

## KEY DATA

### ANTI-PERSONNEL (AP) MINE CONTAMINATION: MEDIUM

NATIONAL AUTHORITY ESTIMATE

16KM<sup>2</sup>

AP MINE CLEARANCE IN 2023

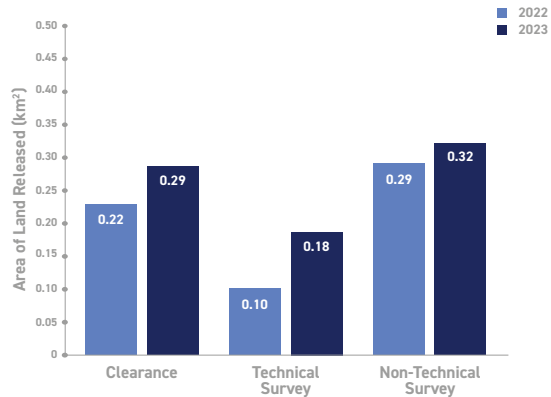
0.29KM<sup>2</sup>

AP MINES DESTROYED IN 2023

10,669

(INCLUDING 46 DURING SPOT TASKS)

## LAND RELEASE OUTPUT



## KEY DEVELOPMENTS

The Lebanon Mine Action Centre (LMAC) and its national and international partners continued to make progress in mine clearance in 2023. LMAC reported an overall increase in land release output for 2023, primarily driven by enhanced survey activities, although this increase has not been uniformly reflected by all operators. However, clearance activities in southern Lebanon, including along the Blue Line, were suspended due to hostilities between Israel and Hezbollah that began on 8 October 2023. In October 2024, a year on from the start of the fighting, land release operations remained suspended in Southern Lebanon. Furthermore, as at the time of writing, further escalation of the armed conflict with Israel had resulted in international NGOs having suspended all survey and clearance in Lebanon.

## RECOMMENDATIONS FOR ACTION

- Lebanon should accede to the Anti-Personnel Mine Ban Convention (APMBC) as a matter of priority.
- Lebanon should clear anti-personnel (AP) mines in areas under its jurisdiction or control as soon as possible, consonant with its obligations under international human rights law.
- Wherever possible, evidence-based non-technical survey (NTS) and technical survey (TS) should be used to define areas of mine contamination more accurately prior to initiating clearance. This is particularly important in non-pattern minefields, such as the mined areas in Mount Lebanon.

## DEMINING CAPACITY

### MANAGEMENT

- Lebanon Mine Action Authority (LMAA)
- Lebanon Mine Action Centre (LMAC)
- Regional Mine Action Centres (RMAC-N and RMAC-RB)

### NATIONAL OPERATORS

- Lebanese Armed Forces (LAF)/Engineering Regiment (ER)

### INTERNATIONAL OPERATORS

- DanChurchAid (DCA)
- Humanity & Inclusion (HI)
- Mines Advisory Group (MAG)
- Norwegian People's Aid (NPA)

## INTERNATIONAL OPERATORS

- Geneva International Centre for Humanitarian Demining (GICHD)
- United Nations Development Programme (UNDP)
- UN Interim Force in Lebanon (UNIFIL)
- United Nations Mine Action Service (UNMAS)

## UNDERSTANDING OF AP MINE CONTAMINATION

At the end of 2023, Lebanon had nearly 16.2km<sup>2</sup> of mined area, including along the Blue Line, across 929 confirmed hazardous areas (CHAs) (see Table 1).<sup>1</sup> This is a reduction from the 16.9km<sup>2</sup> of confirmed mined area at the end of 2022.<sup>2</sup>

Table 1: Mined area by province (at end 2023)<sup>3</sup>

Province	CHAs	Area (m <sup>2</sup> )
Al Beqaa	26	4,516,887
Al Janoub and Al Nabatiyeh (south Lebanon)	744	6,553,720
Jabal Loubnan (Mount Lebanon)	159	5,102,561
<b>Totals</b>	<b>929</b>	<b>16,173,168</b>

In 2023, 30,043m<sup>2</sup> of anti-personnel (AP) mine contamination was added to the database, of which 4,877m<sup>2</sup> was previously unrecorded AP mine contamination and 25,166m<sup>2</sup> was perimeter adjustments for existing AP mined areas.<sup>4</sup> In addition, as at the end of 2023, LMAC reported a total of 3,183,189m<sup>2</sup> of "Dangerous Areas",<sup>5</sup> some of which may contain booby-traps and improvised explosive devices (IEDs). These areas relate predominantly to rapid response or explosive ordnance disposal (EOD) spot tasks and are often the result of incidents having been reported to LMAC by the local community. Further investigation and/or survey is required in order to confirm the existence, type, and extent of any contamination.<sup>6</sup>

Lebanon's mine problem is largely a legacy of 15 years of earlier civil conflict and Israeli invasions of south Lebanon

(in 1978 and 1982) and subsequent occupations that ended in May 2000. The majority of mined areas are in the south of Lebanon, in conventional minefields laid according to a pattern and with the location of the mines identified on minefield maps. The minefields in Mount Lebanon in the middle of the country are typically "militia" or "scattered" minefields with mines laid without a pattern and for which minefield records and maps do not exist. Multiple actors emplaced these mines during the civil war.<sup>7</sup>

There had also been a small amount of new mine contamination in "Jroud Arsal" on the north-east border with Syria, resulting from spill-over of the Syrian conflict onto Lebanese territory in 2014–17.<sup>8</sup> The Lebanese territory in question was fully regained by the Lebanese Armed Forces (LAF) in August 2017 and was assigned to LMAC for survey and clearance. Following completion of land release operations, LMAC reported this area to be free from explosive ordnance as at June 2023.<sup>9</sup>

The LAF continue to play a major role in the north of the country as the number of rapid-response missions remains high. In recent years, LMAC has had to address contamination from mines migrating from the north Syrian border, through floods and riverbeds, to new areas in Wadi Khaled and Wadi Nahle in the north.<sup>10</sup> Mine migration can happen anywhere along the border river and LMAC only knows about the migrated mines through reporting of detonations. LMAC surveyed the location of incidents and submitted a report to LAF headquarters recommending that, where possible, berms are built in these locations to prevent future migration. The LAF Engineering Regiment search and clear large fade-out areas and erect fences and marking signs where possible, and mine risk education is conducted.<sup>11</sup>

## OTHER EXPLOSIVE ORDNANCE CONTAMINATION

Lebanon is also contaminated with cluster munition remnants (CMR) and other explosive remnants of war (ERW). For details on CMR contamination, see Mine Action Review's *Clearing Cluster Munition Remnants 2024* report on Lebanon.

Since 8 October 2023, the Israeli military and Hezbollah have engaged in thousands of attacks against each other across Lebanon's southern border. Most involved the firing of artillery or missiles. In October 2023, Amnesty International reported that the Israeli army had used white phosphorus artillery shells during an attack on the southern border town of Dhayra, a populated civilian area, which the organisation said was a violation of international humanitarian law.<sup>12</sup>

1 Email from Lt.-Col. Ali Makki, Information Officer and Risk Education and Media Section Head, LMAC, 16 May 2024.

2 LMAC, "Annual Report 2022", p. 15; and email from Lt.-Col. Fadi Wazen, LMAC, 19 April 2023.

3 Email from Lt.-Col. Ali Makki, LMAC, 16 May 2024.

4 Email from Lt.-Col. Ali Makki, LMAC, 7 October 2024.

5 Email from Lt.-Col. Ali Makki, LMAC, 16 May 2024.

6 Interview with Brig.-Gen. Elie Nassif, Director, and Brig.-Gen. Fakhri, Head of Operations, LMAC, Beirut, 18 April 2016.

7 Interview with Brig.-Gen. Elie Nassif and Brig.-Gen. Fakhri, LMAC, Beirut, 11 April 2016.

8 Emails from Lt.-Col. Fadi Wazen, LMAC, 7 March 2019; David Willey, Country Director, MAG, 7 March 2019; and Emile Ollivier, Grants Coordinator, NPA, 19 March 2019.

