widely known that the conflict in 2006 provided impetus to the campaign to agree a ban on the use of cluster munitions<sup>2</sup>. The Israeli enemy dropped on Lebanese territories more than 4 million bombs in densely populated rural areas where people depended on agriculture for their livelihoods.

The effects were catastrophic for the communities with thousands of bombs failing to explode on impact with the ground but being sensitive to later movement and eventually causing multiple deaths and maiming injuries. The effects were not limited to human death and injury. The CM rendered thousands of square meters of agricultural land unusable in an area dependent on agriculture thereby causing an exponential loss in financial returns for livelihoods. The broad geographical scope of the attack also included bombing residential buildings, schools and markets, many of which turned overnight into death traps.

According to Human Rights Watch, the total number of CM dropped on Lebanese territory during the 2006 conflict represented about 13 times what NATO dropped on the former Yugoslavia, more than 15 times what the United States used in Afghanistan in 2001 and 2002, and more than twice the number used by Coalition forces in Iraq in 2003<sup>3</sup>.

### 2- The dysfunctional sub-munitions

Many of the cluster munitions used within the last 48 hours of aggressions proved to be dysfunctional in that they did not reliably detonate on landing. A large percentage of

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<sup>2</sup> Unacceptable Harm, A History of How the Treaty to Ban Cluster Munitions Was Won. United Nations Institute for Disarmament Research, Geneva, Switzerland, 2009. Page 95.

<sup>3</sup> Meeting the Challenge, Protecting Civilians through the Convention on Cluster Munitions. Human Rights Watch, 2010. Page 33.

these munitions, such as the BLU-63 sub-munitions, were old stock and this may explain their widespread failure to detonate as designed. Subsequent incidents quickly proved that they were still capable of detonating and maiming those who moved them.



Old stock of cluster munitions used led to huge number of un-exploded bomblets

While Lebanon was already familiar with mines, unexploded sub munitions had not previously featured as an ERW problem in the country. Dealing with sub-munitions is quite different from clearing anti-personnel mines and this resulted in some misperceptions and disorientation in the immediate aftermath of the war.

### 3- Operational difficulties

The long term strategy (2011-2020) was built upon data and experience from the previous period. Due to progress in the search and clearance methodology, moving from surface mainly to subsurface clearance, the operational basis on which this strategy was based proved to be obsolete. Before 2011, a huge amount of land was quickly surface cleared and handed over. In many cases, when used by owners the land was found to conceal dangerous items underground. This resulted in many areas previously recorded as 'cleared' being subjected to subsurface re-clearance as a priority. The duplication of clearance led to discrepancies between the amount of land recorded as cleared and the remaining level of contamination, which did not drop as quickly as was expected.

The initial size of contamination was based on data collected during the impact survey, and a following non-technical survey phase. The aggressions of 2006 destabilized the entire country by creating a mass exodus of displaced people fearing the war and it was in this context that the first impact survey and clearance of cluster munitions was conducted. It was carried out with all available knowledge, but no other country had witnessed the amount and intensity of cluster munitions contamination in such a very short period of time so there was little relevant experience to draw upon.

The sheer eagerness of residents to come back once the war was over and the resulting informal massive removal of cluster-munitions and other ERW both disrupted the survey assessments and resulted in a high number of victims. The high number of victims resulted in a reluctance to rely heavily on rapid NTS and this led to large CHAs

being recorded, the size often failing to take into consideration the footprint of a CM strike or the features of the land. Some of these CHAs have been subsequently cleared without finding hazardous items. Throughout recent years, following evidence based results and international studies, LMAC has increasingly begun to rely on NTS and TS to more accurately define areas that must be cleared.

The 2011-2020 strategy was based on the assumption that the clearance average for cluster-munitions was 630 m<sup>2</sup>/day/team. This average was derived from results when large areas were searched and cleared surface only. A study done in 2017 showed that the search and clearance average was actually 426 m<sup>2</sup>/day/team because, after 2011, most areas were searched and cleared sub-surface. This difference in projected daily output slowed down operations and reduced the number of m<sup>2</sup> that a team could clear in a year. In addition, before appropriate attention was paid to NTS and TS, many of the tasks were subjected to full clearance of the entire originally recorded area regardless of the hazards located..

#### 4- Shift of interest

The number of teams projected to be available did not really actualize over the years for different reasons including changing donor priorities, the impact of the international economic crisis on Lebanon, the Syrian and regional crisis, and last but not least the repetitive security and political turmoil in Lebanon. The resources available were limited and there was evidence that in some years donors had started to shift their areas of interest.

#### 5- Enlargement of the geographical scope

Most importantly, the implication of the Syrian crisis on Lebanon changed priorities for donors within Lebanon. The discovery of new contaminated areas after the war on terrorism in 2017, especially after the expulsion of terrorist groups from territory within Lebanon, affected LMAC's priorities and plans for clearance.

### **Strengths and Opportunities**

LMAC has evolved throughout the years and is now a strong institution that is capable of planning and managing mine action diligently. The development of NMAS and its updates, along with the introduction of new procedures, techniques and technologies is proving very beneficial to the entire mine action program in Lebanon and to the CM clearance work in particular.

## 1- Harmonization with international practices and standards

Operational efficiency in terms of the amount of Land Released in LMAC has greatly improved through increasingly relying on non-technical survey and technical survey. As such one of the most significant examples in 2018 is the initiation of the non-technical survey in an area of around 300 km<sup>2</sup> on the north eastern border. LMAC and its partners performed combined NTS with TS and eventually reduced this size to 0.642 km<sup>2</sup> of CHAs and 0.668 km<sup>2</sup> of SHAs. In total, the cancellation of 3,727, 573 m<sup>2</sup> of hazardous areas (all types) through NTS in 2018 is 3 times greater than the land cancelled in 2017 (1,227,025 m<sup>2</sup>). However, LMAC is fully aware that these large figures of cancellation will not continue for long. The analysis on pages 25-29 projects a total of 1.46 km<sup>2</sup> of land contaminated with CM will be cancelled.

Another major improvement in operational efficiency stems from the official adoption of the NMAS, which is expected to increase efficiency for BAC by around 30%.

## 2- Mine Action Forum

The mine action forum initiated by the Norwegian embassy is a great asset for mine action in Lebanon and provides the opportunity for LMAC to present operational results and improvements in efficiency with maximum transparency and proficiency. The forum is a technical forum with a clear ambition to address topics that can potentially improve quality and efficiency of the mine action program in Lebanon. The forum also has a clear aspiration to raise interest and commitment towards mine action among donors and other mine action key stakeholders in Lebanon.

The TWG strengthens the relations between LMAC and the IAs. Operational discussions and dialogues lead to improvements in land release, and all partners agree on how to evolve operations without reducing safety. LMAC frequently benefits from the support of the IAs and their opinions.

Quality management is a strong point for LMAC. Accreditation of IAs, equipment, teams and individuals is well established. Firm monitoring of operations is reflected in a very low rate of re-clearance being necessary on land handed over during the strategy period of implementation.

In order to reach the highest number of residents, the MRE section continuously executes campaigns designed to cover as many affected communities as possible. LMAC is currently developing a plan to effectively extend this and include reaching the displaced population in the north who face particular threats and challenges.

### 3- Development perspective

The LMAC's work priorities are based on development criteria. The prioritization of tasks can be shown to have been successful by the reduction in the number of people becoming victims of CM. The number of victims between 2011 and 2017 decreased despite the population of Lebanon being increased by a quarter by displaced people during these years. The rise in victims in 2017 and 2018 is directly related to the North Eastern Border War and people rushing back to their lands before they can be surveyed.

Taking into consideration socio-economic development criteria when prioritizing tasks has seem beneficial for mine action and helped LMAC achieve its goal of reducing risk to the people of Lebanon. During 2018 LMAC produced a study on the socio-economic impact of contamination with mines and ERW and its results support LMAC's decision making and priority setting systems.

### 4- Centralized strategic planning and execution

Lebanon benefits from having a central institution that manages and controls the Lebanon mine action program. This allows national policy making and tasking to take into consideration every pillar of the CCM and ensure that they are represented in all national mine action activities. This can be witnessed in the organized and rapid response to accidents, in events where the CLO is dispatched within hours to evaluate reports or assist victims, and in the timely response of the MRE teams when CM based MRE is needed.

### 5- National Ownership

In a definite sign of commitment, in addition to the USD 9 million allocated each year for LMAC, the Lebanese government has allocated USD 33.3 million for Cluster Munition clearance. This contribution is complementary to the contributions of the varied international donors. In addition, the LMAC benefits from exceptional cooperation not only on the national level but more importantly on the international and regional level. Our regional role is evidenced by intensified cooperation throughout the region. Lebanon was assigned leadership of the Arab Regional cooperation Program (ARCP) in 2017 with the role of managing and coordinating all of its activities in coordination with the Geneva International Centre for Humanitarian Demining (GICHD). Moreover, the Regional School of Humanitarian Demining in Lebanon (RSHDL) opened and launched its first courses in 2018. LMAC has been actively engaged in various national, regional, and international platforms for advocacy and the exchange of experience, as well as capacity building initiatives to keep Lebanon's team up-to-date with the latest practices in all aspects of Humanitarian Mine Action (HMA).

## Remaining Challenges

### 1- Diversion of funding

Following the Syrian crisis and the humanitarian disaster that ensued, funds for mine action started to be diverted away from Lebanon. In this regard the second largest donor, the European Union, decided to halt its mine action program by the end of 2019. The remaining clearance operations in Lebanon funded by the EU are to be spent under the stabilization portfolio and will therefore be restricted to supporting work in areas where ISIS was previously present.

