

## KEY DATA

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

NATIONAL AUTHORITY ESTIMATE

**16.9 km<sup>2</sup>**

AP MINE CLEARANCE IN 2022

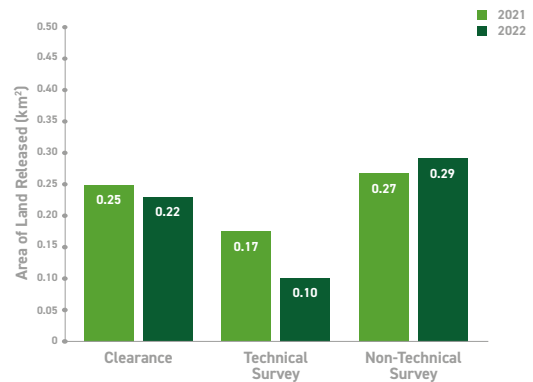
**0.22 km<sup>2</sup>**

AP MINES DESTROYED IN 2022

**22,737**

(INCLUDING 6 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 2022, although mine clearance output fell for the fourth consecutive year, attributed largely to cuts in international funding.

## 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.
- Where appropriate, LMAC should consider using demining machinery and mine detection dogs (MDDs) as primary as well as secondary clearance assets. LMAC should amend the national mine action standards (NMAS) to enable this.

## DEMINEING 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 2022, Lebanon had more than 16.9km<sup>2</sup> of confirmed mined area, including along the Blue Line, across 11,042 confirmed hazardous areas (CHAs) (see Table 1).<sup>1</sup> This is a reduction of mined area compared to the end of 2021, when Lebanon had over 17.5km<sup>2</sup> of confirmed mined area, including along the Blue Line.

A total of 15,202m<sup>2</sup> of previously unrecorded legacy AP mine contamination across nine sites was added to the database in 2022.<sup>2</sup>

**Table 1: Mined area by province (at end 2022)<sup>3</sup>**

Province	CHAs	Area (m <sup>2</sup> )
Al Beqaa	47	4,788,258
Al Janoub and Al Nabatiyeh (south Lebanon)	811	6,825,654
Jabal Loubnan (Mount Lebanon)	184	5,300,907
<b>Totals</b>	<b>1,042</b>	<b>16,914,819</b>

In addition, as at end 2022, LMAC reported a total of 4,539,214m<sup>2</sup> of all "Dangerous Areas",<sup>4</sup> some of which may contain booby-traps and improvised explosive devices (IEDs). These "Dangerous 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<sup>5</sup> and where further investigation/survey is required in order to confirm the existence, type, and extent of any contamination.<sup>6</sup> Of these Dangerous Areas as at the end of 2022, 0.16km<sup>2</sup> had contained IEDs, in north-east Lebanon, but most of the improvised devices found in such areas did not meet the definition of a mine.<sup>7</sup> Furthermore clearance of explosive ordnance in this region has since been completed.<sup>8</sup>

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 are typically "militia" or "scattered" minefields (i.e. were laid without a pattern and for which minefield records and maps do not exist), and were laid by multiple actors during the civil war.<sup>9</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. There had also been a small amount of new mine contamination in "Jroud Aarsal" on the north-east border with Syria, resulting from spill-over of the Syrian conflict onto Lebanese territory in 2014–17.<sup>10</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>11</sup>

The LAF continue to play a major role in this northern region, 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>12</sup> Mine migration can happen anywhere along the border river and LMAC only knows about the migrated mines through the reporting of accidents. LMAC surveyed the location of accidents and submitted a report to the LAF headquarters, recommending that, where possible, berms are raised 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>13</sup> In its 2022 annual report, LMAC said that one of the four engineering regiment teams dedicated to mine action had completed a survey in the area and had been conducting clearance where needed.<sup>14</sup>

1 Email from Lt.-Col. Fadi Wazen, Operations Section Head, LMAC, 19 April 2023.

2 Ibid.

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

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

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

6 Interview with Brig.-Gen. Elie Nassif and Brig.-Gen. Fakh, LMAC, Beirut, 18 April 2016.

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

8 Email from Lt.-Col. Charbel Njeim, Head of Operations, LMAC, 7 September 2023.

9 Interview with Brig.-Gen. Elie Nassif and Brig.-Gen. Fakh, LMAC, Beirut, 11 April 2016.

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

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

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

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

14 LMAC, "Annual Report 2022", p. 12.

## 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 2023* report on Lebanon.

## 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>15</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 and western Beqaa, under LMAC supervision.<sup>16</sup> A regional centre, the RMAC-Ras Baalbek (RMAC-RB), oversaw operations in the north-east of the country.<sup>17</sup> To a large extent LMAC has a well-functioning capacity, but, as they are army officers, the senior management of LMAC and RMAC are typically routinely rotated every two years or so, which can hamper development and continuity in the management of the three mine action centres.<sup>18</sup> The current director of LMAC, however, started in March 2019.<sup>19</sup>

A new standard operating procedure (SOP) for LMAC was approved in November 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>20</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>21</sup> In 2022, there were four UNDP personnel supporting LMAC,<sup>22</sup>

down from six in 2021.<sup>23</sup> UNDP also received six month's funding in 2020 from Norway,<sup>24</sup> and then in April 2021, the Netherlands agreed a three-year contract with UNDP for international support to LMAC, totalling US\$1.5 million.<sup>25</sup>

In 2022, the Netherlands also provided capacity development to LMAC through Mines Advisory Group (MAG), with office equipment and training on demining accident investigation. The United States (US) started a project in 2022 to support LMAC through the International Trust Fund (ITF) Enhancing Human Security, aimed at sustaining LMAC during the financial crisis (e.g. car maintenance, solar power systems, demining equipment, and training).<sup>26</sup>

The Geneva International Centre for Humanitarian Demining (GICHD) provides support to LMAC on information management and on gender and diversity. LMAC and Regional School for Humanitarian Demining in Lebanon (RSHDL) staff have benefitted and co-supported GICHD with courses under the regional framework of the Arab Regional Cooperation Programme (ARCP). In 2022, LMAC hosted a regional ARCP Information Management System for Mine Action (IMSMA) Core implementation workshop and the RSHDL hosted the first two weeks of the ARCP IMSMA Core Training course.<sup>27</sup> IM staff from LMAC have also supported the GICHD to deliver the IMSMA Core training<sup>28</sup> and participated as co-instructor to NTS training in Switzerland. LMAC also attended the GICHD global All reasonable Efforts workshop in May 2023.<sup>29</sup>

MAG is supporting LMAC through the delivery of training, including on gender and diversity.<sup>30</sup> In 2022, MAG, in collaboration with LMAC, hosted a four-day exposure visit to Lebanon from the Iraqi Directorate of Mine Action (DMA) and Iraqi Kurdistan Mine Action Authority (IKMAA).<sup>31</sup>