9 Email from Lt.-Col. Charbel Njeim, LMAC, 7 September 2023.

10 LMAC, "Annual Report 2019", pp. 7 and 25.

11 Email from Lt.-Col. Fadi Wazen, LMAC, 15 March 2021.

12 Amnesty International, "Lebanon: Evidence of Israel's unlawful use of white phosphorus in southern Lebanon as cross-border hostilities escalate", Article, 31 October 2023, at: <https://bit.ly/3VBUXt4>.

As at the time of writing, there was an ongoing escalation in the conflict, with Israel having launched a ground invasion in southern Lebanon and extending its bombing campaign into Beirut and the Bekaa Valley.<sup>13</sup>

## PROGRAMME MANAGEMENT

Lebanon's mine action programme is under the control of the military. The Lebanon Mine Action Authority (LMAA), which has overall responsibility for Lebanon's mine action programme, is the responsibility of the Ministry of Defence and is chaired by the Minister of Defence. In 2007, a national mine action policy outlined the structure, roles, and responsibilities within the programme, and LMAC was tasked to execute and coordinate the programme on behalf of the LMAA.<sup>14</sup>

LMAC, part of the LAF, is based in Beirut. Since 2009, the Regional Mine Action Centre-Nabatiyeh (RMAC-N), which is a part of LMAC, has overseen operations in south Lebanon under LMAC supervision.<sup>15</sup> To a large extent, LMAC functions well, but as they are army officers, the senior management of both LMAC and RMAC are typically routinely rotated every two years or so, which can hamper development and continuity in management of the mine action centres.<sup>16</sup> The current director of LMAC, however, started in March 2019.<sup>17</sup>

A new standard operating procedure (SOP) for LMAC was approved in 2020. The SOP specifies the roles of each section of LMAC and clarifies the responsibilities and cooperation between sections. It is hoped that it will help preserve institutional memory, assist new LMAC staff, and reduce the impact of staff rotations.<sup>18</sup>

United Nations Development Programme (UNDP) personnel, funded by the Netherlands, are also seconded to LMAC, providing support for capacity building, including for studies, NTS, community liaison, and information management.<sup>19</sup> In 2023, four UNDP personnel were supporting LMAC.<sup>20</sup>

The United States (US) started a project in 2022 to support LMAC through ITF Enhancing Human Security (ITF), aimed at sustaining LMAC during the financial crisis (e.g. car maintenance, solar power systems, demining equipment, training).<sup>21</sup>

The Geneva International Centre for Humanitarian Demining (GICHD) supports LMAC for information management and gender and diversity issues. In turn, information management (IM) staff from LMAC have supported the GICHD to deliver global Information Management System for Mine Action (IMSMA) Core training. In addition, the GICHD is partnering with LMAC on a study of contamination in so-called "difficult" terrain.<sup>22</sup>

Mines Advisory Group (MAG) supports LMAC on key areas such as information management, the introduction of GPS for completion tasks, EOD, new detection systems, and enhancing the Centre's gender approach. The MAG quality assurance manager facilitated a basic demining course for 24 staff members (20 men and 4 women) over four weeks. MAG also delivered courses to LMAC staff on the International Mine Action Standards (IMAS), operational efficiency and analysis, quality management, and TS. The first course, held in July 2023, trained 17 staff members (14 men and 3 women) and the second, in October, trained 15 staff (14 men and 1 woman).<sup>23</sup>

DanChurchAid (DCA) supported LMAC to train new NTS teams from LMAC and other NGOs by demonstrating how IMSMA Core can be used in NTS.<sup>24</sup>

There is good coordination and collaboration between LMAC/ the RMAC and clearance operators, with the operators consulted before key decisions are taken.<sup>25</sup> International clearance operators reported that an enabling environment exists for mine action in Lebanon, with LMAC facilitating the processing of visas for international staff and assisting with the importation of equipment, including exemption of customs fees for equipment.<sup>26</sup> In 2022, however, Norwegian People's Aid (NPA) reported that a challenge was the length of time needed to obtain security clearances for new local staff. This process can take more than three months,<sup>27</sup> although usually it takes less than a month, during which the operator is allowed to start training the new staff.<sup>28</sup> NPA noted that this situation remained unchanged in 2023.<sup>29</sup>

13 International Crisis Group, "Israel Invades Lebanon: Precursors, Prospects and Pitfalls", 8 October 2024, at: <https://bit.ly/3YioQPZ>.

14 LMAC, "Mid-term Review to Strategy 2011–2020, Milestone 2013", August 2014, pp. 4–5.

15 LMAC, "Lebanon Mine Action Strategy 2011–2020", September 2011, p. 4.

16 LMAC, Lebanon Mine Action Strategy 2020–25, signed June 2020, p. 4.

17 Email from Brig.-Gen. Ziad Nasr, Director, LMAC, 26 March 2019.

18 Emails from Lt.-Col. Fadi Wazen, LMAC, 19 March 2020 and 15 March 2021; and LMAC, "Annual Report 2020", p. 28.

19 Email from Lt.-Col. Fadi Wazen, LMAC, 15 May 2023.

20 Email from Lt.-Col. Ali Makki, LMAC, 2 May 2024.

21 Email from Lt.-Col. Fadi Wazen, LMAC, 15 May 2023.

22 Email from Lt.-Col. Fadi Wazen, LMAC, 19 March 2020.

23 Email from Sylvain Lefort, MAG, 13 May 2024.

24 Email from Lt. Col. Charbel Njeim, LMAC, 2 July 2024.

25 Emails from Sylvain Lefort, MAG, 24 March 2021; Hala Amhaz, NPA, 15 March 2021; Mahmoud Rahhal, POD, 8 March 2019; and David Ligneau, Mine Action Programme Manager, Humanity & Inclusion (HI), 21 April 2020.

26 Emails from Hiba Ghandour, Programme Manager, MAG, 7 April 2022; and Southern Craib, Operations Manager, NPA, 28 March 2022.

27 Email from Southern Craib, Programme Manager, NPA, 28 March 2022.

28 Email from Lt.-Col. Fadi Wazen, LMAC, 30 June 2023.

29 Email from Southern Craib, NPA, 22 April 2024.

A “Humanitarian Mine Action Forum” was established in Lebanon in close partnership between LMAC and Norway. The forum aims to meet twice a year, with UNDP designated as the secretariat for the Forum.<sup>30</sup> In 2021, the Netherlands took over from Norway as Forum co-chair.<sup>31</sup> In 2023, the Forum met once.<sup>32</sup> It focused on the challenges posed by difficult terrain, discussing the implications for funding and completion of clearance.<sup>33</sup> A technical working group (TWG), established in 2018 under the auspices of LMAC, met three times in 2023.<sup>34</sup> The TWG is a useful forum for LMAC/the RMACs to meet with clearance operators.<sup>35</sup> Discussions in 2023 concentrated on revisions to the NMAS, promoting TS and the use of machines, responses to the emergency situation in November 2023, and operations in difficult terrain.<sup>36</sup>

The Lebanese government contributed approximately US\$7.5 million in 2023 towards the mine action programme (for both landmine- and CMR-related work), to support costs associated with the running of LMAC (facilities and staff); two LAF Engineering Regiment battle area clearance (BAC) teams and three Engineering Regiment companies to cover rapid response across Lebanon; as well as risk education, victim assistance, training, and advocacy.<sup>37</sup> This is down on the US\$9 million provided in 2022, reflecting the ongoing economic crisis in the country. This crisis affects the work of the Engineering Regiment demining teams.<sup>38</sup> Increased maintenance costs and fuel shortages were also major obstacles. The morale of the LMAC staff, whose income has dropped significantly, has also taken a hit.<sup>39</sup>

## GENDER AND DIVERSITY

The gender and diversity-related policy applied at LMAC is that of the LAF military rules. According to LMAC, all its personnel are familiar with these rules and the specific provisions related to gender equality and inclusion and safeguarding.<sup>40</sup>

LMAC remains committed to promoting the mainstreaming of gender and diversity among key stakeholders and mine action operators in Lebanon.<sup>41</sup> It has taken several actions to mainstream gender in its implementation plan, including through inclusive policies, data disaggregation in risk education and victim assistance, assigning a gender focal point, and organising and participating in courses at the RSHDL.<sup>42</sup> As per the NMAS, NTS teams consult with women, girls, boys, and men, including, where relevant, minority groups, in order to make sure all available information is included.<sup>43</sup>