Nevertheless despite the exponential increase in humanitarian needs in the region and the resulting shift of priorities, LMAC's funding did increase by 40% during 2018. It is believed that this increase is a direct result of the programme's progress in transparency, operational efficiency, reporting and cost effectiveness and by it having successfully linked prioritization to economic development.

### 2- Terrain and weather .

While abiding with the established development priorities for tasking, the remaining contaminated land will increasingly become more difficult to access. For example, some of the CM tasks are on steep cliffs that are impossible to reach safely using current search and clearance procedures and equipment.



Wadi Alhojair Natural Reserve - South

The weather in Lebanon can be another obstacle to our work because Lebanon frequently has harsh winters during which snow and heavy rain can make it impossible to work in mountainous areas. The weather is a factor that affects the timetable of clearance and while tasking schedules reflect this, not all weather delays can be predicted.

## Benefits of Future Land Release

### 1- Socio-Economic benefits

In order to assess the real impact of mine action on development, LMAC with the support of the UNDP project funded by the EU has developed a comprehensive analysis

research study of the major potential benefits of mine action over time which reflects the implications of contamination and ultimately the cost of conflicts .

The study does not limit the benefits of mine action to commercial returns related to the use of land such as profits from agriculture, but uses more complex valuations including elements that have no direct commercial value such as the effects of saving lives, the beauty of a natural landscape and others .

Assigning a value to the benefits of lives saved, forest protected and jobs created among others, enables donors and policy makers to address mine action from a development and humanitarian perspective in line with the Sustainable Development Goals. This study set out to assess all of the potential benefits of mine action and assign each a value in term of currency. The main result stemming from this study has been the conclusion that each 1 USD spent for mines/ERW action in Lebanon has led, on average, to benefits worth 4.15 USD .

The economic benefit from lifesaving in terms of continued economic productivity and welfare of individuals, accounted for 17.0% of the total benefits, while benefit from agriculture and grazing accounted for 22.0% of total benefits. Other economic activities, including residential area development accounted for 48.7% of total benefits. Even the clearance of contamination in forests was found to yield a non-negligible 10.7% of total benefits.

## 2- Environmental benefits

Lebanon is gradually engaging in eco-tourism based on its large forest and protected areas and mountain trails. The clearance of cluster-munitions in many forest would enable the government, municipalities and NGOs to launch several eco-tourism initiatives in the protected areas currently contaminated by CM.

More importantly the clearance of many protected forest areas will trigger the launching of forest management initiatives that enable the sustainable management of forest and the protection from several hazards including forest fire that occur in Lebanon in the summer months and have often burned many acres of land destroying fauna disrupting biodiversity and creating significant air pollution.

# Planning for the extension period

## Current Contamination Level

The first 5 months in 2019 resulted in the cancellation of 1.87 km<sup>2</sup>. The remaining CM contamination for the purpose of this study is therefore distributed as follows:

Province	Number of sites		Total contamination	
	#	%	m <sup>2</sup>	%
Al-Beqa (including North East)	89	10.56%	1,422,976	14.36%
Ej-Jenoub (South Lebanon)	239	28.35%	2,383,049	24.04%
Jabal-Lubnan (Mount Lebanon)	56	6.64%	556,340	5.61%
Nabatiyah	459	54.45%	5,548,674	55.98%
<b>Total</b>	<b>843</b>	<b>100.00%</b>	<b>9,911,039</b>	<b>100.00%</b>

The following table (Table 5) shows the different types of cluster munitions found in Lebanon as of 1<sup>st</sup> of January, 2019:

Type	Destroyed	Percentage
<b>M 42</b>	161,625	30.09%
<b>M 43</b>	5,141	0.96%
<b>M 46</b>	5,104	0.95%
<b>M 77</b>	207,674	38.66%
<b>M 85</b>	19,749	3.68%
<b>MZD-2</b>	3,550	0.66%
<b>BLU 18</b>	5	0.00%
<b>BLU 26</b>	101	0.02%
<b>BLU 61</b>	40	0.01%
<b>BLU 63</b>	126,668	23.58%
<b>MK 118</b>	3,964	0.74%
<b>AO 2.5 RT</b>	12	0.00%
<b>Unknown</b>	3,522	0.66%
<b>Total</b>	<b>537,155</b>	

A large proportion of these items were found on the surface of the ground, especially during the emergency phase after the aggressions of 2006. After 2011, the majority of these items have been found sub-surface. The depth of items varies according to the type of ground. In some exceptional cases where earth movement was involved, it reached up to 120 cm, and clearance plan are developed accordingly.



Cluster munitions found at great depth (Tibnin 2018)



BLU 63 – Beit Yahoun



M 77 – South Lebanon



M 42 – South Lebanon



M 85 – Sour



M 43 – South Lebanon



MK 118 – South Lebanon

Types of Cluster munitions dropped in Lebanon with significant numbers

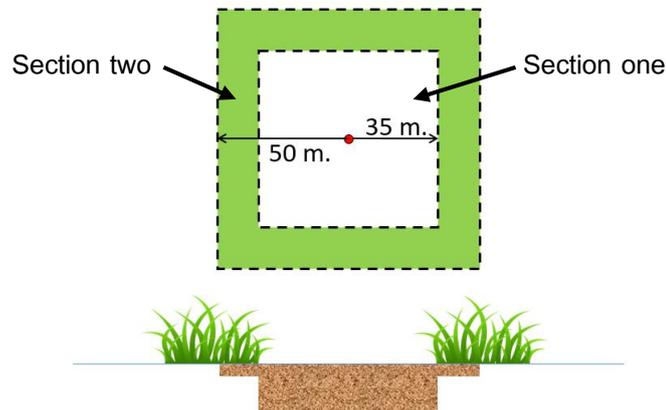
The AO 2.5 RT is found only in one limited region that is the north east of Lebanon close to the Lebanese-Syrian borders, after the expulsion of terrorist groups in 2017, causing the baseline for total CM contamination to increase.

AO 2.5 RT



## Search and Clearance Methodology

The national mine action standards require the fade out distance for every evidence found of a CM to be 50 meters in all directions from the evidence. To simplify work in the field, a 10,000 m<sup>2</sup> area with a square shape (instead of circular shape) is searched with the evidence being in the center.



Clearance fade out zone for cluster munitions

Based on data collected throughout the years, this fade out distance is divided into two sections. The first one is to be searched and cleared sub-surface, and it is the area surrounding the evidence to a distance of 35 m in all directions. The second section is to be searched and cleared surface only, and it is the area surrounding the first section to the distance of 50 m from the evidence.

Surface clearance involves a visual search of the top of the ground to locate any evidence for the existence of a threat. If any evidence is found, search become sub-surface starting from this new evidence and extending to the standard fade out. When surface clearing, if the vegetation does not allow clear visual detection, the search should be conducted using a metal detector. Where vegetation is higher than 15 cm, it must be cut and removed as part of the search procedure.

The default search depth specified in the NMAS is 15 cm but this can be varied when evidence makes it reasonable to do so. Sub-surface search is executed using 3 main types of detector. The one that has proven to be very effective is the PIDD Ebinger. In places where its round detection head prevents it being held close to the entire ground surface, the SCHONSTEDT locator is used. The third type of detectors is the Ebinger Large-Loop, or the Vallon VMX10. These large detectors are used on open ground with low vegetation. LMAC is actually working on a project to introduce new technology with the SCORPION detector, which it is hoped will increase productivity where it can be used.

The average daily clearance per team varies according to multiple factors. The first factor is the slope of the land, the steeper it is the lower the productivity becomes. Second, the density of vegetation, which must be removed, can consume a lot of time and so reduce productivity. The type of the soil can also be a major factor. The harder the soil, the slower the clearance rate.

Lebanon is now finalizing the clearance of 2<sup>nd</sup> priority land and has started to clear land that was assigned 3<sup>rd</sup> priority status. 3<sup>rd</sup> priority land is often the most difficult land to clear, having dense vegetation, hard/hard ground, and in some places being on steep slopes in hard to access areas.

Understanding the fact that remaining contamination is in most part with the same 'priority 3', LMAC will reprioritize lands in 2020 based on updated information from NTS related to safety of population, socio-economic impact and displaced personnel.



Mahrouna village - South

The daily average rate of surface clearance before 2011 was found to be 630 m<sup>2</sup>/team/day. As mentioned earlier, this average dropped to 426 m<sup>2</sup>/team/day after 2011 when better sub-surface search procedures became common. After dividing the fade out zone into two sections, the average increased to become 495 m<sup>2</sup>/team/day. However, knowing that the type of terrain for the remaining contamination is more difficult in terms of slope, vegetation and geology, we will consider this increase in productivity as a margin of safety for the calculation in this study. Therefore, the

average that will be considered for calculation will be the old average (16% safety factor for difficult terrain). The annual number of working days for a team is averaged to 210 per year. The average capability in clearance for one team is:

Clearance average =  $426 \times 210$

**Clearance Average = 89,460 m<sup>2</sup>/team/year**

This average assumes a team of 12 persons. This average means that for every evidence of presence of CM found one team is required to work for 24 days to complete its fade out, which is equal to 10,000 m<sup>2</sup>. In fact, the area around evidence will overlap until the perimeter of the hazardous area is found and the same overall fade-out distance will be searched all around the perimeter of the area in which CM are found.

### **Solution Rational**

The LMAC having acquired excellent expertise over 20 years in mine action, is planning to end the impact of cluster munitions in Lebanon by 2026. The long term effect will be wide ranging socio-economic benefits for the whole community of Lebanon, and the support of the 2030 Sustainable Development Goals (SDGs) agenda.

The outcome of the plan is that all land surveyed and found to need mine action intervention in relation to cluster munitions contamination, has been searched, cleared, released and is being used safely by the end-users/owners.