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

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

17 Email from Lt.-Col. Fadi Wazen, LMAC, 21 August 2019.

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

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

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

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

22 Ibid.

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

24 Email from Lt.-Col. Fadi Wazen, LMAC, 19 March 2020; and LMAC, "Annual Report 2020", p. 28.

25 Email from Lt.-Col. Fadi Wazen, LMAC, 15 June 2021; and LMAC, "Annual Report 2021", p. 38.

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

27 Email from the GICHD, 6 April 2023.

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

29 Email from the GICHD, 14 August 2023.

30 Email from Sylvain Lefort, Country Director, MAG, 14 April 2023.

31 Ibid.

A "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>32</sup> In 2021, the Netherlands took over from Norway as Forum co-chair.<sup>33</sup> In 2022, the Forum met twice.<sup>34</sup> The most recent forum meeting, in September 2023, was co-chaired by LMAC and the Netherlands, and moderated by the Project Manager of Mine Action Review. The Forum is said to have resulted in better coordination and greater transparency as well as enhancements to land release methodology, reflected in the revised national mine action standards (NMAS).<sup>35</sup>

There is good coordination and collaboration between LMAC/ the RMAC and clearance operators, with the operators consulted before key decisions are taken.<sup>36</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>37</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>38</sup> although usually it takes less than a month, during which time the operator is allowed to start training the new staff.<sup>39</sup>

## ENVIRONMENTAL POLICIES AND ACTION

LMAC said that 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) specifically aims to achieve this. LMAC and its implementing partners ensure that they operate in conformity with NMAS 10.70 including coordinating with local authorities and landowners before start of operations; and compiling a list of factors related to operations that may affect the environment for all types of assets, assessing the threat, and making informed decisions. In addition, after demining and EOD operations have been completed at a worksite, but before the formal release of the area, implementing agencies are required to

A technical working group (TWG) was established in March 2018, under the auspices of LMAC, based on recommendations of the Mine Action Forum and following the release of the revised NMAS. The TWG, which met twice in 2022,<sup>40</sup> provides a useful forum for LMAC/the RMACs to meet collectively with clearance operators to review and discuss field issues.<sup>41</sup>

As in the previous year, the Lebanese government contributed US\$9 million annually in 2022 towards mine action in Lebanon (for both mine- 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's companies to cover rapid response across Lebanon; risk education; victim assistance; training; and advocacy.<sup>42</sup> However, the devaluation of the Lebanese Pound due to the economic crisis in the country affects the amount actually received.<sup>43</sup> The economic crisis affects the work of the Engineering Regiment humanitarian demining teams. In particular, the increase in support and maintenance costs, and fuel shortages, were major obstacles.<sup>44</sup> Another consequence of the economic crisis in Lebanon is the enormous strain and the severe blow on the morale of the LMAC staff whose income was reduced in a few months to less than one tenth of previous income.<sup>45</sup>

remove and appropriately dispose of all rubbish and large fragments of ordnance, and fill in any holes in the ground to stabilise the surface to allow for natural regeneration, using water to consolidate the soil when appropriate.<sup>46</sup>

DanChurchAid (DCA) reported that it is compliant with the Environmental Health and Safety Guidelines and that it follows NMAS and international mine action standards (IMAS) procedures with regards to the environment. DCA's SOPs identify specific smoking areas at task sites to prevent uncontrolled fires and DCA monitors all vegetation-cutting procedures to prevent damage to flora that is protected under Lebanese law, especially when its teams are deployed in national reserves such as the Al Shuf Cedars, where DCA conducted clearance in 2021.<sup>47</sup>

32 LMAC, "Annual Report 2018", p. 23.

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

34 Emails from Lt.-Col. Fadi Wazen, LMAC, 15 May 2023; Tomislav Vondracek, Programme Manager, NPA, 5 May 2023; and Aurélien Thienpont, Country Manager, HI, 13 April 2023.

35 Emails from Lt.-Col. Fadi Wazen, LMAC, 7 March 2019 and 19 March 2020; LMAC, "Annual Report 2018", p. 23; and revised 2020 Article 4 deadline Extension Request, 25 February 2020, pp. 38 and 39.

36 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 and Inclusion (HI), 21 April 2020.

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

38 Email from Southern Craib, NPA, 28 March 2022.

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

40 Emails from Lt.-Col. Fadi Wazen, LMAC, 15 May 2023; Mouhamed Chour, Head of Operations, DCA, 3 May 2023; Tomislav Vondracek, NPA, 5 May 2023; and Aurélien Thienpont, HI, 13 April 2023.

41 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.

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

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

44 LMAC, "Annual Report 2022", p. 24.

45 Ibid., p. 37.

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

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

Humanity & Inclusion (HI) has an environmental management system in place and its SOP21 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, for livestock, wildlife, and cultural resources, and provision for the environmental awareness of clearance personnel. HI operates according to the NMAS and its SOPs at all times, with a view to minimising the environmental impact of its operations.<sup>48</sup>

MAG has an environmental management system in place, and its environmental SOP takes into consideration the environment. In particular, special measures are implemented to avoid spreading of fires on mine clearance tasks, caused by demolitions.<sup>49</sup>

NPA Lebanon said it has an environmental plan in place which it is implementing, including recent installation of a solar system; a recycling programme (for paper, plastic, glass, and plastic); and upgrading of its fleet for fuel efficiency. It also strives to minimise the removal of vegetation to the extent that it is safe. NPA has also begun to track its environmental footprint through the use of an annual reporting tool.<sup>50</sup>

The UN Interim Force in Lebanon (UNIFIL) said it has been committed to environmental safety, including staggered timings for demining activities to reduce risks of bush fires during the summer season, and only trimming back branches and keeping the roots of trees in minefields.<sup>51</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, safeguarding, and behavioural codes.<sup>52</sup>

LMAC remains committed to promoting the mainstreaming of gender and diversity among key stakeholders and mine action operators in Lebanon.<sup>53</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>54</sup> Women, girls, boys, and men are said to be consulted during survey and community liaison activities.<sup>55</sup> According to LMAC, Lebanon's baseline of contamination has been developed over many years. As per Lebanon's 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>56</sup>

MAG has supported LMAC in the implementation of the gender work plan and has assisted LMAC in establishment of a Gender Diversity and Inclusion 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>57</sup> The GICHD conducted its most recent gender and diversity capacity assessment mission to the Lebanon programme in November 2021 and said LMAC had followed many of its recommendations on gender and diversity mainstreaming from that visit.<sup>58</sup>