MAG has supported LMAC in the implementation of the gender work plan, with LMAC engaging all implementing partners on the plan in 2023.<sup>44</sup> MAG has also assisted LMAC in establishment of a Gender, Diversity and Inclusion (GDI) Steering Committee led by LMAC’s gender focal point and consisting of gender focal points and human resources (HR)

managers from all clearance NGOs.<sup>45</sup> In 2023, MAG supported LMAC in the review and drafting of their GDI approach and strategy, and co-lead a training workshop on Gender in Mine Action with the LMAC for all HMA operators in March 2023 on international women’s day, with support from UNDP.<sup>46</sup>

Lebanon’s National Mine Action Strategy 2020–25 includes considerations on gender and diversity.<sup>47</sup> Of the five objectives in the new strategy, the fifth states that: “The specific needs and perspective of women, girls, men and boys from all groups of society are considered, in order to deliver an inclusive HMA [mine action] response”. LMAC also acknowledges in the strategy that mine action “is a male-dominated environment and we have therefore a particular responsibility to empower women and ensure that we have a gender sensitive approach to our work”.<sup>48</sup>

The GICHD conducted its most recent gender and diversity capacity assessment mission to the Lebanon programme in 2021 and said LMAC had followed many of its recommendations on gender and diversity mainstreaming from that visit.<sup>49</sup> In July 2023, LMAC and the GICHD organised a three-day course titled “Gender and Diversity

30 LMAC, “Annual Report 2018”, p. 23.

31 Email from Lt.-Col. Fadi Wazen, LMAC, 29 March 2022.

32 Email from Lt.-Col. Ali Makki, LMAC, 2 May 2024.

33 Emails from Sylvain Lefort, MAG, 13 May 2024; and Mohamed Chour, DCA, 30 April 2024.

34 Email from Lt.-Col. Ali Makki, LMAC, 2 May 2024.

35 LMAC, “Annual Report 2018”, pp. 4, 7, and 17; and emails from Lt.-Col. Fadi Wazen, LMAC, 7 March 2019; Emile Ollivier, NPA, 19 March 2019; Hiba Ghandour, MAG, 7 April 2022; Southern Craib, NPA, 28 March 2022; and Mouhamed Chour, DCA, 4 April 2022; and Revised 2020 Article 4 deadline Extension Request, 25 February 2020, pp. 8 and 54.

36 Emails from Sylvain Lefort, MAG, 13 May 2024 and Mohamed Chour, DCA, 30 April 2024.

37 Email from Lt.-Col. Ali Makki, LMAC, 2 May 2024.

38 Email from Lt.-Col. Fadi Wazen, LMAC, 15 May 2023; and Article 7 Report (covering 2022), Form I.

39 Email from Lt.-Col. Ali Makki, LMAC, 2 May 2024.

40 Email from Lt.-Col. Fadi Wazen, LMAC, 19 March 2020.

41 LMAC “Annual Report 2022”, p. 33.

42 LMAC, “Annual Report 2018”, p. 5; and email from Lt.-Col. Fadi Wazen, LMAC, 7 March 2019.

43 Email from Lt.-Col. Fadi Wazen, LMAC, 19 March 2020.

44 Email from Lt.-Col. Ali Makki, LMAC, 2 May 2024.

45 Email from Sylvain Lefort, MAG, 14 April 2023.

46 Email from Sylvain Lefort, MAG, 13 May 2024.

47 Emails from Lt.-Col. Fadi Wazen, LMAC, 19 March and 22 July 2020.

48 LMAC, Lebanon Mine Action Strategy 2020–25, p. 8.

49 Email from GICHD, 6 April 2023.

Mainstreaming in Mine Action in Lebanon". The objective was to strengthen the integration of gender and diversity considerations among mine action operators and other key stakeholders.<sup>50</sup>

LMAC conducted a full review of its NMAS in 2023, a component of which was to integrate gender and diversity considerations to align with IMAS.<sup>51</sup> MAG supported LMAC in this process and, in 2024, was reviewing its internal SOPs to ensure they are gender-sensitive and aligned with the revised NMAS.<sup>52</sup>

**Table 2: Gender composition of operators in 2023<sup>53</sup>**

Operator	Total staff	Women staff	Total managerial or supervisory staff	Women in managerial or supervisory positions	Total operational staff	Women in operational positions
DCA	61	12 (20%)	20	8 (40%)	55	4 (7%)
LMAC	152	18 (12%)	20	2 (10%)	44	7 (16%)
MAG	208	32 (15%)	52	4 (8%)	184	26 (14%)
NPA	83	17 (20%)	22	3 (14%)	74	12 (16%)
HI	76	32 (42%)	17	5 (29%)	64	27 (42%)
UNIFIL	130	13 (10%)	10	0	N/R	0
<b>Totals</b>	<b>710</b>	<b>124 (17%)</b>	<b>141</b>	<b>22 (16%)</b>	<b>421</b>	<b>76 (18%)</b>

The number of staff at LMAC is determined by the LAF headquarters, so LMAC has limited control over the number of women, but it consistently requests that the percentage of women be increased.<sup>54</sup> However, the proportion of women at LMAC is more than double the 5% average of the Lebanese armed forces and LMAC seeks to improve this ratio further.<sup>55</sup> LMAC now has seven female members of staff in operational roles – a significant increase from only one in 2022.<sup>56</sup>

DCA, Humanity & Inclusion (HI), MAG, and NPA all reported having gender policies in place and disaggregating data by sex and age.<sup>57</sup> DCA's was implemented in 2023 and it reported that all its staff participated in a training session on gender and diversity.<sup>58</sup> But only 7% of its operational staff were women.

HI monitors the implementation of its policy on Disability, Gender, and Age annually. The policy emphasises participation, equality, non-discrimination, accessibility, and safeguarding. HI is also working to increase the representation of women in its mine action teams.<sup>59</sup>

MAG reported that all its community liaison teams are mixed and that its data are disaggregated by sex, age, and nationality.<sup>60</sup> In 2022, MAG began systematic outreach to civil organisations to look for joint efforts to empower women

and overcome stereotyping in the communities it works in; conducted detailed gender analysis to better disaggregate its data; and created a community platform to attract more women to be involved in mine action.<sup>61</sup> MAG conducts annual refresher training for all staff on gender mainstreaming in mine action and MAG's gender policy. Revisions to explosive ordnance risk education (EORE) materials to ensure accessibility for persons with disabilities were approved in 2023 and were planned to be implemented during 2024.<sup>62</sup>

NPA was implementing its organisational gender policy for Lebanon, based on recommendations from the GICHD. It is encouraging more women to apply for field positions through job postings and social media.<sup>63</sup> In 2023, both of NPA's main support departments (finance and logistics) were led by women. A new female Programme Officer, hired in late 2023, has since been made responsible for managing NTS, which will be increasingly important in 2024. For operational staff, hiring is more challenging due to limited turnover. New positions only become available when current staff leave or retire, or when funding increases. When such positions open, NPA ensures an equal number of male and female candidates are shortlisted and undergo training. Selection is based on merit, with the highest scoring candidates securing the jobs, regardless of gender.<sup>64</sup>

50 Email from Lt.-Col. Ali Makki, LMAC, 2 May 2024.

51 Ibid.

52 Email from Sylvain Lefort, MAG, 13 May 2024.

53 Emails from Lt.-Col. Ali Makki, LMAC, 2 May 2024; Sylvain Lefort, MAG, 13 May 2024; Mohamed Chour, DCA, 30 April 2024; Southern Craib, NPA, 22 April 2024; Aurélien Thienpont, Country Manager, HI, 30 May 2024; and Hassan Nouredine, J3 Combat Engineer Section, UNIFIL, 30 May 2024.

54 Emails from Lt.-Col. Fadi Wazen, LMAC, 19 March 2020 and 15 March 2021; and LMAC, "Plan for the Implementation and Monitoring of the LMSP Strategy (2020–25)", p. 19.

55 LMAC, "Annual Report 2020", p. 37.

56 Email from Lt.-Col. Ali Makki, LMAC, 2 May 2024.

57 Emails from Emile Ollivier, NPA, 19 March 2019; David Willey, MAG, 7 March 2019; and Mohamed Chour, DCA, 30 April 2024.