Based on the fact that the database that is now firmly controlled, continuously reviewed and monitored, the outcome's indicator will be the amount of land released and in use. Post clearance survey for each site released, will collect the needed data at the same time as ensuring that land is not released in error.

The outputs are safe land released by: cancellation, area reduction, and by area search and clearance. Each of those is reflected in the total amount of square meters released. The sum will be the total amount of m<sup>2</sup> released in comparison with the remaining size of contamination with CM, regardless of the number of sites cleared. The main key performance indicators (KPIs) that will be used are:

- **m<sup>2</sup>/team/day:** for each activity (NTS, TS, CL): this indicator is affected directly by the type of terrain. It helps to monitor performance of teams in relation to the type of terrain, the whole performance of each IA, and also to update the annual clearance average per year that is directly related to yearly objectives and planning.
- **m<sup>2</sup> of released land/m<sup>2</sup> of cleared land (TS):** to evaluate the effectiveness of operational planning.
- **m<sup>2</sup>/item found:** This indicator help evaluate the effectiveness of NTS and TS reports, and adjust operational decisions accordingly.

Land release activities to be used are non-technical survey (NTS), technical survey (TS) and full search and clearance (CL). A plan for each activity will be elaborated next.

Inputs and their providers for the extension period plan are the following:

- The LMAC managed national mine action standards, which include Quality Management requirements and will be revised and improved in an ongoing process.
- Tasking information related to each CM site, detailing the required activities for each site will be provided to the IAs by LMAC which will also conduct efficient Quality Assurance (QA) and Quality Control (QC) checks to ensure that the work is conducted in an approved manner and achieves the desired end results.
- Assets available to perform activities (manual, mechanical, Animal Detection Systems), with all the materials and equipment. These are provided by the implementing partners.
- The last and important input is the funds required to carry out the whole plan, and these come from donors, internal (GoL and private sector), and external (international community and governments).

## Assumptions

The extension request “medium-term” plan relies on the following assumptions:

- Funding shortfalls represent the biggest obstacle to meeting the defined objectives. This plan assumes that the funds from GoL will be consistent. In addition, the plan presumes that external funds that have been available since 2013, and which were close to an annual average of (**\$7.8 M.**), will continue to be made available throughout the duration of this request at the same average yearly amount, or higher.
- The political and security situation within Lebanon remains stable allowing implementing agencies to work in a continuous manner.
- International Implementing Agencies are willing to continue working in Lebanon. It is important to note that the current national humanitarian demining capacity is not extensive enough to be able to fully execute fully this plan. An estimated period to finish releasing CM contaminated land is detailed on page 34.

- No additional contamination takes place. It is presumed that the existing data about baseline of CM contamination (as of 1 Dec 2019) is unlikely to change significantly unless additional contamination takes place.
- A tolerable level of residual risk will remain. Land that has not been identified as being contaminated with CM at present, and therefore has not been surveyed, may be found in the future. The national exit strategy will plan for a long-term risk management and CM response capacity.
- A 12 persons BAC team, will work an average of 210 days/year, with a daily average of 426m<sup>2</sup>/day, or 89,460 m<sup>2</sup>/year.

### Non-Technical Survey

A total of 843 sites have been identified as requiring an NTS update. Some were visited for an NTS update during 2019. 8 sites with a total size of 505,632 m<sup>2</sup> only need completion reports. The distribution of other sites by status and location is as follows:

1. **Surface cleared:** sites already cleared in the past but surface only.

Location	#	m <sup>2</sup>	Cancellation probability	Time
Ej Janoub	10	351,234	High	1 team 10 days
Nabatiyah	19	919,027	High	1 team 19 days

All of these sites except one were surface cleared before 2009. There is a high probability today that after 10 years they are used by the owners or locals, yet no accidents or items found have been reported. There is high probability that these sites will be recommended for cancellation.

2. **Finished:** sites already cleared and need completion.

Location	#	m <sup>2</sup>	Cancellation probability	Time
Al-Beqa	2	93,830	N/A	N/A
Ej Janoub	5	79,198	N/A	N/A
Nabatiyah	13	724,413	N/A	N/A

The task dossier needs to be checked and the completion team needs to finish working on the files.

3. **Needs Re-clearance:** sites already cleared but when used by owners new items were found.

Location	#	m <sup>2</sup>	Cancellation probability	Time
Ej Janoub	5	82,354	Medium	1 team 5 days
Nabatiyah	5	149,308	Medium	1 team 5 days

All except 2 have not been surveyed to update their hazardous status since 2007. One exception was surveyed in 2014 and one in 2015. A new survey may show that some of these are being used safely. Since the size of each site is very large, there is also a probability that parts of these sites are being used and can therefore be cancelled.

4. **Suspended:** sites where clearance started, and suspended for a reason.

Location	#	m <sup>2</sup>	Cancellation probability	Time
Ej Janoub	6	171,122	Low	1 team 6 days
Nabatiyah	10	430,116	Low	1 team 10 days

All except 2 were suspended before 2009. One exception was suspended in 2012 and one that was tasked in 2018. The NTS team may find some of them being used, parts of them used, or may recommend TS for some.

5. **Un-Cleared:** sites that still needs clearance.

Location	#	m <sup>2</sup>	Cancellation probability	Time
Al-Beqa	87	1,329,146	Medium/Low	1 team 87 days
Ej-Jenoub	211	1,695,215	Medium/Low	1 team 211 days
Jabal-Lubnan	56	556,340	Medium/Low	1 team 56 days
Nabatiyah	412	3,325,810	Medium/Low	1 team 412 days

There remain a total of 766 Un-Cleared sites that need to be re-surveyed. A lot of these sites have not been surveyed since 2009, which make the probability for cancelling some of them medium to low.

For all the above categories, assuming an average of one working day for one NTS team to visit one site, contact the relevant sources of information and fill the forms. The total number of days needed by one team to complete the survey of all sites is:

Number of days for one team = 766 + 16 + 10 + 29 = 821 days

Number of days required for **6 NTS teams = 137 working days**

If we consider that the 6 NTS teams are fully dedicated to CM sites, they need about 7 months to complete them. But, it is known that a lot of factors affect this estimation. Spot tasks done by the LAF need to be checked by NTS teams to define if it is residual contamination or in previously cleared sites. Hazardous areas with other types of threat need also updates on NTS, especially those where clearance operations are about to start. Not forgetting new hazardous areas found, if any. Add to those, the number of non-working days as holidays and because of bad weather. Lastly, the time gaps for planning, reviewing reports and delays getting signatures of local authorities/owners.

The cost of one NTS team of one Team Leader, one Assistant and one Driver, with one vehicle is estimated at USD 4,000 per month. The total for 7 months is USD 28,000. The total cost for the NTS phase for all cluster-munitions sites is a minimum of USD 168,000.

As a conclusion, we expect that 6 teams of NTS will need about 12 months in total to visit all CM sites, with a cost of 168,000 \$ dedicated to CM sites. It is expected that by the end of 2020, all information about the data base of CM sites and their respective recommendations will be fully updated allowing a more accurate amount of contaminated land remaining to be calculated.

## Technical Survey

LMAC in partnership with NPA have introduced in 2018, a pilot project to use explosive detection dogs (EDDs) as an asset for reducing areas contaminated with cluster munitions. The project has proved to be successful, and one team became fully operational in TS during 2019.

The concept is to use EDDs to find evidence(s) in CHAs and especially in large size areas where reducing the size is likely to be possible. When evidence of CM is found, the manual search and clearance phase may start directly from the evidence to the specified fade out distance. Parts of the sites where no evidence is located by EDDs may be reduced.

The database already contains areas where evidence(s) has been located. These areas need no technical survey and are recommended to be fully cleared. The total number of these areas, as the beginning of 2019, was 291. Recommendations from NTS reports will indicate which among the remaining areas need to be tasked to technical survey teams, both Manual and EDD.

Based on the terrain factors and recommendations of the NTS report, the LMAC operations officer, in coordination with the implementing agency, will determine the required percentage to be checked by TS team, at each site. They will also decide

whether the work should be systematic TS, or Targeted TS. Each decision over the percentage and type of TS has to be approved by the operations section head in LMAC.

Based on their findings, the TS teams will either recommend that the land be released by reduction, or to fully clear the area. TS will be executed throughout the period required for clearance, which is the longest period for this request plan.

## Full Clearance

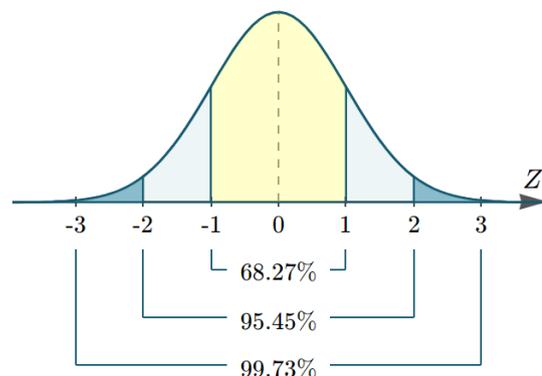
Clearance is currently expected to be the most appropriate land release strategy on most of the remaining CM tasks. Although full clearance uses the most resources, it is mandatory in CHAs in order to ensure the safety of the end users of the land. For each CHA, full search and clearance will start from the evidence located. When the fade out is completed, the remainder of the CHA may be searched by TS.

### 1- Distribution of Contamination by Status

The CM contaminated sites in the database are distributed in the following table by “status”, which reflects the current status of each site and accordingly what approach is recommended for its release, and what is the appropriate probability of cancellation.