In August 2022, LMAC organised a three-day course titled "Gender and Diversity Mainstreaming in Mine Action in Lebanon", in partnership with MAG, supported by UNDP, and funded by the Netherlands. The course was aimed at strengthening the integration of gender and diversity considerations among key stakeholders and mine action operators in Lebanon.<sup>59</sup> It brought together 22 participants from the non-governmental organisations (NGOs) MAG, NPA, DCA, HI, UNDP, United Nations Mine Action Service (UNMAS), and others, in addition to an officer from LMAC and the head of gender department at the Lebanese Army.<sup>60</sup>

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

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

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

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

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

53 LMAC "Annual Report 2022", p. 33.

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

55 Email from Lt.-Col. Fadi Wazen, LMAC, 5 April 2019.

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

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

58 Email from the GICHD, 6 April 2023.

59 Emails from Lt.-Col. Fadi Wazen, LMAC, 15 May 2023; Sylvain Lefort, MAG, 14 April 2023; and GICHD, 6 April 2023; and LMAC, "Annual Report 2022", p. 33.

60 Email from the GICHD, 6 April 2023.

Lebanon's new National Mine Action Strategy 2020–25, approved by the LMAA in June 2020, includes considerations on gender and diversity.<sup>61</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>62</sup>

As per its strategic implementation plan,<sup>63</sup> and through the TWG, LMAC finalised a code of conduct for the Lebanese Mine Action Programme, in 2022.<sup>64</sup> The code of conduct

provides a framework for cooperation, coordination, and transparency between LMAC and implementing agencies. It aims to promote gender and diversity inclusion in all aspects of the organisations' work and ensure that the implementation of mine action activities is conducted in a professional, ethical, and accountable manner. It also aims to promote the safety and security of mine action personnel and to protect the rights and interests of affected communities, by setting guidelines for the protection of human rights and the promotion of gender equality and inclusivity, as well as provisions for the management of mine action-related risks and incidents.<sup>65</sup>

LMAC planned to conduct a full review of the NMAS in 2023 and to consider the gender perspective during the review.<sup>66</sup>

**Table 2: Gender composition of mine action operators in 2022<sup>67</sup>**

Operator	Total staff	Women employed	Total staff in managerial or supervisory positions	Women in managerial or supervisory positions	Total staff in operational positions	Women in operational positions
DCA	70	14	15	8	54	6
HI	27	5	2	1	22	2
LMAC	161	19	22	1	52	9
MAG	203	37	50	7	179	30
NPA	83	17	22	3	74	12
UNIFIL J3-Combat Engineer Section (J3-CES) & UNMAS	12 (6 x J3-CES + 6 x UNMAS)	4 (1 x J3-CES and 3 x UNMAS)	4 (1 x J3-CES and 3 x UNMAS)	2 (UNMAS)	8 (5 x J3-CES and 3 x UNMAS)	2 (1 x J3-CES and 1 x UNMAS)
UNIFIL Chinese Multi-Role Engineering Unit	65	4 (deminers)	7 (3 supervisors & 4 team leaders)	0	58	4 (deminers)
UNIFIL Cambodian Multi-Role Engineering Unit	62	10	18	3	44	10
UNIFIL Force Commander Reserve IED Disposal Unit (French)	4	0	1	0	3	0

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

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

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

64 Emails from Lt.-Col. Fadi Wazen, LMAC, 15 May 2023; and GICHD, 6 April 2023; and LMAC, "Annual Report 2022", p. 34.

65 LMAC, "Annual Report 2022", p. 34.

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

67 Emails from Mouhamed Chour, DCA, 3 May 2023; Lt.-Col. Fadi Wazen, LMAC, 15 May 2023; Sylvain Lefort, MAG, 14 April 2023; Tomislav Vondracek, NPA, 5 May 2023; Aurélien Thienpont, HI, 13 April 2023; Mohammad Huseein Karak, POD, 3 July 2023; and Julie Myers, Chief Mine Action Programme, UNMAS, 4 May 2023.

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>68</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>69</sup> LMAC now has a female member of staff in an operational role, which is progress compared to last year when there were no women in operational positions.<sup>70</sup>

DCA, HI, MAG, and NPA all reported having gender policies in place and disaggregating data by sex and age.

MAG reported that it consults women during survey and community liaison activities; that all its community liaison teams are mixed; and that its data are disaggregated by sex, age, and nationality.<sup>71</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 platform for reaching women in the community to attract more women to be involved in mine action.<sup>72</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>73</sup>

## INFORMATION AND MANAGEMENT REPORTING

In 2021, LMAC completed migrating from its former version of IMSMA (New Generation) to IMSMA Core, with support from the GICHD. The new database is now being used for all activities.<sup>74</sup>

Several key improvements have been made in the new IM system, to ensure the quality of data. These include more accurate drawing of surveyed polygons using tools based on GPS and imagery base maps; reducing instances of double counting of polygons, for examples when different land release methods were used, as IMSMA core tracks the relationship between the parent and child activities using a unique ID; and the recording of the depth at which ordnance was discovered, its condition, and whether it is safe to move.<sup>75</sup>

Some of the information in the database may not be accurate. This is especially the case with respect to scattered/militia minefields from civil war, for which NTS was conducted many years ago, with limited reliable information available. HI undertakes re-survey to have a clearer and up-to-date picture of contamination before starting clearance. It can be challenging to gain a clear picture of what contamination was cleared by the LAF in the north and if the related clearance documents were transferred to LMAC and are included in the

information management database.<sup>76</sup> LMAC has said that NTS will be extremely important for these scattered minefields.<sup>77</sup>

DCA has been using Tiramisu Information Management Tool (T-IMS) for the past three years.<sup>78</sup> HI uses ArcGIS and Trimble, in addition to IMSMA Core for reporting to LMAC.<sup>79</sup> MAG started using "Survey123" software in Lebanon in August 2021 after training and field testing the new data collection system.<sup>80</sup> In 2022, MAG introduced version 2.0 of the Operational Management Information System, which will allow data to be automatically transferred from its database to LMAC's, removing the need for manual reporting of data and reducing manual errors. The new version will be implemented in 2023.<sup>81</sup> In the second half of 2020, NPA introduced the ARC-GIS programme for data collection to its information management system, which has allowed more precise monitoring and evaluation of the programme's activities, efficiency, outputs, and reporting.<sup>82</sup>

In the Lebanon Mine Action Strategy 2020–25, and the accompanying implementation plan, LMAC states that it will initiate voluntary APMBBC Article 7 reporting.<sup>83</sup> However, as at September 2023, no APMBBC voluntary Article 7 report had yet been submitted.

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

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

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

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

72 Ibid.

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

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

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

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

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

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

79 Email from Nahed Al-Khlouf, HI, 12 August 2022.

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

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

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

83 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.