58 Email from Mohamed Chour, DCA, 30 April 2024.

59 Email from Roger Eid, Chief of Operations, HI, 16 September 2024.

60 Email from Sylvain Lefort, MAG, 27 May 2021.

61 Ibid.

62 Email from Sylvain Lefort, MAG, 13 May 2024.

63 Email from Valerie Warmington, NPA, 28 May 2020.

64 Email from Southern Craib, NPA, 22 April 2024.

## ENVIRONMENTAL POLICIES AND ACTION

LMAC does not currently have an environmental management policy, although there is a vision to develop one in the future and it recognises its responsibility to ensure that demining operations are conducted responsibly and efficiently while also minimising the impact on the environment. Lebanon's NMAS on Safety and Occupational Health – Protection of the Environment (10.70), which is said to align with IMAS 07.13, specifically aims to achieve this.

LMAC and its implementing partners are required to coordinate with local authorities and landowners before operations start. All NTS reports and clearance plans include information on the climatic and weather characteristics of the region, their impact on the clearance operation, and the measures to be taken. After clearance has been completed at a worksite, operators must remove and dispose of appropriately all rubbish and large fragments of munitions, filling in any holes in the ground to stabilise the surface so that natural regeneration can take place.<sup>65</sup> Additionally, when planning and prioritising survey and clearance tasks, Lebanon considers climate-related and extreme weather risks.<sup>66</sup>

DCA says it complies with the Environmental Health and Safety Guidelines and that it follows NMAS and IMAS procedures on the environment in its programme. DCA's SOPs designate specific smoking areas at task sites to prevent uncontrolled fires and monitor vegetation-cutting procedures to protect flora under Lebanese law. DCA has an environmental management policy and conducts environmental assessments to support survey and clearance tasks.<sup>67</sup> During the summer, DCA prioritises tasks with a lower risk of fires during demolitions. In June 2023, DCA hosted a consultant from its headquarters to review environmental management best practices in mine action, looking at soil degradation, wildlife and vegetation disturbance, and waste generation. Recommendations for improvements included adjustments to SOPs (for vegetation cutting, demolition, and subsurface clearance to minimise topsoil damage and protect water and air quality) and capacity-building needs.<sup>68</sup>

HI has an environmental management system in place and its SOP on environmental management includes general protection: for watercourses and groundwater; during vegetation clearance; in the construction and removal of temporary support facilities; during transport of toxic and hazardous materials; and for livestock, wildlife, and cultural resources. It also makes its clearance personnel aware of environmental concerns.<sup>69</sup>

MAG has an environmental management system and an SOP to minimise environmental impact.<sup>70</sup> MAG's Beirut office is now 100% solar powered with plans to introduce solar energy panels to MAG's South base upon redeployment from Nabatiyeh. MAG conducts environmental assessments for every task, incorporating a checklist into the clearance plan to evaluate potential impacts and identify necessary mitigation. Annual work plans divide tasks into dry and wet season activities, with strategies to mitigate and adapt to these risks.<sup>71</sup>

NPA Lebanon has an environmental plan in place which includes the storage of paper, plastics, and metal waste for recycling and it has been upgrading its fleet for better fuel efficiency. It strives to minimise the removal of vegetation and explosive residues are removed from demolition pits where possible. NPA installed a solar system at its office in 2022, upgrading the back-up batteries to Lithium in late 2023, which reduced generator diesel usage by 19,207 litres and saved more than US\$20,000. NPA has also begun to track its environmental footprint using an annual reporting tool.<sup>72</sup> NPA does not conduct formal environmental assessments for survey and clearance tasks. Flash-fire risks in dry grass are mitigated by postponing demolitions, spraying water, and using sandbags. No flash-fire incidents have occurred since implementing these measures.<sup>73</sup>

The UN Interim Force in Lebanon (UNIFIL) has an environmental management policy in place and conducts environmental assessments to support planning and delivery of survey and clearance.<sup>74</sup> UNIFIL is committed to environmental safety, including staggered timings for demining with a view to reducing risks of bush fires during the summer, and only trimming back branches and keeping the roots of trees in minefields.<sup>75</sup>

65 Emails from Lt.-Col. Fadi Wazen, LMAC, 29 March 2022 and 5 May 2023.

66 Email from Lt.-Col. Ali Makki, LMAC, 2 May 2024.

67 Emails from Mouhamed Chour, DCA, 4 April 2022 and 3 May 2023.

68 Email from Mohamed Chour, DCA, 30 April 2024.

69 Emails from Nahed Al-Khlouf, HI, 6 August 2022; and Aurélien Thienpont, HI, 13 April 2023.

70 Email from Sylvain Lefort, MAG, 14 April 2023.

71 Email from Sylvain Lefort, MAG, 13 May 2024.

72 Emails from Southern Craib, NPA, 28 March 2022; and Tomislav Vondracek, NPA, 5 May 2023.

73 Email from Southern Craib, NPA, 22 April 2024.

74 Hassan Noureddine, UNIFIL, 30 May 2024.

75 Email from Maj. (CHN) Yu Wang, UNIFIL Force HQ, 28 April 2023.

## INFORMATION MANAGEMENT AND REPORTING

Since 2021, LMAC has been using IMSMA Core.<sup>76</sup> Key improvements in the new IM system include more accurate drawing of surveyed polygons using tools based on GPS and imagery base maps; reducing instances of double counting of polygons; and recording the depth at which ordnance was discovered, its condition of, and whether it is safe to move.<sup>77</sup>

Some database information, particularly regarding scattered/militia minefields from the civil war, may be inaccurate due to outdated NTS. HI conducts re-surveys to update contamination data before clearance. Since 2021, HI has been conducting NTS activities in Mount Lebanon, focusing on the Chouf and Aley districts. NTS operations took place in Aley in 2021 and 2022, in Chouf in 2023, with a re-survey planned for Aley in 2024.<sup>78</sup> It is, however, challenging to confirm what contamination was cleared by the LAF in the north and whether clearance documents were transferred to LMAC.<sup>79</sup> LMAC emphasises the importance of NTS for these scattered minefields.<sup>80</sup>

DCA has been using the Tiramisu Information Management Tool (T-IMS) for the past three years.<sup>81</sup> MAG adopted the Survey123 software in Lebanon in 2021.<sup>82</sup> In 2023, it implemented version 2 of the Operational Management Information System (OMIS), which optimises data collection, validation, visualisation, and analysis, with digitalised forms reducing errors and centralised data storage enhancing decision-making. Efforts to ensure compatibility between OMIS and IMSMA Core by allowing direct data transfer are ongoing.<sup>83</sup> Since 2020, NPA has been using the ARC-GIS programme for better data collection and monitoring and evaluation of its programme.<sup>84</sup> HI uses Survey123 software and the ArcGIS platform for all mine action activities, including land release.<sup>85</sup>

In the Lebanon Mine Action Strategy 2020–25, and the accompanying implementation plan, LMAC states that it will initiate voluntary APMB Article 7 reporting.<sup>86</sup> However, as at end-September 2024, no voluntary Article 7 report had been submitted.