The total number of sites is high. Therefore, adopting a normal distribution for the probability curve to the needed actions is acceptable. If  $\mu$  is the mean and  $\sigma$  is the variance, the percentages in a normal distribution curve are as follows:

- 68.27% between  $(\mu-\sigma)$  and  $(\mu+\sigma)$
- 95.45% between  $(\mu-2\sigma)$  and  $(\mu+2\sigma)$
- 98.73% between  $(\mu-3\sigma)$  and  $(\mu+3\sigma)$



Applying these percentages to the probability of cancellation would result in the following:

<b>High</b> probability of cancellation	= 68.27%
<b>Medium</b> probability of cancellation = 95.45 – 68.27	= 27.18%
<b>Low</b> probability of cancellation = 100- 95.45	= 4.55%

To be conservative on the cancellation side, the percentages adopted for this plan are:

Probability of cancellation	Percentage
High	<65%
Medium	<31%
Low	<4%

The defined percentages are based on the experience of the operations section in relation to the remaining types of land and its status.

By applying these percentages to the above areas needing full clearance:

STATUS	Count	Area (m <sup>2</sup> )	Probability		To be	
			Level	%	cancelled	cleared
Cleared Surface	29	1,270,261	High	60%	762,157	508,104
Finished	12	290,909	N/A	100%	290,909	0
Re-clearance	10	231,662	Medium	20%	46,332	185,330
Restricted	2	3,926	N/A	0%	0	3,926
Suspended	16	601,238	Medium	25%	150,310	450,929
Un-cleared	766	6,906,511	Low	3%	207,195	6,699,316
<b>Grand Total</b>	<b>835</b>	<b>9,304,507</b>			<b>1,456,903</b>	<b>7,847,604</b>

Table 6: Total m2 to be cleared in the extension period

After the end of NTS phase by 2021, the amount of square meters that will need to be cleared, based on the data taken at the beginning of 2019 is = **7,847,604 m<sup>2</sup>**

## 2- Remaining Contamination Beginning Of Extension Period

In 2019, 21 BAC teams have been deployed for clearance. The average of clearance for one team has been **89,460 m<sup>2</sup>/team/year<sup>4</sup>**.

Therefore, the total amount that can be expected to be cleared by the end of 2020, which correspond to the end of NTS phase is = **(89,460 \* 21) \* 2 = 3,757,320 m<sup>2</sup>**

Removing this value from the amount expected to be cleared, the size of the areas that remains to be cleared by end of 2020 is:

$$\begin{aligned} \text{Remaining contamination} &= 7,847,604 - 3,757,320 \\ &= \mathbf{4,090,284 \text{ m}^2} \end{aligned}$$

<sup>4</sup> This value is to be re-checked at the end of November of 2019.

Among those areas, some sites are with a “standard” size of 10,000 m<sup>2</sup>, which is equal to the fade out of a single item already found. Data collected from implementing agencies indicates that the area cleared for these type of sites is usually bigger than the original size because more than one CM is present.

By analyzing data, LMAC calculated an average increase in size due to extra fade out of other items found during actual clearance. On average, the final cleared area for such a site is 20,000 m<sup>2</sup>, which means that it doubled in size.

Seeking to be very conservative with this type of sites, an increase value of 150% in size to be cleared will be added to the original size.

The total size of “Standard” size areas in database = **1,810,000 m<sup>2</sup>**

with a factor of 2.5 the total expected size will become = 1,810,000 x 2.5  
= **4,525,000 m<sup>2</sup>**

Total = 4,090,284 + 4,525,000

**By end of 2020 the size of areas that need full clearance = 8,615,284 m<sup>2</sup>**

The extension request will cover the plan to clear an area of **8.7 km<sup>2</sup>**.

### 3- Yearly Average

LMAC is asking for an extension period of 5 years. The yearly cleared square meters of CM sites in the past years were:

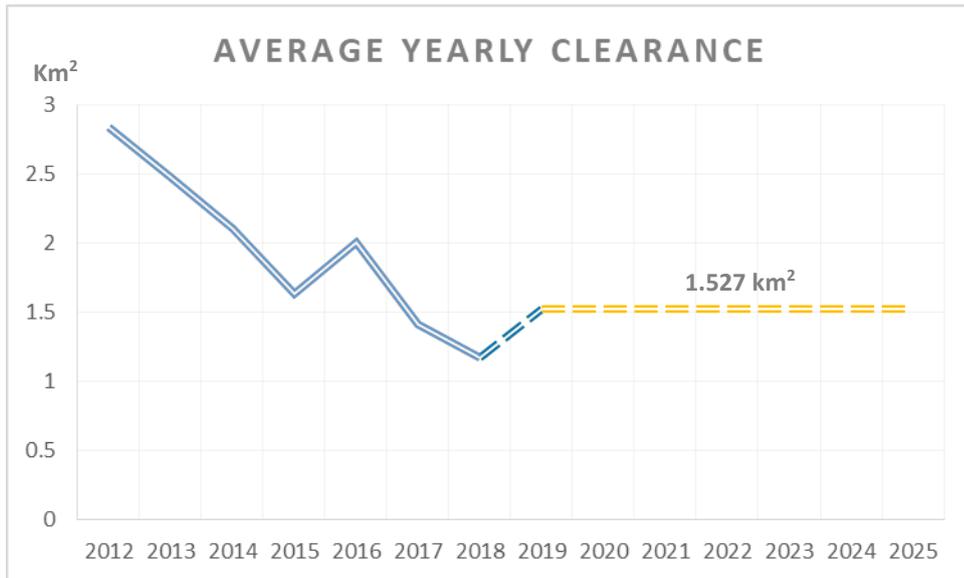
Millions m <sup>2</sup>	2012	2013	2014	2015	2016	2017	2018
<b>Cleared</b>	2.836	2.472	2.102	1.637	2.001	1.413	1.167

The yearly average of clearance = **1.95 km<sup>2</sup>/ year**

But it is well noticed that the clearance yearly average has decreased with time.

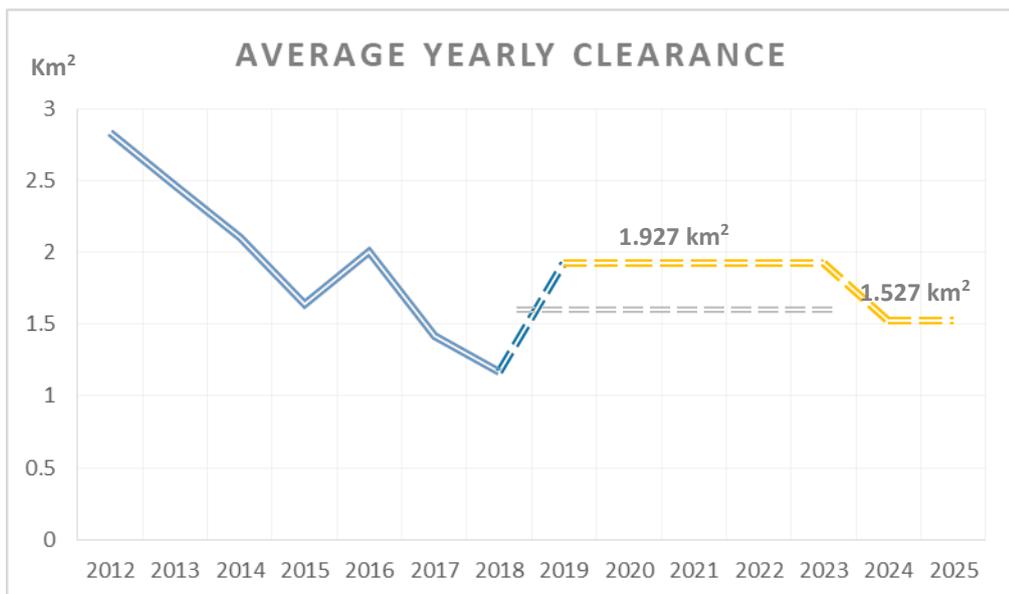
Therefore, a low yearly average will be adopted. It is the best to take the average of the last 3 years, which reflect similar inputs and the same constraining factors during the extension period, especially funding.

The last 3 years average = (2.001 + 1.413 + 1.167) / 3 = **1.527 km<sup>2</sup>/year**. Which will be the expected average of clearance per year during the extension.



On the other hand, the GoL fund that is allocated exclusively for CM clearance, is planned for the 5 years starting 2019 with an average \$3 M/year (see page 33). This fund will add 5 new teams with a target of clearance of 80,000 m<sup>2</sup>/team/year. The total additional cleared area per year is = 400,000 m<sup>2</sup>/year. This means that the average clearance for the first 3 years of extension period will increase by 0.4 km<sup>2</sup>.

Based on these assumptions, the amount of clearance per year will be as follows:



#### 4- Meeting Objective

Theoretically, taking into account existing resources that were available in the last 3 years, and those secured from GoL, the amount of clearance by end of 2025 will be:

$$\begin{aligned}\text{Total m}^2 \text{ cleared during the extension period} &= (1.927 * 3) + (1.527 * 2) \\ &= 8.835 \text{ km}^2\end{aligned}$$

Compared to the calculated size of contamination to be cleared (page 27) which is equal to **8.7 km<sup>2</sup>**, we see that the **result meets the objective**.

#### As a conclusion

IF we are capable of securing the SAME yearly average yearly funds that LMAC has received for the past 3 years, and GoL continues with the declared contribution for the first three years of the extension period, ALL known contaminated lands with cluster munitions in Lebanon will be safely released by end of 2025.

However, it is expected that the closer we come towards the completion, the less interest there will be in funding CM from international donors. This should be anticipated especially because, as we reach the final years the impact of the release of contaminated land is expected to decrease.