## PLANNING AND TASKING

In September 2011, LMAC adopted a strategic mine action plan for 2011–20.<sup>84</sup> The plan called for clearance of all CMR by 2016 and for completion of mine clearance outside the Blue Line by 2020. Both goals were dependent on capacity, but progress fell well short of planning targets, which were not met.

LMAC developed a new National Mine Action Strategy for 2020–25, with support from the UNDP project funded by the European Union (EU), in a participatory approach with national and international implementing agencies, mine action NGOs, UN agencies, and donors.<sup>85</sup> The new strategy was approved by the LMAA in June 2020. A mid-term and final external review are planned, as well as annual reporting on progress.<sup>86</sup>

LMAC has also elaborated a strategic implementation plan for 2020–25, based on the new strategy and in collaboration with implementing partners, to operationalise the new strategy with objectives, outputs, and indicators.<sup>87</sup> Results from the monitoring of the strategic implementation plan will be discussed at the operational level with implementing agencies at the TWG and a group of recommendations agreed and then presented at the biannual Mine Action Forum meetings.<sup>88</sup> The implementation plan will be revised annually by LMAC, the Institutional Support Programme (UNDP at present), and in consultation with humanitarian clearance operators.<sup>89</sup> LMAC had planned to conduct a full review of the strategy and implementation plan in 2022, in cooperation

with all stakeholders.<sup>90</sup> The review did not take place in 2022, and is instead planned for 2023.<sup>91</sup> In addition, LMAC had an annual work plan for 2022 and has an annual work plan in place for 2023.<sup>92</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 residents, have combined to result in a change to clearance priorities.<sup>93</sup> With regard to task prioritisation, LMAC conducted a study, whose results have informed 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>94</sup> The prioritisation of actions and allocation of resources is automated in IMSMA Core, during the data collection phase.<sup>95</sup> The new IMSMA Core database only became fully functional in 2021, therefore additional information is still required to be able to specify the priorities. In 2022, NTS teams continued to update data for the new prioritisation system. In 2023, LMAC aimed to complete 80% of the tasks in Mount Lebanon.<sup>96</sup>

Prior to 2016, demining along the border with Israel had been said to depend on "political developments",<sup>97</sup> but the Lebanese government subsequently took the decision to initiate larger-scale, planned clearance on the Blue Line.<sup>98</sup> Clearance by humanitarian demining operators, which began in November 2016,<sup>99</sup> was still ongoing as of writing.

## LAND RELEASE SYSTEM

### STANDARDS AND LAND RELEASE EFFICIENCY

Lebanon developed its first NMAS in 2010.<sup>100</sup> In 2017, LMAC started revising and harmonising national standards with IMAS, adding new modules not present in the original standards.<sup>101</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.

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

85 LMAC, Lebanon Mine Action Strategy 2020–25; and LMAC, "Annual Report 2019", p. 7.

86 Email from Lt.-Col. Fadi Wazen, LMAC, 22 July 2020; and LMAC, Lebanon Mine Action Strategy 2020–25, p. 4.

87 Emails from Lt.-Col. Fadi Wazen, LMAC, 22 July 2020 and 15 March 2021; and LMAC, "Plan for the Implementation and Monitoring of the LMAP Strategy (2020–25)", p. 3.

88 LMAC, "Plan for the Implementation and Monitoring of the LMAP Strategy (2020–25)", p. 21.

89 LMAC, "Annual Report 2020", p. 33.

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

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

92 Ibid.; and LMAC Annual Report 2022, pp. 38–39.

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

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

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

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

97 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.

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

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

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

101 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.



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>102</sup> and changes to the NMAS on demolitions.<sup>103</sup> No updates were made to the NMAS in 2022,<sup>104</sup> but in line with its commitment to continuous improvement, LMAC planned a biannual review of the NMAS in 2023.<sup>105</sup>

Strengthening survey has been a key area of focus, in order to more accurately define the presence of an explosive threat (or confirm its absence).<sup>106</sup> A study on operational efficiency found that the NMAS generally places heavy limitations on how mine action operators are able to operate and that this drastically affects efficiency.<sup>107</sup> The study called for, among other things, an emphasis on the importance of evidence-based TS before clearance.<sup>108</sup> The recommendations were implemented in 2021.<sup>109</sup>

LMAC also updated its strategic implementation plan to reflect the increased focus on TS,<sup>110</sup> and it was agreed at the TWG meeting in December 2021 that more TS will be conducted by manual search teams. Further training was conducted in February 2022 to unify and enhance understanding of the concept and improve the application of TS in all hazardous areas, and specifically in CMR tasks.<sup>111</sup> The NMAS allows for areas under full clearance to be reduced (or in part reduced), based on information gathered during clearance, as well as for the original task boundaries to be changed based on experience during clearance.<sup>112</sup> Clearance operators confirmed that flexibility remains on a case-by-case basis through discussions with LMAC to improve efficiency.<sup>113</sup>

Mined areas in pattern minefields/along the Blue Line are classified into high-threat hazardous area (HTHA) and low-threat hazardous area (LTHA). The use of TS instead of full clearance is permitted for some parts of CHAs based on discussion and agreement between LMAC operations officers

and clearance operators.<sup>114</sup> Previously, full clearance had been required for 15 metres from the mine rows, but in the revised NMAS this has been changed to a required fade-out of 5 metres from the mine rows, and TS from the edge of the 5-metre fade-out up to the minefield fence, for minefields in which the lanes have not been disrupted.<sup>115</sup> If there is no fence, 10 metres of TS is required from the edge of the 5-metre fade-out. Fade-out for anti-vehicle (AV) mines has been reduced from 20 metres to 10.<sup>116</sup>

Based on empirical evidence, international operators have not found mines further than five metres from the outer mine row, in minefields in which the lanes have not been disturbed.<sup>117</sup> Arguably therefore, TS beyond the five-metre fade-out should only be required if there is sufficient evidence to suggest mines have migrated from the mine rows. However, while TS is still required beyond the five metres from the outer mine row, the amended NMAS now provides for improved flexibility in the percentage of area searched as part of TS. TS requirements are now being decided more in line with operational observations and decisions are being made collaboratively with RMAC, with good effect.<sup>118</sup>

With respect to TS requirements, NPA focuses its efforts on areas adjacent to missing mines, where the terrain may have allowed migration or where there appears to be a logical tactical reason for laying mines somewhere other than the defined line. Until recently, NPA had yet to discover any mines in these areas, but in 2022 reported that it had discovered six mines during TS in a single task which were well away from the mine rows. The six mines were all in an area that could have been run off from the mine line, but were all found at a depth of approximately 10cm and were all orientated correctly. This suggests they may have been deliberately emplaced, possibly as a result of the engineers who originally laid the minefields having a number of mines "left over" which they subsequently deployed wherever convenient. These mines would not have been found had it not been for the requirement for TS.<sup>119</sup>

102 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.