## PLANNING AND TASKING

LMAC has a National Mine Action Strategy for 2020–25, developed with support from the UNDP project funded by the European Union (EU), along with a strategic implementation plan.<sup>87</sup> In 2023, LMAC conducted a mid-term review of the strategy and implementation plan in cooperation with programme stakeholders. The key outcomes of the review were that the strategy's impacts, outcomes, and outputs are aligned with the theory of change newly developed by ITAD (a company) and adapted to Lebanon's specific context.<sup>88</sup> A final external review of the strategy was done at the beginning of 2024.<sup>89</sup> In addition, LMAC had an annual work plan for 2023 and 2024.<sup>90</sup>

According to LMAC, increased urbanisation, clearance of the Blue Line, spill-over from Syria creating new contamination (including IEDs), and the sudden increase in the number of residents, have all combined to result in a change to clearance priorities.<sup>91</sup> LMAC conducted a study in 2021 of tasking leading to the creation of a new national prioritisation system, based on three strategic categories: safety, economy, and treaty compliance. Each category contains subcategories which take operational considerations and impact into account.<sup>92</sup> The prioritisation of actions and allocation of resources is automated in IMSMA Core.<sup>93</sup>

76 LMAC, "Annual Report 2022", p. 31.

77 Email from Lt.-Col. Fadi Wazen, LMAC, 15 May 2023.

78 Email from Roger Eid, HI, 16 September 2024.

79 Emails from David Ligneau, HI, 21 April 2020; and Aurélien Thienpont, HI, 9 August 2023.

80 LMAC, "Plan for the Implementation and Monitoring of the LMAP Strategy (2020–2025)", p. 16.

81 Email from Matthew Benson, Country Director, DCA, 4 June 2021.

82 Email from Hiba Ghandour, MAG, 7 April 2022.

83 Email from Sylvain Lefort, MAG, 13 May 2024.

84 Email from Hala Amhaz, NPA, 15 March 2021.

85 Email from Roger Eid, HI, 16 September 2024.

86 LMAC, Lebanon Mine Action Strategy 2020–25, June 2020, p. 4; and LMAC, "Plan for the Implementation and Monitoring of the LMAP Strategy (2020–2025)", p. 5.

87 LMAC, Lebanon Mine Action Strategy 2020–25; LMAC, "Annual Report 2019", p. 7; and LMAC, "Plan for the Implementation and Monitoring of the LMAP Strategy (2020–25)", p. 3.

88 Emails from Lt.-Col. Ali Makki, LMAC, 2 May 2024; Sylvain Lefort, MAG, 13 May 2024; Mohamed Chour, DCA, 30 April 2024; and ITAD, "Sector-wide Theory of Change for Mine Action", 18 November 2022, at: <https://bit.ly/3VwhENK>.

89 Email from Lt. Col. Charbel Njeim, LMAC, 2 July 2024.

90 Email from Lt.-Col. Ali Makki, LMAC, 16 May 2024.

91 LMAC, "Annual Report 2019", p. 30.

92 Email from Lt.-Col. Fadi Wazen, LMAC, 15 March 2021; and LMAC, "Annual Report 2020", p. 35.

93 Email from Lt.-Col. Fadi Wazen, LMAC, 15 May 2023; and LMAC, "Annual Report 2022", p. 32.

Prior to 2016, demining along the border with Israel had been said to depend on "political developments",<sup>94</sup> but the Lebanese government subsequently took the decision to initiate larger-scale, planned clearance on the Blue Line.<sup>95</sup>

Clearance by humanitarian demining operators, which began in November 2016,<sup>96</sup> was suspended on 8 October 2024 and at the time of writing had yet to resume.<sup>97</sup>

## LAND RELEASE SYSTEM

### STANDARDS AND LAND RELEASE EFFICIENCY

Lebanon developed its first NMAS in 2010.<sup>98</sup> In 2017, LMAC started revising and harmonising national standards with IMAS, adding new modules not present in the original standards.<sup>99</sup> It has since continued to review and further revise the NMAS to focus more on land release and evidence-based decision making, based on recommendations and analysis of operational data. The NMAS were updated in 2023 to permit mechanical flailing as a primary clearance asset, provided it is followed by a secondary search and clearance process. This approach has been implemented in SHAs in Mount Lebanon. The NMAS update also allows for the deployment of mine detection dogs (MDDs) as an initial clearance asset in TS operations and low-density minefields. In Mount Lebanon, however, the terrain is more suited for using MDDs for quality control (QC) rather than TS.<sup>100</sup>

Other notable enhancements in recent years have included: reduction of the required clearance depth from 20cm to 15cm; revision of fade-out specifications for pattern minefields; enhancements in how rapid response tasks are addressed and recorded;<sup>101</sup> and changes to the NMAS on demolitions.<sup>102</sup> In 2023, LMAC conducted a review of the NMAS to ensure compliance with IMAS, incorporate case studies and lessons learned, and integrate gender and diversity considerations. These updates were made in consultation with all implementing partners. All 34 of the NMAS were revised to reflect changes in content and terminology from the IMAS, improve effectiveness, and correct parts that were ambiguous or confusing.<sup>103</sup>

Mined areas in pattern minefields and along the Blue Line are classified as high-threat or low-threat hazardous areas.

TS is permitted instead of full clearance for some parts of CHAs based on agreements between LMAC and clearance operators.<sup>104</sup> In the revised NMAS, fade-out distances reduced from 15 metres from the mine rows to 5, with TS required beyond that up to the fence in minefields where the lanes have not been disrupted.<sup>105</sup> If there is no fence, 10 metres of TS is required from the 5-metre fade-out. For anti-vehicle (AV) mines, the fade-out has been reduced from 20 metres to 10.<sup>106</sup> NPA focuses TS on areas adjacent to missing mines, where terrain suggests migration is possible or where mines may have been intentionally laid outside of the defined line. In 2022, they discovered six mines during TS, likely deliberately emplaced. These mines would not have been found had it not been for the requirement for TS.<sup>107</sup>

NPA questions the usefulness of the resource-intensive "missed-mine" protocol, however, as many mines are missing due to water and soil-related movement or as a result of detonation by animals.<sup>108</sup> NPA's own data show no mines being found in 1,648 drills between 2017 and 2022. However, for the first time, in 2023, during clearance of MF-1182 an unfuzed Israeli No. 4 mine was found during manual excavation of a "missing mine".<sup>109</sup> Analysis of the data also suggests that the impact on clearance rates is not as significant as originally thought. On average, a missing mine drill takes approximately 45 minutes to perform whereas a deminer would otherwise clear 1.55m<sup>2</sup> in the same time.<sup>110</sup> NPA considered using Ground Penetrating Radar (GPR) detectors for missed-mine checks but limited trials were inconclusive on the issue and the GPR detectors were returned to UNMAS.<sup>111</sup> In 2023, DCA used a mini excavator to locate missing mines.<sup>112</sup>

94 Presentation by Maj. Bou Maroun, RMAC, Nabatiyeh, 4 May 2012; and response to Landmine Monitor questionnaire by Leon Louw, Programme Manager, UN Mine Action Support Team (UNMAST), 7 May 2014.

95 Interview with Brig.-Gen. Elie Nassif and Brig.-Gen. Fakhri, LMAC, Beirut, 11 April 2016.

96 Email from Brig.-Gen. Ziad Nasr, LMAC, 24 April 2017.

97 Email from Lt.-Col. Ali Makki, LMAC, 16 May 2024.

98 Email from Brig.-Gen. Elie Nassif, LMAC, 17 June 2015.

99 Emails from Brig.-Gen. Elie Nassif, LMAC, 7 July 2015; Dave Wiley, MAG, 27 April 2018 and 7 March 2019; and Craig McDiarmid, Programme Manager, NPA, 17 April 2018 and 19 March 2019; and Revised 2020 Article 4 deadline Extension Request, 25 February 2020, p. 15.

100 Email from Lt.-Col. Ali Makki, LMAC, 7 October 2024.

101 Emails from Brig.-Gen. Ziad Nasr, LMAC, 27 April 2018; Craig McDiarmid, NPA, 17 April 2018; and Dave Wiley, MAG, 27 April 2018; and LMAC, "Annual Report 2018", p. 17.

102 Emails from Lt.-Col. Fadi Wazen, LMAC, 19 March and 2 September 2020.

103 Email from Lt.-Col. Ali Makki, LMAC, 2 May 2024.

104 Email from Brig.-Gen. Ziad Nasr, LMAC, 27 April 2018.

105 Email from Dave Wiley, MAG, 19 August 2019.

106 Emails from Brig.-Gen. Ziad Nasr, LMAC, 27 April 2018; Craig McDiarmid, NPA, 17 April 2018; and Ali Nasreddine, MAG, 24 July 2018.