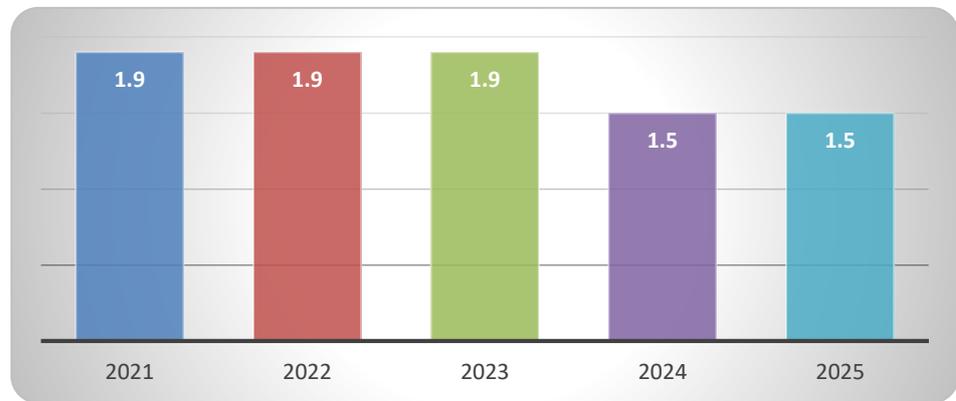
It is important to add a final note, the LMAC's 'Un-cleared' database includes two special types of site. The first one is called 'Disclaimer' (name extension '-D') which indicates that the owner of the land is not willing to let the IAs work on his land, fearing from disturbing it. In this case, the owners have to sign a personal disclaimer taking full responsibility for any kind of ERW hazard including CM on the land. These records were mainly taken before 2009, and there is a high probability that the sites will be cancelled during the new NTS when the owners are found to be using the land. The total count of 'Disclaimer' sites is 116, with a total area of 338,932 m<sup>2</sup>.

The second type is called 'Un-Completed' (name extension '-UC') where most of the site has been fully cleared, but one small part of it is still unclear because it needs special equipment, mainly mechanical. LMAC closed the record for the cleared sites and opened new records for the remaining area and with the same name and the extension of '-UC'. Clearance of this type of small task is generally fast, LMAC will be allocating these tasks to IAs with the needed capacities during the period of the extension. The total count of 'Un-Completed' (-UC) sites is 173, with a total area of 607,229 m<sup>2</sup>.

## 5- Time Table

A balanced time table presumes an equal amount of cleared m<sup>2</sup> every year, which is equivalent to  $(8.7 / 5) = 1.74$  km<sup>2</sup>/year. However, taking into account that the GoL funds will only be available during the first 3 years of the extension period with 400,000 m<sup>2</sup>/year, the time table would look as follows:

Year	2021	2022	2023	2024	2025
<b>Cleared m<sup>2</sup></b>	1.9	1.9	1.9	1.5	1.5
<b>teams</b>	26	26	26	21	21



It is highly important to note that the cost of one team will change with time. It is then more cost-efficient to try to get a higher number of teams at the beginning of the extension period.

LMAC will use this plan of the extension request to motivate donors in an attempt to increase the funds available in the beginning years of the extension period. This way much of square meters will be cleared in the beginning of the extension period when interest is still high, and a smaller required amount will be left for the last year.

If LMAC manages to increase external funds by 25% for the first 2 years, this means that the last 2 years may allow a decrease of 25% of funding support. The time table would be:

Year	2021	2022	2023	2024	2025
<b>Cleared m<sup>2</sup></b>	2.113	2.113	1.9	1.364	1.364
<b>teams</b>	31	31	26	16	16



## 6- Cost

Based on previous time tables and with an average yearly donation from external stakeholders of \$6.61 M, the needed external funds (excluding GoL) would be distributed as follows:

Plan	Year	2021	2022	2023	2024	2025	Total
1	Teams	21	21	21	21	21	
	Cost (M\$)	6.6	6.6	6.6	6.6	6.6	<b>33</b>
2	Teams	26	26	21	16	16	
	Cost (M\$)	8.2	8.2	6.6	5	5	<b>33</b>

Table 7: Yearly distribution of needed funds

## 7- Resource Mobilization Plan

### a. National resources

The government of Lebanon (GoL) is fully funding LMAC and 4 clearance teams dedicated to humanitarian operations from LAF-Engineering Regiment. GoL also provides full medical support to all injured victims. The total amount of expenses spent from GoL for mine action is estimated at \$ 9M/year.

In compliance with its international commitment, GoL has allocated LBP 50 B (\$33.3 M) for clearance operations of areas contaminated with cluster-munitions, to be spent over 5 years. Due to the financial situation in Lebanon the yearly amount allocated may change. LMAC will continue to emphasize the importance of funding these operations to help meet the objectives detailed in this request. We estimate that the yearly minimum amount required from GoL is \$ 3 M.

LMAC will continue with the Mine Action Forum, which has proved to be an effective platform that gathers donors and implementing agencies together, and where LMAC is able to present in a transparent way its achievements and

challenges. The MA Forum is much welcomed by all stakeholders and is believed to have helped increase funding support over the last few years.

In 2019, LMAC with the support of BLOM Bank, gathered multiple big companies from the Lebanon private sector to discuss their contribution to mine action as a whole in relation to their social responsibility. The meeting was a success, all attendants showed high interest and enthusiasm. LMAC will develop this initiative more into a forum similar to the country coalition concept.

### b. International resources

Previous resources as cited in an earlier paragraph were as follows:

	2012	2013	2014	2015	2016	2017	2018
M.\$	10.08	7.92	8.23	8.43	7.01	6.35	6.47

The average for the past three years is \$6.61 M. as per the calculations of this study, this amount shall be enough to clear the needed amount of m<sup>2</sup> and eventually reach the final goal.

The Lebanon Mine Action Forum with the support of Norway, has proved to be an exceptional asset to LMAC. It has helped LMAC to present problems, resources, challenges and achievements to donors in the presence of IAs, in a transparent and professional manner. LMAC will continue to count on this asset, and will present this extension plan to stakeholders at the forum explaining the yearly situation and LMAC's needs in order to comply with the final goal.

### c. Worst Case Scenarios

- i. If the LAF's 4 humanitarian clearance teams available were the only resources to be used, and if they were fully dedicated to cluster munitions clearance, assuming an average of 80,000 sqm/team/year, the total amount cleared per year would be 320,000 sqm. To complete the 8.7 M. sqm would take **27.2 years**. But it is worth noting that these teams may halt operations at any time to be tasked with operations from the engineering regiment HQ.
- ii. If allocated GoL funds were the only available funds until 2023, along with 2 LAF teams, the time needed to finish will be **20.5 years**.
- iii. If GoL funds stopped for internal financial constraints, and external funding continues at variable amounts. Considering that LAF 2 teams working in CM, based on the number of teams with international funds and the cost of one team to be \$400 K including the overhead, the time needed will be as in the following table:

FUNDS (\$ M) PER YEAR	INTL' FUNDS TEAMS	CLEARED M <sup>2</sup>	LAF TEAMS	CLEARED M <sup>2</sup>	YEARS NEEDED
2	5	400 K	2	160 K	15.5
4	10	800 K	2	160 K	9.0
6	15	1200 K	2	160 K	6.4
8	20	1600 K	2	160 K	5

The following chart summarizes the different worst case scenarios:

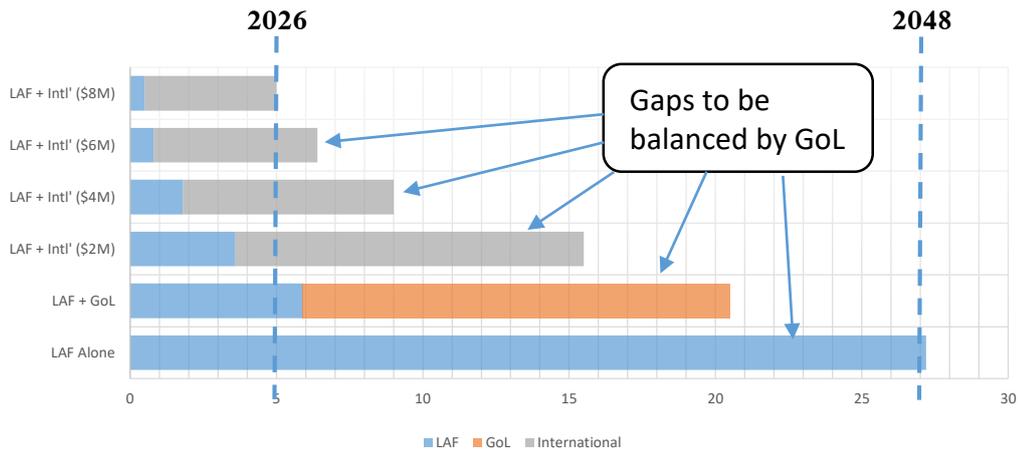


Chart 3: Years to finish CM clearance according to available funds

## 8- Difficult Terrain

A challenge facing numerous state parties, including Lebanon, in their common striving to comply with their CCM obligations is the uncertain status of difficult terrain. In Lebanon, difficult terrain are mainly found in deep and very steep canyons and cliffs where survey and clearance are almost impossible to conduct using current methods and assets, and represent additional high risk to searchers and MedEvac.

Lebanon has in principle two type of scenarios related to this challenge;

- Confirmed hazard areas (CHAs) in which all known cluster munitions contamination has already been cleared, but where a part of the normal 50 meter fade-out falls within a difficult terrain; and
- Confirmed or Suspected hazard areas (CHAs) located within difficult terrain, given the footprint of known CM strikes.