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

104 Emails from Lt.-Col. Fadi Wazen, LMAC, 15 May 2023; Sylvain Lefort, MAG, 14 April 2023; Mouhamed Chour, DCA, 3 May 2023; and Tomislav Vondracek, NPA, 5 May 2023.

105 Email from Lt.-Col. Fadi Wazen, LMAC, 15 May 2023; and LMAC, "Annual Report 2022", p. 38.

106 Emails from Lt.-Col. Fadi Wazen, LMAC, 7 March 2019; Dave Wiley, MAG, 27 April 2018; and Craig McDiarmid, NPA, 17 April 2018; and Statement of Lebanon on Clearance, Convention on Cluster Munitions (CCM) Ninth Meeting of States Parties, Geneva, 2 September 2019.

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

108 LMAC, "Annual Report 2020", p. 36.

109 Emails from Mouhamed Chour, DCA, 4 April 2022; and Hiba Ghandour, MAG, 7 April 2022.

110 Email from Lt.-Col. Fadi Wazen, LMAC, 15 June 2021.

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

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

113 Emails from Aurélien Thienpont, HI, 13 April 2023; and Tomislav Vondracek, NPA, 5 May 2023.

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

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

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

117 Emails from Ali Nasreddine, MAG, 24 July 2018; Craig McDiarmid, NPA, 17 April 2018 and 8 April 2019; and Hala Amhaz, NPA, 17 March 2021.

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

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

NPA believes changes could be considered to the procedure for missing mines in patterned minefields along the Blue Line. Many mines are missing due to water and soil-related movement or detonation by animals and the current "missed-mine" protocol is resource-intensive.<sup>120</sup> NPA believed a study of the empirical evidence would be useful, including how many missed mine drills each agency has performed and how many mines were discovered as a result.<sup>121</sup> NPA's own data suggests the process of the missing mine drill serves no useful purpose beyond added "peace of mind". Between 2017 and 2022, NPA had conducted 1,648 missing mine drills in Lebanon and had found no mines or evidence of such. However, 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>122</sup>

Following a TWG meeting in early 2021 in which international NGOs highlighted that missing mine excavations had not resulted in any missing mines being located, there has been increased flexibility from RMAC with regard to the "missing mine" drill. RMAC officers have permitted some of NPA's requests not to conduct the drill where there was evidence that the mine had been moved (and located nearby) or that it was previously detonated.<sup>123</sup>

In 2019, NPA began to consider using Ground Penetrating Radar (GPR)-equipped detectors as a solution and was planning to arrange a potential trial of UNMAS-owned dual sensor equipment in 2020 to conduct missed-mine checks.<sup>124</sup> COVID-19 lockdowns and evacuation of relevant UNMAS personnel, resulted in a delay of the planned trial in 2020.<sup>125</sup> As at April 2022, NPA had conducted limited trials on GPR detectors to date, and the trials were inconclusive with

respect to their potential use on missing mines.<sup>126</sup> The GPR detectors were returned to UNMAS at their request.<sup>127</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>128</sup> In northern Lebanon, the main contamination is in scattered mined areas, and past land release has typically been characterised by large areas cleared and 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 early 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>129</sup>

Both DCA and MAG welcomed the change of the demolition timings to the morning, which MAG said provides a longer time window to conduct more demolitions if needed,<sup>130</sup> and which DCA said reduces fire risk at the sites.<sup>131</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>132</sup>

## OPERATORS AND OPERATIONAL TOOLS

In 2022, manual mine clearance was conducted by international operators DCA, HI, MAG, and NPA, along with the Engineering Regiment of the LAF. In addition, UNIFIL continued conducting clearance for humanitarian purposes (first commenced from June 2020), in addition to its regular demining operations for demarcation purposes on the Blue Line. Mine clearance capacity in Lebanon in 2022 was broadly the same as the previous year.<sup>133</sup>

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 and for use as a secondary asset supporting clearance. Through the Engineering Regiment, LMAC provides mechanical assistance to clearance operators that lack this capacity.<sup>134</sup>

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

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

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

123 Email from Valerie Warmington, NPA, 23 July 2021.

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

125 Email from Valerie Warmington, NPA, 23 July 2021.

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

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

128 LMAC, "Annual Report 2020", p. 10.

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

130 Ibid.

131 Email from Mouhamed Chour, DCA, 2 June 2022.

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

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

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

In Lebanon, machines are only used as secondary assets to support clearance teams (e.g. for ground preparation, rubble removal, or for fade-out); in areas where manual clearance is difficult; and for TS and LTHA.<sup>135</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 of the mechanical assets. Clearance operators who are supported by mechanical assets from the LAF are providing fuel, maintenance, and spare parts for the machines.<sup>136</sup> In addition, new mechanical assets have been introduced by MAG.<sup>137</sup>

**Table 3: Operational clearance capacities deployed in 2022<sup>138</sup>**

Operator	Manual teams	Total clearance personnel*	Dogs and handlers	Machines**	Comments***
DCA	4	31	0	0	Combined mine and BAC capacity. Clearance personnel also conduct TS. LMAC reported that DCA had two clearance teams.
HI	1	8	0	0	Clearance personnel also conduct technical survey when required. Significant drop in clearance capacity in 2022, compared to 2021, due to lack of funding.
MAG	7	70	0	6	Clearance personnel also conduct technical survey. LMAC reported that MAG had six clearance teams.
NPA	2	16	0	1	NPA continued to operate with two mine clearance teams in 2022. Clearance personnel also conduct technical survey when required
UNIFIL	5	42	0	1	UNIFIL also has one mechanical team. The demining machine is an armed excavator which can be used as a primary tool (using the bucket attachment for excavating and sifting) or for area confirmation or reduction (using the rotary attachment).
<b>Totals</b>	<b>19</b>	<b>167</b>	<b>0</b>	<b>8</b>	

\* Clearance personnel may also conduct TS. \*\* Excluding vegetation cutters and sifters. \*\*\* Clearance teams also work on TS tasks.

The UNIFIL capacity was provided by its two Troop-Contributing Countries: Cambodia and China. Operational capacities and capabilities of UNIFIL are determined by operational need. In 2022, UNIFIL capacity totalled 42 personnel (five manual clearance teams), in addition to one mechanical team. 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>139</sup>

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

136 Ibid.

137 Ibid.

138 LMAC, "Annual Report 2022", p. 11; and emails from Lt.-Col. Fadi Wazen, LMAC, 19 April 2023; Mouhamed 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.