107 Email from Southern Craib, NPA, 12 April 2022.

108 Email from Hala Amhaz, NPA, 17 March 2021.

109 Email from Southern Craib, NPA, 22 April 2024.

110 Email from Southern Craib, NPA, 12 April 2022.

111 Email from Tomislav Vondracek, NPA, 5 May 2023.

112 Email from Mohamed Chour, DCA, 13 May 2024.

Since 2021, RMAC has allowed more flexibility in missing mine drills, permitting operators to skip them where evidence suggests movement or detonation. TS beyond five metres is still required, but the NMAS now allow more flexibility in the percentage of the area searched, aligning requirements with operational observations and decisions are being made collaboratively with RMAC, with good effect.<sup>113</sup>

Minefields in areas outside of the Blue Line—for example in Mount Lebanon—will each be studied to determine where full clearance is required and where TS must be applied.<sup>114</sup> In northern Lebanon, the contamination is largely in scattered areas, and past land release has been characterised by large areas cleared and only small numbers of AP mines destroyed.

LMAC accepted the recommendations proposed by the clearance operators regarding the “metal-free” criteria, and LMAC’s requirement for “metal-free” in the north-east was

changed in 2021. The criteria is now “half of the MUV-9 fuze” for the clearance of the minefields on the Blue Line, with confirmed contamination of No. 4 AP mines only.<sup>115</sup>

LMAC has said that with the introduction of IMSMA Core, the assigning of tasks for NTS teams, and the reviewing of them by the implementing partners and by LMAC’s NTS officer, is faster, easier, and very effective. LMAC’s NTS officer meets with the NTS teams from implementing agencies on a weekly basis, to discuss results and planning. LMAC also assigns a group of tasks to implementing agencies rather than one task, and the operators have the capability in IMSMA Core to see which tasks are close by to the area in which they are working and to ask to expand their mission directly while in the field. Priority levels in accordance with the new system are then determined based on their reports.<sup>116</sup>

## OPERATORS AND OPERATIONAL TOOLS

In 2023, manual mine clearance was conducted by international operators DCA, HI, MAG, and NPA, along with the Engineering Regiment of the LAF. Mine clearance capacity in Lebanon in 2023 was broadly the same as the previous year.<sup>117</sup> In addition, in 2023, UNIFIL conducted clearance for humanitarian purposes on the Blue Line (first commenced from June 2020), but suspended operations on 8 October 2023.<sup>118</sup> International NGOs also suspended land release operations in southern Lebanon on 8 October 2023, a suspension that remained in place a year later. Furthermore, as at the time of writing (October 2024), international NGOs had suspended land release operations across the whole of Lebanon, due to the further escalation of the conflict and Israel’s ground offensive in south Lebanon and aerial strikes on Beirut and in the Bekaa valley,

The LAF Engineering Regiment has two BAC teams. A further three Engineering Regiment companies conduct rapid response call-outs. In addition, each deployed combat brigade has its own combat engineering company which can also

conduct rapid-response call-outs. The LAF has seven MDD teams for TS as a secondary asset supporting clearance. Through the Engineering Regiment, it provides mechanical assistance to clearance operators that lack this capacity.<sup>119</sup>

In Lebanon, machines are primarily used as secondary assets to support clearance teams (e.g. for ground preparation, rubble removal, or fade-out); in areas where manual clearance is difficult; and for TS and low-threat hazardous areas (LTHAs); and as an initial tool in SHAs in Mount Lebanon followed by manual clearance based on a task-by-task risk assessment.<sup>120</sup> Often, however, the terrain is not suitable for machines. Unfortunately, the economic crisis in Lebanon has resulted in huge budget cuts in all government institutions and therefore the LAF teams are not able to conduct the same level of activities as before, including with respect to some mechanical assets. Clearance operators who are supported by mechanical assets from the LAF are providing fuel, maintenance, and spare parts for the machines.<sup>121</sup> In addition, new mechanical assets have been introduced by MAG.<sup>122</sup>

**Table 3: Operational clearance capacities deployed in 2023<sup>123</sup>**

Operator	Manual teams	Total clearance personnel	Dogs and handlers	Machines	Comments
MAG	4	40	0	17	Clearance personnel also conduct technical survey. Decrease from 2022.
DCA	4	24	0	1	Clearance personnel also conduct TS. No change from 2022.

113 Emails from Valerie Warmington, NPA, 23 July 2021; Southern Craib, NPA, 12 April 2022; and Hiba Ghandour, MAG, 7 April 2022.

114 LMAC, “Annual Report 2020”, p. 10.

115 Email from Hiba Ghandour, MAG, 7 April 2022.

116 Email from Lt.-Col. Fadi Wazen, LMAC, 29 March 2022.

117 Email from Lt.-Col. Ali Makki, LMAC, 16 May 2024.

118 Hassan Nouredine, UNIFIL, 30 May 2024.

119 Emails from Lt.-Col. Fadi Wazen, LMAC, 29 March 2022 and 5 May 2023.

120 Emails from Lt.-Col. Fadi Wazen, LMAC, 29 March 2022; and Lt.-Col. Ali Makki, LMAC, 7 October 2024.

121 Email from Lt.-Col. Fadi Wazen, LMAC, 29 March 2022.

122 Ibid.

123 LMAC, “Annual Report 2022”, p. 11; and emails from Lt.-Col. Fadi Wazen, LMAC, 19 April 2023; Mohamed Chour, DCA, 4 May 2023; Aurélien Thienpont, HI, 13 April 2023; Sylvain Lefort, MAG, 26 April 2023; Tomislav Vondracek, NPA, 5 May 2023; and Maj. (CHN) Yu Wang, UNIFIL Force HQ, 28 April 2023.

Table 3 Continued

Operator	Manual teams	Total clearance personnel	Dogs and handlers	Machines	Comments
NPA	1–6	7–27	0	1	Clearance personnel also conduct technical survey when required. Teams operated at 50% capacity.
HI	1	10	0	0	Clearance personnel also conduct technical survey when required. Slight increase from 2022.
UNIFIL	6	72	0	1	Decrease from 2022.
<b>Totals</b>	<b>16–21</b>	<b>153–173</b>	<b>0</b>	<b>20</b>	

MAG, DCA, NPA, and HI clearance teams are accredited as multi-task teams, which allows them to work both in minefields and other hazardous areas. Teams may spend part of the year working on minefields and then move to CMR tasks.<sup>124</sup>

In 2023, due to reduced funding and to retain long-serving staff, NPA operated all clearance teams at 50% capacity. To meet donor requirements, four teams focused on minefields for the first four months and then, as minefield work was completed, shifted to clearing CMR, which were prioritised by LMAC under Lebanon's CCM commitments. NPA does not expect to conduct mine clearance in 2024 due to reduced funding and the suspension of clearance activities along the Blue Line.<sup>125</sup>

DCA experienced no change in capacity in 2023 and expected to maintain the same capacity into 2024.<sup>126</sup> HI, after five months of suspension of activities during on the first half of 2023 due to lack of funding, re-started its land release operations in July 2023 by deploying one multi-task team in the Chouf district. HI has maintained this capacity into 2024 with one team deployed in Chouf and the second team deployed in Aley conducting BAC.<sup>127</sup>

MAG and UNIFIL both decreased capacity in 2023 due to the security threat along the Blue Line. After a two-month suspension, MAG was able to redeploy teams to mine clearance tasks in Chouf, Mount Lebanon. Neither MAG or UNIFIL expected any major changes to capacity in 2024.<sup>128</sup>

UNIFIL capacity was provided by its two Troop-Contributing Countries: Cambodia and China. UNMAS provides initial training with UNIFIL demining units when they rotate into the country, refresher training, and quality assurance (QA) and validation of the demining teams.<sup>129</sup> UNIFIL was established in 1978<sup>130</sup> to confirm the withdrawal of Israeli troops from southern Lebanon (completed in 2000), restore peace, and assist the Government of Lebanon in re-establishing its authority over the south.<sup>131</sup> UNIFIL's mine clearance teams primarily focus on clearing access lanes through minefields to demarcate the 118km-long Blue Line – not for humanitarian purposes, but rather to facilitate marker placement and ensure the safety of UNIFIL posts and patrols.<sup>132</sup> On 20 January 2020, however, UNIFIL and LMAC signed an MoU on Humanitarian Demining, with UNIFIL assisting LAF/LMAC in clearing mines and unexploded ordnance (UXO).<sup>133</sup> Humanitarian demining began in June 2020 with two UNIFIL teams, with LMAC and UNMAS responsible for accreditation and QA.<sup>134</sup>