LMAC will make every effort to deal with these two scenarios, each of which may require different approaches from a CCM compliance perspective. All registered

hazardous areas will be released after all reasonable efforts have been exerted to remove the presence or suspicion of explosive ordnance.

a. LMAC understanding of difficult terrain and all reasonable efforts

The third principle in land release process reads as follows<sup>5</sup>:

*“Inaccessible areas, or areas with limited information available, should not by default be recorded as SHA. SHAs should only be recorded in a database when there is sufficient evidence to justify doing so. Other processes for dealing with areas that are inaccessible, or present limited information, may be developed by the NMAA.”*

IMAS 04.10<sup>6</sup> defines clearance to be:

*“In the context of mine action, the term refers to tasks or actions to ensure the removal and/or the destruction of all Explosive Ordnance from a specified area to a specified depth or other agreed parameters as stipulated by the NMAA/Tasking Authority”*

The fade-out from the last cluster munitions remnant found (described in the ‘Search and Clearance Methodology’ section of this document) is one of the defined parameters that Lebanon NMAA uses to increase confidence that no further evidence of contamination exists once a CHA has been cleared. Thereby helping to ensure that released land will be used safely by beneficiaries. It is defined in Lebanon NMAS as follows:

*“An agreed surface area that is searched to confirm that no further evidence of EO hazards exist. During the clearance of cluster munitions, fade out is achieved when the cluster strike footprint has been identified, searched and cleared to the required depth. Fade out shall be conducted using the same procedures (i.e. surface or subsurface) under which the evidence was found unless otherwise agreed by the LMAC.”*

The cluster munitions footprint is not always easy, and sometimes impossible to identify. So required fade out is not necessarily related to footprint, it is sometimes an “agreed” surface based on experience that by clearing the NMAA is confident about exerting all reasonable effort to release safe lands.

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<sup>5</sup> IMAS 07.11 Land Release. First Edition, Amendment 4, July 2018.

<sup>6</sup> IMAS 04.10 Glossary of mine action terms, definitions and abbreviations. Second Edition, Amendment 10, February 2019.

The IMAS 04.10<sup>7</sup> states that all reasonable effort

*“Describes what is considered a minimum acceptable level of effort to identify and document contaminated areas or to remove the presence or suspicion of explosive ordnance. All reasonable effort has been applied when the commitment of additional resources is considered to be unreasonable in relation to the results expected.”*

b. Scenario 1: Confirmed Hazard Areas has been otherwise cleared but when standard fade-out lies partially within a difficult terrain

Where contamination exists it will be identified and removed in line with Article 4 of the Convention. The scenario described will require a detailed technical assessment in each case. As explained in the ‘Search and Clearance Methodology’ section above a standard fade-out distance is applied to clearance tasks as a confidence building measure. In cases where LMAC quality management procedures can determine, with confidence, that all evidence of cluster munitions contamination has been identified and removed, then the deployment of additional clearance assets into inaccessible areas where no evidence of contamination exists may be considered unreasonable.

c. Scenario 2: Confirmed Hazard Areas within a difficult terrain

The footprint of a cluster munitions strike includes in part a difficult terrain, which then considered as CHA. As far as LMAC knows, there are no reports or studies that guides state parties (the NMAA) on how to address this issue. To encourage a uniform response by all State Parties to this challenge, LMAC plan to undertake a study to find a solution to address and report on CHA’s located in difficult terrain. LMAC is confident that such a study could guide other countries in a similar situation as well as the ISU of both the CCM and the APMBC. It is, for example, conceivable that new technologies, procedures and processes may allow these areas to be surveyed and when necessary cleared in unconventional ways. LMAC would therefore welcome the participation and support of ISU, GICHD, Mine Action Review, equipment developers and any other stakeholder in this process in order to ensure that this study addresses the needs of the state parties.

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<sup>7</sup> IMAS 04.10 Glossary of mine action terms, definitions and abbreviations. Second Edition, Amendment 10, February 2019.

## Risk Education

The goal of Mine Risk Education is to increase awareness among affected communities thereby mitigating the risk of explosive devices through knowledge and promotion of safe behaviors. The Mine Risk Education Section in LMAC engages some innovative approaches to adapt to rising needs.

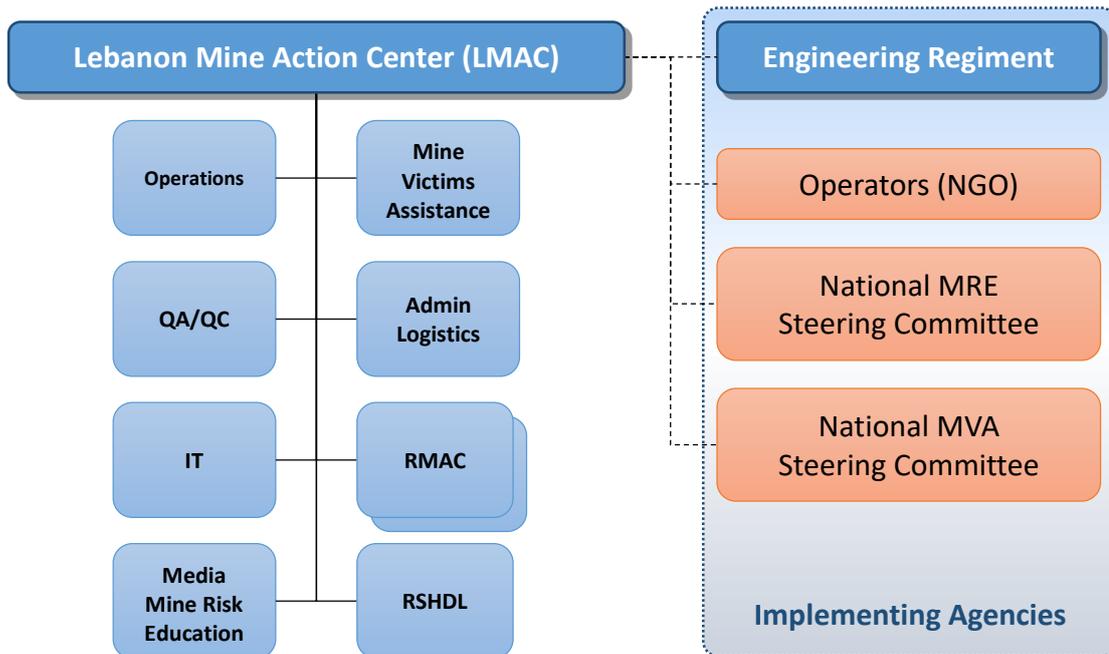
Accordingly, LMAC cooperates with the Ministry of Education in organizing Training of Trainers in public schools for 'Health and Safety' teachers, thereby triggering a multiplier effect whose impact should cover the entire public school system throughout Lebanon.

Over and above the planned awareness sessions 'Emergency Response' training sessions are organized in coordination with IAs all over Lebanon, based on reports of hazardous items found and/or risky behaviors of locals.

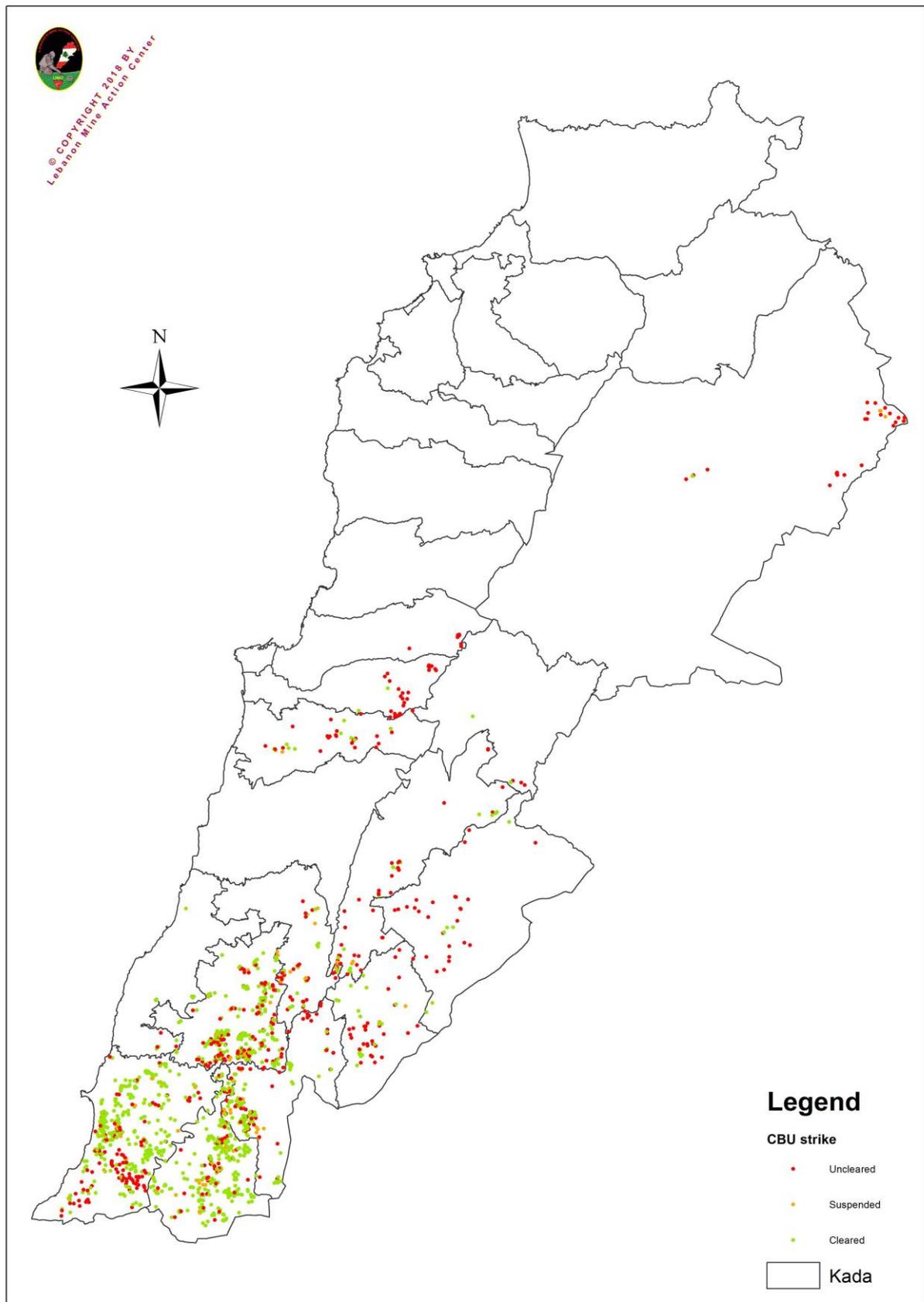
Priorities are set in accordance with the contamination area size and location, its impact on the community, the number of casualties, and the size of population. Syrian refugees' camps especially those built near hazardous areas affect the priorities. Most of refugees are with no or little awareness about the hazards.