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

UNIFIL was established in 1978<sup>140</sup> in order to confirm the withdrawal of Israeli forces from southern Lebanon (which occurred in 2000); restore international peace and security; and assist the Government of Lebanon to re-establish its authority in the area.<sup>141</sup> The primary task of UNIFIL mine clearance teams has been to clear access lanes through minefields in order to visibly demarcate the 118km-long Blue Line. Historically, UNIFIL has not conducted clearance on the Blue Line for humanitarian purposes but only to facilitate placement of markers by clearing three-metre-wide lanes into mined areas,<sup>142</sup> and also to clear mines close to UNIFIL posts or which pose a danger to UNIFIL patrols. However, in 30 January 2020, UNIFIL and LMAC signed a memorandum of understanding (MoU) on Humanitarian Demining, and planned to work together, with UNIFIL helping the LAF/LMAC clear areas contaminated by both mines and unexploded ordnance (UXO).<sup>143</sup> UNIFIL Engineering Units subsequently started humanitarian demining in June 2020, with two teams.<sup>144</sup> As per the MoU, LMAC joined UNMAS in the accreditation of the UNIFIL teams and QA visits.<sup>145</sup>

With respect to NTS capacity (for both mines and CMR) in 2022, LMAC had two teams (totalling two personnel);<sup>146</sup> DCA had two DCA teams (totalling two personnel);<sup>147</sup> HI had one team (totalling two personnel);<sup>148</sup> and MAG had three teams (totalling five personnel).<sup>149</sup> As at April 2022, NPA no longer had dedicated NTS or TS capacity and when survey is required, suitably trained NPA personnel are drawn from existing clearance capacity.<sup>150</sup>

Due to funding cuts, HI's demining personnel in 2022 decreased significantly, compared to the three teams totalling 24 deminers for clearance and TS in 2021. HI had been forced to temporarily suspend all mine action operations in Lebanon between February and June 2023,<sup>151</sup> but secured new funding starting July 2023, which enabled it to recommence operations in Chouf district. As at August 2023, HI was waiting for additional funds to scale up operations.<sup>152</sup>

While MAG's capacity in 2022 remained relatively constant compared to 2021, it expected to have to make 42 personnel from three TS/clearance teams in north-east Lebanon redundant, upon completion of the project in 2023.<sup>153</sup>

NPA employs a multitask approach, with all deminers, team leaders, and team supervisors trained to address all explosive ordnance types in Lebanon, which has enabled NPA to respond to changing priorities and operational constraints.<sup>154</sup> NPA saw a significant reduction in overall operational capacity in 2021 due to loss of funding, in particular from the EU and the Foreign and Commonwealth Development Office (FCDO), which resulted in closure of NPA's sub-base and operations in north-east Lebanon from the end of April 2021.<sup>155</sup> NPA's mine clearance capacity in 2022 remained the same as in 2021, but NPA said that Japan's decision to stop funding clearance in Lebanon in 2023 meant that NPA's mine-clearance capacity was redeployed onto CMR tasks when the Japanese contract ended in April 2023.<sup>156</sup>

MAG Lebanon has introduced two new mechanical assets: the Rebel Crusher, which since late 2021 has been used for processing (crushing) of soil contaminated with AP mines; and the GCS-200, which is equipped with flail attachment for mechanical ground preparation of TS lanes. MAG conducted trials with the Rebel Crusher and training for GCS-200 and both assets were then accredited by LMAC and put into operations in the second half of 2022.<sup>157</sup>

In 2022, MAG introduced a targeted detector (VMH4) for BAC which improves productivity as it eliminates signals caused by metal smaller than the targeted items. This improved BAC productivity in 2022, and MAG was planning to use this equipment where possible in minefields in 2023. MAG has already started training teams working on AP mines on its use, which were successfully accredited by LMAC.<sup>158</sup>

NPA fully used its mechanical excavator during 2022. It said that the machine was invaluable at dealing with small spoil piles placed on top of mined areas and areas of seasonal flooding that had resulted in the movement of topsoil, resulting in deep buried mines.<sup>159</sup>

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

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

142 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.

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

144 Email from Lt.-Col. Fadi Wazen, LMAC, 15 March 2021; and LMAC, "Annual Report 2020", p. 17.

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

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

147 Email from Mouhamed Chour, DCA, 4 May 2023.

148 Email from Aurélien Thienpont, HI, 13 April 2023.

149 Email from Sylvain Lefort, MAG, 26 April 2023.

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

151 Emails from Aurélien Thienpont, HI, 13 April and 29 August 2023.

152 Email from Aurélien Thienpont, HI, 9 August 2023.

153 Email from Sylvain Lefort, MAG, 26 April 2023.

154 Email from Valerie Warmington, NPA, 7 September 2022.

155 Email from Southern Craib, NPA, 28 March 2022.

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

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

158 Email from Sylvain Lefort, MAG, 26 April 2023.

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

As part of NTS on the north-east border of Lebanon, contaminated during spill-over of the Syrian conflict in 2014–17, drones were used for the first time in 2018, and proved very helpful in helping inform survey efforts according to LMAC.<sup>160</sup> HI organised a visit by its unmanned aerial vehicles (UAV) expert partner to Lebanon on 19–23 April 2021, to study the feasibility of the use of drones/UAV in HI's land release operations, with a view to enhancing NTS and TS as well as testing innovative methods based on thermal and LiDAR sensors. The visit found that Lebanon is a "perfect environment" for the deployment of drones and a project for 2022 was developed and submitted to donors.<sup>161</sup>

From 2022 to the middle of 2023, HI was trialling the use of drones/UAVs in land release operations in Mount Lebanon collaboration with LMAC. As at April 2023, more than 50 polygons had been surveyed by drones in collaboration

with LMAC. The trial aims to determine whether small aerial systems can provide better situational awareness of the surface of SHAs and CHAs, with imagery and cartography from drones helping to spot indicators—such as animal and vehicle accidents, or other "ground signs"—, which can be used to target the starting point for where demining assets should be deployed, ideally working from the inside outward. At a more advanced level, the concept is to pioneer the use of more sophisticated sensors and techniques to locate anomalies emitted from buried explosive contamination, which may not display indicators on the surface. A major objective of the project is to build national capacity for this innovative technology, and several teams (drone pilots and NTS team leaders) were scheduled to be trained in 2023. As at August 2023, HI was awaiting purchase of the UAVs.<sup>162</sup>

## LAND RELEASE OUTPUTS AND PROGRESS TOWARDS COMPLETION

### LAND RELEASE OUTPUTS IN 2022

A total of 605,360m<sup>2</sup> of mined area (i.e. area suspected or confirmed to contain AP mines) was released in 2022, of which 216,405m<sup>2</sup> was cleared, 102,529m<sup>2</sup> was reduced through TS, and 286,426m<sup>2</sup> was cancelled through NTS. A total of 22,737 AP mines were destroyed in 2022, including 6 during EOD spot tasks.<sup>163</sup>

A total of 15,202m<sup>2</sup> of previously unrecorded AP mined area was added to the database in 2022.<sup>164</sup>

### SURVEY IN 2022

In 2022, 286,426m<sup>2</sup> of mined area was cancelled through NTS and 102,529m<sup>2</sup> was reduced through TS (see Tables 4 and 5).<sup>165</sup> This was a slight increase compared to the 266,348m<sup>2</sup> of mined area cancelled through NTS in 2022 and a slight decrease on the 169,288m<sup>2</sup> reduced through TS in 2022.<sup>166</sup>

160 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.