With respect to NTS capacity in 2023, LMAC had two teams (totalling two personnel);<sup>135</sup> DCA had two teams (totalling four personnel);<sup>136</sup> HI had one team (totalling two personnel);<sup>137</sup> and MAG had two teams (totalling four personnel).<sup>138</sup> MAG Lebanon introduced two new mechanical assets: the Rebel Crusher for processing soil contaminated with AP mines, in use since late 2021, and the GCS-200 with a flail attachment for mechanical ground preparation of TS lanes. After conducting trials and training, both were accredited by LMAC and operational by mid-2022.<sup>139</sup> In 2022, MAG also introduced the VMH4 targeted detector for BAC, which boosts

124 Email from Lt.-Col. Ali Makki, LMAC, 16 May 2024.

125 Email from Southern Craib, NPA, 22 April 2024.

126 Email from Mohamed Chour, DCA, 13 May 2024.

127 Email from Roger Eid, HI, 16 September 2024.

128 Emails from Sylvain Lefort, MAG, 13 May 2024; Hassan Nouredine, UNIFIL, 30 May 2024.

129 Email from Maj. (CHN) Yu Wang, UNIFIL Force HQ, 28 April 2023.

130 UN Security Council Resolutions 425 (1978) and 426 (1978).

131 UNIFIL, "UNIFIL Mandate", at: <http://bit.ly/2YpCwuD>.

132 Presentation by Maj. Pierre Bou Maroun, RMAC, Nabatiyeh, 4 May 2012; and emails from Henri Francois Morand, UNMAS, 2 October 2015 and 18 September 2017.

133 Emails from Lt.-Col. Zengliang Zhou, UNIFIL, 20 April 2020; and Lt.-Col. Fadi Wazen, LMAC, 19 March 2020.

134 LMAC, "Annual Report 2020", p. 17.

135 Email from Lt.-Col. Fadi Wazen, LMAC, 19 April 2023.

136 Email from Mohamed Chour, DCA, 13 May 2024.

137 Email from Aurélien Thienpont, HI, 30 May 2024.

138 Email from Sylvain Lefort, MAG, 13 May 2024.

139 Emails from Hiba Ghandour, MAG, 7 April 2022; and Sylvain Lefort, MAG, 26 April 2023.

productivity by filtering out signals from small metal debris. This improved BAC efficiency. Teams trained on the VMH4 for AP mine clearance were successfully accredited by LMAC.<sup>140</sup> MAG reported that it uses standard 20cm mine clearance search heads in areas with high soil contamination. These smaller heads are highly sensitive and do not discriminate between signals.<sup>141</sup>

In 2018, drones were first used a part of NTS on Lebanon's north-east border, contaminated during the Syrian conflict spillover from 2014 to 2017. The drones proved valuable in informing survey efforts, according to LMAC.<sup>142</sup> In 2021, HI organised a visit by its unmanned aerial vehicles (UAV) expert partner to assess the feasibility of drone/UAV use in land release operations, aiming to enhance NTS and TS and testing new methods with thermal and LiDAR sensors. The visit confirmed that Lebanon is ideal for drone deployment. From 2022 to mid-2023, HI, in collaboration with LMAC, trialled drones in land release in Mount Lebanon, surveying more than 50 polygons by April 2023. The trial aimed to determine if drones could improve situational awareness of

SHAs and CHAs, using imagery to identify indicators such as animal and vehicle accidents, or other "ground signs", which help target demining. The project also explored advanced sensor use to detect buried explosives and on building national capacity by training drone pilots and NTS team leaders.<sup>143</sup> In 2024, HI planned to deliver eight UAVs and related accessories to LMAC, with two levels of training planned to build capacity for their use.<sup>144</sup>

In 2023, HI piloted portable body-worn camera systems to enhance safety, communication, and real-time technical support during clearance. The cameras are expected to speed up land release and improve safety. They have been deployed in trials for BAC in the Aley district, Mount Lebanon since November 2023. Although no trials have occurred in mine clearance, similar results are predicted.<sup>145</sup> HI held a workshop on lessons learnt with LMAC, where trial results and challenges were discussed. A final report, which includes effectiveness assessments and recommendations, has been drafted and will be shared with LMAC and donors by the end of November 2024.<sup>146</sup>

## LAND RELEASE OUTPUTS AND PROGRESS TOWARDS COMPLETION

### LAND RELEASE OUTPUTS IN 2023

A total of 801,294m<sup>2</sup> of AP mined area was released in 2023, of which 293,963m<sup>2</sup> was cleared, 183,108m<sup>2</sup> was reduced through TS, and 324,223m<sup>2</sup> was cancelled through NTS. A total of 10,699 AP mines were destroyed in 2023, including 46 during EOD spot tasks.

### SURVEY IN 2023

In 2023, LMAC reported that a total of 507,331m<sup>2</sup> was released through survey – 324,223m<sup>2</sup> of mined area cancelled through NTS and 183,108m<sup>2</sup> reduced through TS (see Tables 4 and 5).<sup>147</sup> This was a 30% increase from the 388,955m<sup>2</sup> released through survey in 2023, of which 286,426m<sup>2</sup> was cancelled through NTS and 102,529m<sup>2</sup> reduced through TS.<sup>148</sup> Data reported by LMAC for 2023 differed from the amount reported by operators directly.

**Table 4: Release of mined area through NTS in 2023 (national authority data)<sup>149</sup>**

Province	Operator	Areas cancelled	Area cancelled (m <sup>2</sup> )
Bekaa and South Lebanon	MAG	7	244,725
Mount Lebanon	DCA	10	65,568
	HI	3	11,230
	MAG	2	2,700
<b>Totals</b>		<b>22</b>	<b>324,223</b>

<sup>140</sup> Email from Sylvain Lefort, MAG, 26 April 2023.

<sup>141</sup> Email from Sylvain Lefort, MAG, 18 September 2024.

<sup>142</sup> Presentation by Lt.-Col. Fadi Wazen, LMAC, at the Regional School for Humanitarian Demining in Lebanon (RHDSL), Beirut, 8 April 2019; and email, 24 September 2022.

<sup>143</sup> Emails from Aurélien Thienpont, HI, 13 April and 9 August 2023.

<sup>144</sup> Email from Aurélien Thienpont, HI, 30 May 2024.

<sup>145</sup> Email from Roger Eid, HI, 18 June 2024.

<sup>146</sup> Email from Roger Eid, HI, 16 September 2024.

<sup>147</sup> Email from Lt.-Col. Ali Makki, LMAC, 16 May 2024.

<sup>148</sup> Email from Lt.-Col. Fadi Wazen, LMAC, 19 April 2023. In Lebanon, the term "Mined Area" is used to denote dangerous areas entered into the database when the first impact survey was executed, which were not accessible, and where the type of hazard was not identified. However, for the purposes of this report, mined area refers to areas suspected or confirmed to contain AP mines.

<sup>149</sup> Email from Lt.-Col. Ali Makki, LMAC, 16 May 2024. DCA reported cancelling 10 areas totalling 48,899m<sup>2</sup>; HI reported 3 areas totalling 11,213m<sup>2</sup>; MAG reported cancelling 49,035m<sup>2</sup> across 12 areas in North East Lebanon, Mount Lebanon and Beqaa.