In the context of the rapid response, migrating mines from Syrian side through river beds and floods along the northern border of Lebanon, requires the MRE section with support of many donors and NGOs to engage in awareness sessions for local communities in that areas in a swift manner.

## Annex A: Mine Action Structure in Lebanon



## Annex B: CM Contamination Current Distribution and Status



## **Annex C: Lebanon Mine Action National Policy**

### **I. Basic Provisions**

#### Article 1

1. The Government of Lebanon, conscious of the damage and suffering caused by landmine and explosive remnants of war, shall take full responsibility for the humanitarian, socio-economic and environmental impact caused by these devices and shall rid Lebanon from the impact associated with these devices in an expeditious and efficient manner in line with international standards and mine action best practices.
2. This policy regulates organisational structure for mine clearance, survey and removal of explosive remnants of war in Lebanon as well as mine risk education and the coordination of assistance to victims of mine/explosive remnants of war (hereinafter: mine action). It determines the bodies authorised for the conduct of demining, rights and obligations of persons carrying out demining, as well as monitoring over the implementation of this policy.
3. Mine action under this policy includes the removal of unexploded improvised explosive devices (IED).

#### Article 2

Lebanon aspires to become a state party to the Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices (Protocol II), known forthwith as the (CCW) Amended Protocol II, and aspires also to become a state party to the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction, known forthwith as the Ottawa Convention.

### **II. Mine Action Structure in Lebanon**

#### Article 3

1. Lebanon Mine Action Authority (LMAA): The Minister of Defence is the chairperson of Lebanon Mine Action Authority (LMAA) and shall be the responsible to the Government of Lebanon for the Lebanese National Mine Action Programme (LNMAP).
2. Lebanon Mine Action Centre (LMAC): The Lebanon Mine Action Centre (LMAC), known until now as the National Demining Office (NDO) Lebanon, shall execute and coordinate the Lebanese National Mine Action Program (LNMAP) on behalf of Lebanon Mine Action Authority (LMAA).
3. The Lebanon Mine Action Centre shall be under the command of the Deputy Chief of Staff for Operations of the Lebanese Armed Forces.

#### Article 4

The LMAA shall:

1. Promote and coordinate any cooperation process with national authorities, and between the State, the civil society and the international community, aimed at Humanitarian Demining Actions, Victims Assistance and Mine Risk Education.
2. Approve any reports submitted by the LMAC and disseminate the country's official information concerning mine action to be disclosed to the national and international community, through the Ministry of Foreign Affairs.
3. Chair the Inter-ministerial Advisory Committee for mine action and the International Support Group (refer to article 5-2).
4. Invite national or international guests or organizations as deemed appropriate for the fulfilment of its functions.

#### Article 5

1. Under the provision of Article 4, an Inter-ministerial Advisory Committee for mine action shall be established to create a participatory and transparent method of providing strategic priorities and overview of mine action in Lebanon.
2. The Inter-ministerial Advisory Committee for mine action shall be made up as follows:
  - a. The Minister of Defence (chair).
  - b. The Minister of the Interior and Municipalities or any appointed General Director belonging to this ministry.(the same appointed general director must attend all meetings of the year)
  - c. The Minister of Foreign Affairs and Emigrants or the Ministry Director General.
  - d. The Minister of Education or any appointed General Director belonging to this ministry. (the same appointed general director must attend all meetings of the year)
  - e. The Minister of Public Works and Transport or any appointed General Director belonging to this ministry. (the same appointed general director must attend all meetings of the year)
  - f. The Director of the Council for Development and Reconstruction or any appointed manager belonging to this council. (the same appointed manager must attend all meetings of the year)
  - g. The Director of the Lebanon Mine Action Centre (secretary)
3. The Inter-ministerial Advisory Committee shall provide guidance and priorities on government strategic plans that will affect mine action priorities.
4. The Inter-ministerial Advisory Committee shall meet semi-annually.

#### Article 6

The LMAC shall be the organization tasked with implementing the LNMAP in accordance with the strategic national priorities set by the Inter-ministerial committee.

#### Article 7

The LMAC shall perform the following activities:

1. The LMAC will manage mine action activities in Lebanon and will help ensure the provision of administrative and logistical support to facilitate the work of all mine action organisations working in Lebanon in accordance with the National Mine Action End-state Strategies and standards.
2. The LMAC shall task, coordinate and authorize all humanitarian demining related activities including landmine and ERW survey, mapping, marking, clearance and land recovery.
3. Preparation of Mine Risk Education priorities upon which MRE will proceed in order to limit the risk of injuries through the dissemination of effective prevention measures.
4. The LMAC will be responsible for the national mine action information management system.
5. The LMAC will be responsible for the accreditation of all mine action organizations in accordance with National Standards before any mine action activity is authorized.
6. Quality control and quality assurance of all mine action activities.
7. The LMAC shall present semi-annual reports including implementation status, performance level in comparison to set priorities and indicators to the Ministry of Defence.
8. The LMAC shall prepare and update national accreditation and certification standards. Once these accreditation and certification standards are published, all concerned are obliged to adhere to them.
9. The LMAC will establish regional mine action centres as necessary.
10. The LMAC is free to ask support, information and collaboration from government agencies, international and national organisations and non-governmental organisations involved with mine action in accordance with Lebanese Armed Forces regulations.

#### Article 8

1. The LMAC shall manage and coordinate the implementation of mine risk education (MRE) activities in Lebanon through the National Mine Risk Education Steering Committee.
2. The National Mine Risk Education Steering Committee will consist of the following:
  - a. LMAC Mine Risk Education Department Head (Chair).
  - b. Representative of the Ministry of Education.
  - c. Representative of the Ministry of Social Affairs.
  - d. International and National organisations and non-governmental organisations with a concerned interest in mine risk education.
3. Members of the National Mine Risk Education Committee shall:
  - a. Enter a memorandum of understanding (MOU) with the LMAC outlining the terms of agreement and responsibilities of each party.

- b. Abide by the National Mine Risk Education Committee code of conduct.

#### Article 9

1. The LMAC shall manage and coordinate the implementation of mine victims assistance (MVA) activities in Lebanon through the National Mine Victims Assistance Steering Committee.
2. National Mine Victims Assistance Steering Committee will consist of the following:
  - a. LMAC Mine Victims Assistance Department Head (Chair).
  - b. Representative of the Ministry of Social Affairs.
  - c. Representative of the Ministry of Health.
  - d. International and National organisations and non-governmental organisations with a concerned interest in mine victims assistance.
3. Members of the National Mine Victims Assistance Steering Committee shall:
  - a. Enter a memorandum of understanding with the LMAC outlining the terms of agreement and responsibilities of each party.
  - b. Abide by the National Landmine Victim Assistance Committee code of conduct.

### **III. International Bodies**

#### Article 10

1. International Support Group (ISG) shall support the work of the LMAA, and shall consist of senior representation from UNDP, Office of the PRSG, World Bank, International Monetary Fund, and concerned donor country representation at the Ambassadorial level.
2. The representatives of the international organisations and governments supporting demining programmes shall be invited to act as members of the ISG.
3. International and national non-governmental organisations with a concern for mine action activities shall be invited to observe ISG proceedings.
4. The ISG shall meet yearly, and shall exist as long as the members find it necessary.
5. Secretarial services for the ISG will be provided by UNDP.
6. Working level mine action updates shall be chaired by the Director LMAC and will provide donors a technical update on the progress of mine action activities.
7. Working level mine action updates shall be held on a quarterly basis.

### **IV. Implementation of Mine Action**

#### Article 11

1. All humanitarian demining in Lebanon shall be conducted according to the National Standards sanctioned by the LMAA. The National Standards will be prepared in accordance with International Mine Action Standards (IMAS).

2. National standards shall be monitored by the LMAC. The Director LMAC has the authority to make operational changes to National Standards and shall refer substantive amendments to the LMAA for approval.
3. Work will be done towards efficiently and effectively concluding the demining operations through setting priorities, monitoring and evaluation criteria, and accreditation and licensing. The LMAC will be responsible for the annual licensing of all mine clearance organizations/procedures before any clearance is authorized.
4. The Lebanese Armed Forces is authorised to conduct humanitarian mine action operations. Paragraphs 1 and 3 of this Article applies.

#### Article 12

1. Mine Risk Education shall work towards the reduction in the rate of accidents and injuries through the dissemination of mine risk education information to the public.
2. Mine Risk Education shall be executed according to the National Standards and priorities prepared by the LMAC in coordination with the National Mine Risk Education Steering Committee and according to internationally accepted standards.