161 LMAC, "Annual Report 2021", p. 50.

162 Emails from Aurélien Thienpont, HI, 13 April and 9 August 2023.

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

164 Email from Lt.-Col. Fadi Wazen, LMAC, 19 April 2023. DCA reported discovering 400m<sup>2</sup> of previously unknown mined area during NTS in 2022 (email from Mouhamed Chour, DCA, 4 May 2023) and MAG reported discovering one area of previously unknown mined area in 2022, which totalled 3,049m<sup>2</sup> (email from Sylvain Lefort, MAG, 26 April 2023).

165 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.

166 Email from Lt.-Col. Fadi Wazen, LMAC, 1 June 2022.

**Table 4: Release of mined area through NTS in 2022<sup>167</sup>**

Province	Operator	Area cancelled (m <sup>2</sup> )
Bekaa and South Lebanon	LMAC	6,000
	MAG	1,877
Mount Lebanon	HI	51,612
	DCA	226,937
<b>Total</b>		<b>286,426</b>

**Table 5: Release of mined area through TS in 2022<sup>168</sup>**

Province	Operator	Area (m <sup>2</sup> )
Bekaa	MAG	26,062
Mount Lebanon	DCA	2,016
	HI	9,464
South Lebanon	DCA	34,942
	MAG	15,310
	NPA	14,735
<b>Total</b>		<b>102,529</b>

A total of 15,202m<sup>2</sup> of previously unrecorded legacy AP mine contamination was identified by NTS teams across nine sites (five sites in Bekaa and two sites in, respectively, Mount Lebanon and South Lebanon) and was added to the database in 2022.<sup>169</sup>

## CLEARANCE IN 2022

A total of 216,405m<sup>2</sup> of mined area was cleared in Lebanon in 2022 (205,014m<sup>2</sup> by demining NGOs and UNIFIL, and 11,391m<sup>2</sup> by the LAF), destroying in the process a total of 22,731 AP mines (22,668 by demining NGOs and UNIFIL; and 63 by the LAF), along with 404 anti-vehicle mines, and 60 items of other UXO (see Table 6).<sup>170</sup> In addition, during EOD spot tasks in 2022, DCA destroyed 4 AP mines and MAG destroyed 2 AP mines.<sup>171</sup>

Total clearance in 2022 was a decrease on the 246,817m<sup>2</sup> of mined area cleared in 2022 (219,470m<sup>2</sup> by demining NGOs and UNIFIL, and 27,347m<sup>2</sup> by LAF).<sup>172</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 2022 was of an improvised nature.<sup>173</sup>

167 LMAC, "Annual Report 2022", p. 14; and email from Lt.-Col. Fadi Wazen, LMAC, 19 April 2023. There was a discrepancy between data reported by LMAC and what was reported by DCA, HI, and MAG. DCA reported cancelling 173,060m<sup>2</sup> of mined area in 2022. DCA reported only the mined areas cancelled, but said LMAC cancellation data looked to also include cluster munition-contaminated and UXO-affected areas cancelled. (emails from Mouhamed Chour, DCA, 4 May and 8 August 2023). HI reported cancelling 22,931m<sup>2</sup> of mined area in 2022 (email from Aurélien Thienpont, HI, 13 April 2023). MAG reported cancelling 9,003m<sup>2</sup> of mined area in 2022, plus 488,026m<sup>2</sup> of IEDs. MAG believes the discrepancy is because MAG reported the area recommended for cancellation, while LMAC reported the approved area for cancellation (email from Sylvain Lefort, MAG, 26 April 2023).

168 LMAC, "Annual Report 2022", p. 13; and emails from Lt.-Col. Fadi Wazen, LMAC, 19 April 2023; Mouhamed Chour, DCA, 4 May 2023; Aurélien Thienpont, HI, 13 April 2023; and Tomislav Vondracek, NPA, 5 May 2023. There was a discrepancy between data reported by LMAC and what was reported by MAG. MAG reported reducing 47,101m<sup>2</sup> in Baalbak Hermet. The reason for the discrepancy was MAG included reduction in both AP mine tasks and IED tasks, whereas LMAC only reported reduction in AP mine tasks. According to LMAC, historical data shows that very few IED tasks contain improvised AP mines (emails from Sylvain Lefort, MAG, 26 April 2023 and Lt.-Col. Fadi Wazen, LMAC, 19 April 2023).

169 Email from Lt.-Col. Fadi Wazen, LMAC, 19 April 2023. DCA reported discovering 400m<sup>2</sup> of previously unknown mined area during NTS in 2022 (email from Mouhamed Chour, DCA, 4 May 2023) and MAG reported discovering one area of previously unknown mined area in 2022, which totalled 3,049m<sup>2</sup> (email from Sylvain Lefort, MAG, 26 April 2023).

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

171 LMAC, "Annual Report 2022", p. 11; and emails from Lt.-Col. Fadi Wazen, LMAC, 19 April 2023; and Mouhamed Chour, DCA, 4 May 2023.