**Table 5: Release of mined area through TS in 2023 (national authority data)<sup>150</sup>**

Province	Operator	Areas reduced	Area reduced (m <sup>2</sup> )
Bekaa	MAG	2	4,632
Mount Lebanon	MAG	3	80,820
South Lebanon	DCA	1	11,744
	MAG	1	82,487
	NPA	3	3,425
<b>Totals</b>		<b>10</b>	<b>183,108</b>

## CLEARANCE IN 2023

A total of 293,963m<sup>2</sup> of mined area was cleared in Lebanon in 2023 (270,513m<sup>2</sup> by NGOs and UNIFIL, and 23,450m<sup>2</sup> by the LAF), destroying in the process a total of 10,623 AP mines (10,262 by demining NGOs and UNIFIL and 361 by the LAF), along with 783 AV mines (see Table 6).<sup>151</sup> In addition, 46 AP mines and 29 AV mines were destroyed during EOD spot tasks in 2023.<sup>152</sup> This is a 36% increase on the 216,405m<sup>2</sup> of mined area cleared in 2022, although more than double the amount of AP mines, 22,731, were found and destroyed that year.<sup>153</sup>

LMAC has its own category for IED tasks and they are not registered as mine clearance. However, any victim-activated IEDs discovered are included in the total of AP mines destroyed. None of the AP mines destroyed in 2023 was of an improvised nature.<sup>154</sup>

**Table 6: Mine clearance in 2023 (national authority data)<sup>155</sup>**

Province	Operator	Areas cleared	Area cleared (m <sup>2</sup> )	AP mines destroyed	AV mines destroyed
Bekaa	MAG	9	5,879	3	0
Mount Lebanon	MAG	7	37,202	0	0
	HI	6	10,238	0	0
South Lebanon	MAG	20	152,563	4,781	783
	DCA	9	30,981	810	0
	NPA	7	11,245	1,059	0
	UNIFIL	N/R	22,405	3,609	0
	LAF	N/R	23,450	361	0
<b>Totals</b>			<b>293,963</b>	<b>10,623</b>	<b>783</b>

LMAC reported that in 2023, a total of 138,770m<sup>2</sup> of AP mined area was cleared or reduced through TS with no mines found.<sup>156</sup> This is almost half of all clearance for the year.

LMAC reported an overall increase in land release output in 2023, largely due to redeployment of teams from the south to the Mount Lebanon area, following the suspension of clearance in the south of the country on 8 October 2023. The focus on Mount Lebanon involves use of TS, which

has significantly boosted clearance efficiency.<sup>157</sup> However, significant differences are seen in survey output as reported by LMAC and the operators, with operators largely reporting a decrease in output from 2022 to 2023.

NPA experienced a reduction in clearance and TS output in 2023 due to a drop in funding and reduced capacity.<sup>158</sup> DCA saw a drop in land release output after their teams were relocated from the Blue Line to Mount Lebanon in

<sup>150</sup> Email from Lt.-Col. Ali Makki, LMAC, 16 May 2024. DCA reported reducing 4 areas totalling 11,744m<sup>2</sup>; HI reported reducing 2 areas totalling 5,170m<sup>2</sup> in Mount Lebanon.

<sup>151</sup> Email from Lt.-Col. Ali Makki, LMAC, 16 May 2024.

<sup>152</sup> Ibid.

<sup>153</sup> Email from Lt.-Col. Fadi Wazen, LMAC, 19 April 2023.

<sup>154</sup> Email from Lt.-Col. Ali Makki, LMAC, 16 May 2024.

<sup>155</sup> Ibid.

<sup>156</sup> Ibid.

<sup>157</sup> Ibid.

<sup>158</sup> Email from Southern Craib, NPA, 22 April 2024.

March 2023, where they primarily focused on BAC.<sup>159</sup> HI also reported a decrease in land release output, with operations limited to six months in 2023, as activities were suspended from late February to late June due to funding shortages.<sup>160</sup> MAG's clearance output declined, mainly because of the

security situation and restricted access to the Blue Line since October 2023. However, they increased TS output by focusing on low-threat areas between AP and AV minefields.<sup>161</sup> UNIFIL reported no change in overall output but suspended demining operations along the Blue Line on 8 October 2023.<sup>162</sup>

## PROGRESS TOWARDS COMPLETION

According to Lebanon's Statement as an observer at the Fourth Review Conference of the APMBBC in Oslo in November 2019, Lebanon's national mine action policy affirms its aspiration to become a State Party to the APMBBC. The Minister of Defence, who also heads the LMAA, sent a letter to the Ministry of Foreign Affairs stating that the Ministry of Defence has no objections to Lebanon acceding to the Treaty. LMAC will work in the spirit of the APMBBC and LMAC also asserts that it will implement the Oslo Action Plan, adopted at the Fourth Review Conference of the APMBBC.<sup>163</sup> LMAA says that it will continue to promote an accession to the Convention and continues to attend APMBBC meetings as an observer.<sup>164</sup>

Clearance of mined areas was originally expected to be completed by the end of 2020, in accordance with the 2011–20 national strategy, but actual mine clearance capacity was far lower and progress against the strategy fell well behind schedule. Lebanon's National Mine Action Strategy 2020–25 sets out annual targets through to 2026. In 2020, LMAC expected Lebanon to be free from known mined areas in ten years, with the application of efficient land release methodology and subject to securing the necessary funding.<sup>165</sup> However, this looks to be very ambitious, considering the extent of the remaining mined area (16.2km<sup>2</sup>) and annual mine clearance rates of considerably less than 0.5km<sup>2</sup> per year, with a total of less than 2km<sup>2</sup> of mined area cleared in the last five years (see Table 7).

Furthermore, Lebanon has ambitious clearance targets set under the Convention on Cluster Munitions (CCM), to which Lebanon is a State Party. It is therefore likely that the focus of clearance efforts will be on CMR, especially given funding constraints.

Operators have said that the economic and political crises have led to hyper-inflation, currency collapse, and problems with already strict and reducing budgets. In 2022, this resulted in supplies being more expensive; fuel less readily available; and protests and roadblocks hampering

the security situation. The impact of this was particularly challenging in respect to funding from some donors which do not fund the full cost of operations.<sup>166</sup> However, these issues were not as prevalent in 2023. The escalation of attacks in southern Lebanon since 8 October 2023 has led to the suspension of demining activities in the south of the country.<sup>167</sup> A year on, operations in southern Lebanon, including clearance along the Blue Line, remained suspended. Furthermore, at the time of writing, the conflict with Israel had further escalated and international NGOs had suspended land release operations across the whole of Lebanon.

Lebanon is still many years from completing mine clearance, and the above mentioned suspension of survey and clearance activities due to the conflict with Israel will unfortunately significantly reduce survey and clearance outputs for 2024 and push back Lebanon's completion target. However, when operations are able to recommence, progress is expected to be accelerated by the adoption of better land release procedures in recent years. Crucially, LMAC's demonstrated commitment to enhance the use of NTS and TS should help to cancel or reduce areas more efficiently, with an increase in NTS and TS output observed in 2023. The continued application of TS will also reduce the number of CHAs which are cleared but are then found not to contain AP mines.

**Table 7: Five-year summary of AP mine clearance**

Year	Area cleared (km <sup>2</sup> )
2023	0.29
2022	0.22
2021	0.25
2020	0.35
2019	0.48
<b>Total</b>	<b>1.59</b>

## PLANNING FOR MANAGEMENT OF RESIDUAL CONTAMINATION

According to LMAC, the strategic implementation plan, which will support the National Mine Action Strategy 2020–25, will address an exit strategy and long-term risk management.<sup>168</sup> LMAC provided summary information on its plans regarding an exit strategy with respect to addressing residual risk after CCM Article 4 fulfilment,<sup>169</sup> but details have yet to be provided on an exit strategy and long-term risk management strategy for mined areas.

<sup>159</sup> Email from Mohamed Chour, DCA, 13 May 2024.

<sup>160</sup> Email from Aurélien Thienpont, HI, 30 May 2024.

<sup>161</sup> Email from Sylvain Lefort, MAG, 13 May 2024.

<sup>162</sup> Email from Hassan Noureddine, UNIFIL, 30 May 2024.

<sup>163</sup> LMAC, Lebanon Mine Action Strategy 2020–25, signed June 2020, p. 4; and LMAC, "Plan for the Implementation and Monitoring of the LMAP Strategy (2020–2025)", p. 5.

<sup>164</sup> LMAC, "Lebanon Mine Action Strategy 2020–2025", pp. 1 and 4.

<sup>165</sup> Emails from Lt.-Col. Fadi Wazen, LMAC, 19 March and 22 July 2020 and 15 March 2021; LMAC, "Annual Report 2020", p. 31; and LMAC, "Plan for the Implementation and Monitoring of the LMAP Strategy (2020–2025)", p. 9.

<sup>166</sup> Email from Matthew Benson, DCA, 24 May 2021.

<sup>167</sup> Email from Lt.-Col. Ali Makki, LMAC, 16 May 2024.

<sup>168</sup> Email from Lt.-Col. Fadi Wazen, LMAC, 19 March 2020.

<sup>169</sup> LMAC, "Annual Report 2020", p. 31.