#### Article 13

1. Mine Victim Assistance (MVA) will work towards ensuring support for landmine/ERW victims in all medical, psychological, and economical aspects and support activities to help ensure that victims re-gain their full legal rights, and can smoothly reintegrate within the society.
2. Mine Victim Assistance will be executed according to the National Standards prepared by the LMAC in coordination with the National Mine Victim Steering Committee and according to internationally accepted standards.
3. The LMAC shall, with the support of members of the National Mine Victims Steering Committee maintain a database of all mine victims.

#### Article 14

1. An Information Management (IM) system that improves capabilities for decision-making, coordination, and information policy related to Mine Action will be endorsed. The IMSMA database system, as produced by the Geneva International Centre for Humanitarian Demining, is the current system being utilized for this purpose.
2. The IM will be managed by the LMAC according to the National Standards and internationally accepted standards.
3. All mine action data will remain the property of the LMAC.
4. Administrator privileges will be strictly controlled by the LMAC and information management functionalities will be issued to mine action practitioners for a specific task of limited duration only.
5. The IM shall support all activities integral to effective mine action including mine risk education, mine victim assistance, minefield survey, mapping, marking and clearance.

#### Article 15

1. Quality Assurance and Control Officers (QA/QC Officers) shall carry out the supervision and inspection of all mine action activities according to National Standards.
2. The QA/QC officers shall be a separate section of the LMAC and shall report to the Director in order to provide independent quality control and assurance of mine action activities and to avoid any potential conflicts of interest.
3. The LMAC authorises the QA/QC officer for the fulfilment of their duties.

#### Article 16

1. During the conduct of demining activities, the QA/QC officer shall ensure compliance with National Standards and Procedures.
2. Upon the completion of clearance activities, the QA/QC officers shall ensure that a quality assurance evaluation of the clearance task has been completed in accordance with National Standards.

#### Article 17

In case of major irregularities or severe violations of national mine action standards the mine action operator may lose either individual or organisational accreditation.

#### Article 18

1. Mine action implementation agencies shall have the right to appeal the decisions made by the QA/QC officer.
2. First level appeals shall be made no later than three days after QA/QC officer's decision to the Director LMAC. The Director LMAC shall respond to appeals within eight days of receipt.
3. Second level appeals shall be made to the LMAA no later than 7 days after receipt of the response to the First Level appeal. The LMAA shall make a decision no later than 14 days after receipt of the Second Level appeal.

#### Article 19

Resource Mobilization for the implementation of Mine Action activities will be based on transparency, timeliness, accountability and cost effectiveness. Resource formats could include:

1. Government financing.
2. Grants, including monetary and in-kind donations.
3. Loans.
4. National Mine Action Trust Fund.

#### Article 20

1. The purpose of the National Mine Action Trust Fund is to provide special resources for a coherent mine action. The Trust Fund shall ensure a flexible framework for

donor coordination exists while promoting strong government leadership of the overall programme.

2. The management of the National Mine Action Trust Fund will be through an instrument specifically created by for this purpose according to procedures to be established with the participation of Government, non-Governmental and International Organisations. The procedures will be enacted to:
  - a. Maximizing the usefulness of the resources available for mine action activities.
  - b. Ensuring transparency of the National Mine Action Trust Fund.
  - c. Encourage a greater involvement of the donor community and Lebanese worldwide in the financing of demining.
  - d. Ensuring tendering procedures are regulated and transparent.

#### Article 21

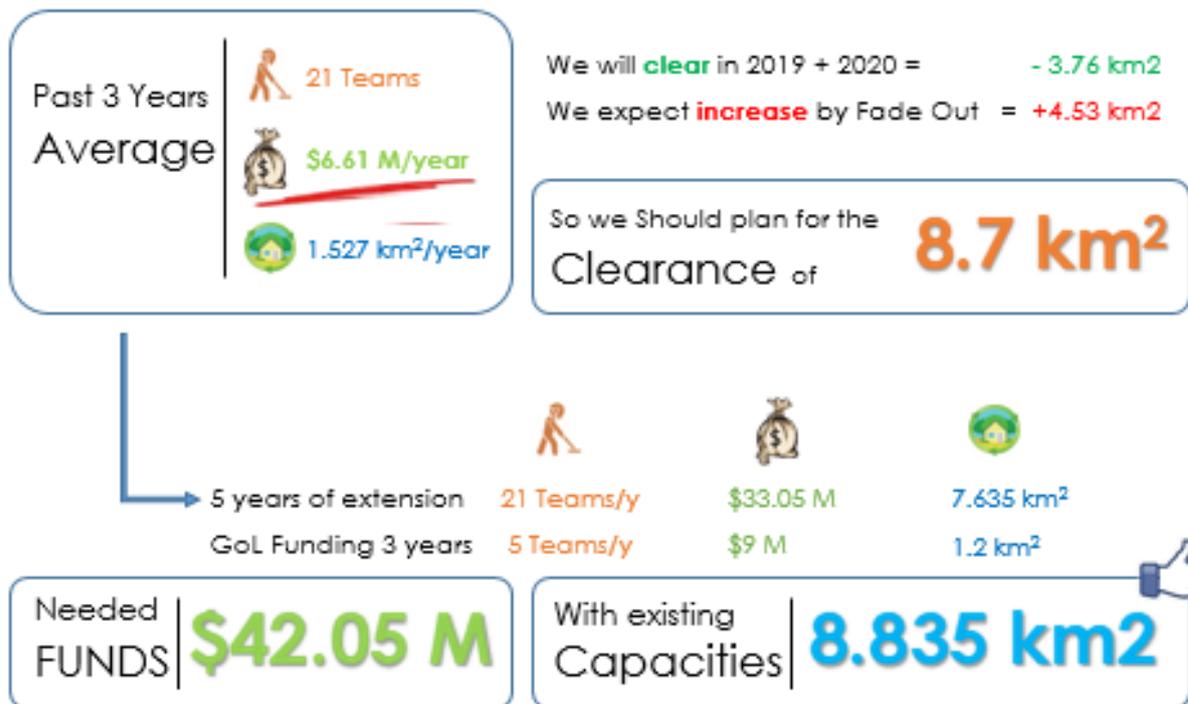
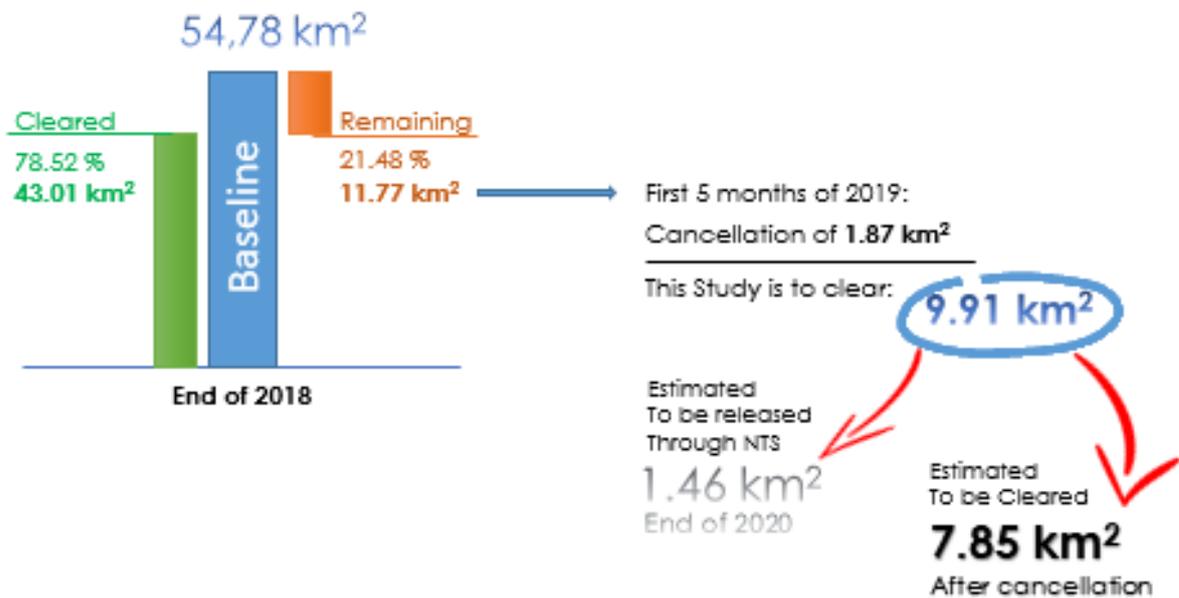
1. All entities working in Mine clearance, which are registered with the LMAC, should carry insurance for health, disability, and life in accordance with National Standards and Lebanese Labour Law.
2. Work should be done towards making available adequate coverage systems by the:
  - a. Ministry of Public Health for health needs coverage
  - b. Ministry of Social Affairs for disability treatment/ rehabilitation
  - c. National Social Security Fund for disability compensation
  - d. Lebanese Armed Forces, covering their own personnel according to Lebanese Armed Forces regulations
  - e. Liability of mine action related impact would only be transferred onto government once land has been:
    - i) Surveyed and marked according to standing operating procedures.
    - ii) Certified as safe following clearance.
    - iii) Terms of any MOU and/or contract has expired.

### **V.Final Provisions**

#### Article 22

This policy enters into force on publication in the Official Gazette of the Republic of Lebanon.

## Annex D: Summary of the Extension Plan



**We can do it** with the following timetable

	2021	2022	2023	2024	2025
External funds \$	6.6 M				
GoL funds \$	3 M	3 M	3 M		
Sqm cleared	1.927 M	1.927 M	1.927 M	1.527 M	1.527 M