172 Emails from Lt.-Col. Fadi Wazen, LMAC, 1 June and 24 September 2022; and LMAC, "Annual Report 2021", p. 13.

173 Emails from Lt.-Col. Fadi Wazen, LMAC, 1 June 2022 and 19 April 2023.

Table 6: Mine clearance in 2022<sup>174</sup>

Operator	Area cleared (m <sup>2</sup> )	AP mines destroyed	AV mines destroyed	UXO destroyed
DCA	41,504	4,574	0	20
HI	16,009	8	0	1
MAG	91,068	8,477	396	37
NPA	31,825	4,259	0	2
LAF	11,391	63	8	Not reported
UNIFIL	24,608	5,350	0	0
<b>Totals</b>	<b>216,405</b>	<b>22,731</b>	<b>404</b>	<b>60</b>

DCA released more mined area in 2022, than in the previous year. However, this included clearance of three minefield tasks, totalling 9,179m<sup>2</sup>, in which CMR and other ERW were found, but no mines.<sup>175</sup>

HI's mine clearance output dropped significantly in 2022, compared to 2021. This was due to a reduction in the number of clearance teams; having to conduct full excavation at two sites due to non-metallic mines in the area; the impact of COVID-19; and poor weather in January to March 2022. HI also reported that it cleared two tasks in 2022 totalling 2,600m<sup>2</sup> suspected to contain AP mines but containing none.<sup>176</sup>

MAG saw a significant increase in clearance in 2022, compared to 2021, which it attributed to the effective use of mechanical assets leading to less dependence on manual TS. In 2022, MAG cleared 37 tasks, totalling 82,334m<sup>2</sup> in north-east Lebanon in which no AP mines were discovered.<sup>177</sup> However, of the 37 tasks, only two were AP mine tasks (totalling 1,170m<sup>2</sup>) and the remaining 35 were classified by LMAC as IED tasks and not included in mine clearance data.<sup>178</sup> According to LMAC, most IED tasks cleared to date have not contained improvised AP mines.<sup>179</sup>

NPA's clearance output in 2022 was a slight increase on 2021 and NPA found AP mines in all mined areas which it cleared during the year.<sup>180</sup>

There was a slight decrease in the total mined areas cleared by the LAF in 2022 compared to 2021, due to a decrease in the number of working days for the LAF ER teams.<sup>181</sup> UNIFIL's clearance output in 2022 also decreased slightly compared to the previous year, but the number of AP mines destroyed increased.

According to LMAC, DCA, MAG, NPA, COVID-19 had no significant impact on operations in 2022,<sup>182</sup> despite DCA also reporting that several cases of COVID-19 between the searchers and team members resulted in personnel being off work sick or in quarantine awaiting negative test results.<sup>183</sup> However, HI reported a notable impact of COVID-19 in 2022. In January 2022, 10 HI staff were exposed to COVID-19, which led to the temporary closure of the project's base and the rescheduling of activities. In total, HI lost 34 days to COVID-19 and bad weather in 2022, and a compensation plan was put in place for 7 months in coordination with LMAC, including working during weekends and some holidays, to compensate and make back some of the lost days.<sup>184</sup> UNIFIL also reported that COVID-19 resulted in the delayed deployment of three demining teams by around a month.<sup>185</sup>

HI reported that roadblocks due to civil unrest affected the daily movement of its staff from their homes to and from the base. In addition, the anxiety and insecurity was said to have impacted the morale of staff.<sup>186</sup>

174 LMAC, "Annual Report 2022", pp. 11 and 12; and emails from Lt.-Col. Fadi Wazen, LMAC, 19 April 2023; and Aurélien Thienpont, HI, 13 April 2023. There were some discrepancies between data reported by LMAC and what was reported by DCA, MAG, NPA, and UNIFIL. DCA reported that it cleared a total of 32,458m<sup>2</sup> in 2022 in south Lebanon and in 9,179m<sup>2</sup> in Mount Lebanon, with the destruction of a total of 4,578 AP mines and 35 items of UXO (email from Mouhamed Chour, DCA, 4 May 2023). MAG reported that it cleared a total of 99,040m<sup>2</sup> in 2022 in the south and 126,915m<sup>2</sup> in north-east. MAG believes the discrepancy in mined area cleared in 2022 is because LMAC clearance data does not include the confirmation of area following the use of mechanical assets for flail (used to cut vegetation), which MAG classified as surface clearance and which LMAC classified as confirmation. NPA reported that it cleared 31,905m<sup>2</sup> in Nabatiyeh in 2022 (email from Tomislav Vondracek, NPA, 5 May 2023). UNIFIL reported that it cleared 25,479m<sup>2</sup> in 2022, with the destruction of 5,571 AP mines and 2 UXO (email from Maj. (CHN) Yu Wang, UNIFIL Force HQ, 28 April 2023).

175 Email from Mouhamed Chour, DCA, 4 May 2023.

176 Email from Aurélien Thienpont, HI, 13 April 2023.

177 Email from Sylvain Lefort, MAG, 26 April 2023.

178 Email from Sylvain Lefort, MAG, 11 August 2023.

179 Email from Fadi Wazen, LMAC, 19 April 2023.

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

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

182 Emails from Fadi Wazen, LMAC, 15 May 2023, Sylvain Lefort, MAG, 14 April 2023 and Tomislav Vondracek, NPA, 5 May 2023.

183 Email from Mouhamed Chour, DCA, 4 May 2023.

184 Email from Aurélien Thienpont, HI, 13 April 2023.

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

186 Email from Aurélien Thienpont, HI, 13 April 2023.

## PROGRESS TOWARDS COMPLETION

According to Lebanon's Statement as an observer at the Fourth Review Conference of the APMBC in Oslo in November 2019, Lebanon's national mine action policy affirms its aspiration to become a State Party to the APMBC. 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 APMBC and LMAC also asserts that it will implement the Oslo Action Plan, adopted at the Fourth Review Conference of the APMBC.<sup>187</sup> LMAA says that it will continue to promote an accession to the Convention.<sup>188</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 new National Mine Action Strategy 2020–25 sets out annual targets for the next six years. 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>189</sup> However, this looks to be very ambitious, considering the extent of the remaining mined area (16.9km<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 the funding constraints.

## 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>191</sup> LMAC provided summary information on its plans regarding an exit strategy with respect to addressing residual risk after CCM Article 4 fulfilment,<sup>192</sup> but details have yet to be provided on an exit strategy and long-term risk management strategy for mined areas.

Operators have said that the economic and political crises have led to hyper-inflation, currency collapse, and problems with already strict and reducing budgets. This has resulted in supplies being more expensive; fuel less readily available; and protests and roadblocks hampering the security situation. The impact of this is particularly challenging in respect to funding from some donors which do not fund the full cost of operations.<sup>190</sup>

While Lebanon is still many years from completing mine clearance, progress is expected to be accelerated by 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. Better use of TS will help bring down the number of CHAs believed to contain mines, which are cleared, but are then found not to contain AP mines, as was the case with clearance tasks implemented by DCA, HI, and MAG in 2022.

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

Year	Area cleared (km <sup>2</sup> )
2022	0.22
2021	0.25
2020	0.35
2019	0.48
2018	0.39
<b>Total</b>	<b>1.69</b>

187 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.

188 LMAC, "Lebanon Mine Action Strategy 2020–2025", pp. 1 and 4.

189 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.

190 Email from Matthew Benson, DCA, 24 May 2021.

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

192 LMAC, "Annual Report 2020", p. 31.