

RECOMMENDATIONS FOR ACTION

- Cambodia should accede to the Convention on Cluster Munitions (CCM) as a matter of priority.
- Cambodia should apply with its obligations under international human rights law to clear cluster munition remnants (CMR) on territory under its jurisdiction or control as soon as possible.
- Cambodia should more accurately establish the extent of CMR contamination, through completion of the national baseline survey (BLS) and through further systematic and comprehensive evidence-based survey of suspected hazardous areas (SHAs) generated by the BLS.
- The Cambodian Mine Action and Victim Assistance Authority (CMAA) should work with operators to elaborate a specific strategy for survey and clearance of CMR, with realistic annual targets for land release and an accompanying resource mobilisation plan.
- The CMAA should improve CMR planning and prioritisation guidelines and implement a more targeted and systematic clearance prioritisation process for confirmed hazardous areas (CHAs).
- The CMAA should review existing national standards on CMR clearance.
- The CMAA should continue to work to establish an up-to-date and accurate national database that is open to all mine action stakeholders.

UNDERSTANDING OF AP MINE CONTAMINATION

CMR resulted from intensive bombing by the United States during the Vietnam War, concentrated in north-eastern provinces along the borders with the Lao People's Democratic Republic and Vietnam. The US Air Force dropped at least 26 million explosive submunitions, between 1.9 million and 5.8 million of which are estimated to have not exploded.¹

Cambodia has extensive CMR contamination but the full extent is not known. As the end of 2019, CMR contamination was estimated at over 716km² across 18 provinces: 1,748 SHAs totalling more than 638.5km² and 374 CHAs totalling more than 77.5km² (see Table 1).² Cambodia's National Mine Action Strategy 2018–2025 stated that known CMR contamination covers 645km²,³ and the estimate at the end of 2018 had risen to 738km² as progress in the BLS continued.⁴ A large proportion of the CMR contamination is located in the eastern provinces close to the border with Vietnam.⁵

The BLS was implemented between 2009 and 2012 across 124 districts. In 2015, the CMAA introduced the land reclamation non-technical survey and baseline survey (LRNTS+BLS) methodology, a stand-alone process to re-survey or re-verify SHAs identified during the BLS. The re-survey/re-verification efforts, which are nearly complete, have helped more accurately define the extent of remaining mine contamination and cancel those areas currently on the database that are found to have no evidence of mine contamination and/or which meet the CMAA criteria for reclamation.⁶ Fifty-three districts were surveyed in 2019 and as at end of 2019 only nine districts in one province remained to be surveyed.⁷ The re-survey was expected to be concluded by the end of the year.⁸ The majority of the remaining districts are in the eastern and southern parts of the country.⁹

In the eight provinces in the east and north-east of Cambodia, where most of the CMR are concentrated, the Norwegian People's Aid (NPA)/Cambodian Mine Action Centre (CMAC) partnership project had completed the BLS in seven eastern provinces (Kampong Cham, Kratié, Modulkiri, Ratanakiri, Stung Treng, Svay Rieng, and Tboung Khmum) and the resulting BLS reports were in the process of being added to the national database. The NPA/CMAC project had aimed to complete the BLS in Prey Vang province by the end of 2020, but the impact of COVID-19 has meant that it will not be completed before the end of February 2021.¹⁰

Furthermore, the BLS historically employed a landmine survey methodology. Non-technical survey applied during the BLS was sometimes limited in scope and therefore failed to comprehensively or accurately take into consideration all CMR evidence. Empirical evidence of the inaccuracy of SHA polygons generated from the BLS has been demonstrated in a number of instances during subsequent clearance of BLS-generated polygons. The BLS often resulted in inflated polygons, containing large amounts of uncontaminated land. In other cases, the polygons cleared are far larger than the original SHA polygons recorded during BLS. Furthermore, there are numerous examples of explosive ordnance disposal (EOD) reports of CMR in Ratanakiri province in areas already surveyed as part of the BLS and in which no SHAs were generated as part of the BLS process.¹¹

NPA emphasised that as the BLS only generates SHAs, extensive technical survey will be required in all eastern provinces to more accurately determine the extent and location of CMR contamination and to identify CHAs for clearance.¹² Similarly, Mines Advisory Group (MAG) believes that a more comprehensive and systematic survey, appropriate to CMR and incorporating best practice from across the region, is required to better determine the scale of the CMR problem. Any such process should use the data generated through the BLS as a point of departure and must be evidence-based.¹³ Standards for Cluster Munition Remnants Survey (CMRS) methodology in Cambodia were endorsed in November 2019 and applied from the start of January 2020.

A backlog of CMAC data for entry into the national database has also impacted the results of the BLS, but is in the process of being resolved. CMAC, with support from NPA, is working to upload over 5,000 records onto the national database. As at July 2019, a total of 86% of the backlog had been uploaded and efforts were ongoing in 2020. The remaining records are EOD tasks conducted by CMAC in eastern Cambodia that are missing supporting documentation. CMAC and CMAA are in the process of working out how this data will be reported and entered.¹⁴

Table 1: Cluster munition-contaminated area by province (at end 2019)¹⁵

Province	CHA	Area (m ²)	SHA	Area (m ²)
Battambang	0	0	1	26,872
Kampong Cham	34	5,795,141	216	44,378,487
Kampong Chhnang	0	0	22	3,515,933
Kampong Speu	0	0	85	12,366,578
Kampong Thom	0	0	341	59,063,686
Kampot	0	0	2	103,392
Kandal	0	0	56	5,525,570
Kratié	93	25,939,397	161	55,150,986
Monduliri	0	0	37	19,851,804
Phnom Penh	0	0	17	1,512,696
Preah Sihanouk	0	0	14	2,984,350
Preah Vihear	0	0	45	177,054,294
Prey Veng	34	6,665,072	82	16,393,245
Ratanakiri	70	10,131,073	187	49,447,318
Stung Treng	20	3,860,097	170	126,764,747
Svay Rieng	38	7,788,260	178	42,132,121
Takeo	0	0	10	1,973,835
Tboung Khmum	85	17,361,723	124	20,264,446
Totals	374	77,540,763	1,748	638,510,360

OTHER EXPLOSIVE REMNANTS OF WAR AND LANDMINES

Cambodia estimated that in 2018 it had around 468km² of ERW contamination apart from CMR.¹⁶ ERW contamination, including air-dropped bombs and ground artillery, is heaviest in the eastern provinces. Cambodia also has an estimated 817km² of anti-personnel mine contamination concentrated in, though not limited to, west and north-west Cambodia (see Mine Action Review's *Clearing the Mines 2020* report on Cambodia for further information).

NATIONAL OWNERSHIP AND PROGRAMME MANAGEMENT

The CMAA was established by royal decree in 2000 with the mandate to regulate, monitor and coordinate the mine action sector in Cambodia.¹⁷ It has been reported that the CMAA has strengthened over the recent years, with roles and responsibilities more clearly defined.¹⁸ The Cambodian Mine Action Centre (CMAC) was established in 1992. Before the existence of the CMAA, CMAC had the responsibilities to regulate and coordinate the sector as well as undertake clearance. Since 2000, CMAC's activities have been limited to conducting demining, risk education, and training.¹⁹ CMAC

conducts both humanitarian and commercial survey and clearance in Cambodia and is the country's largest mine action operator.²⁰

Provincial Mine Action Committees (PMACs) and Mine Action Planning Units (MAPUs) were established in 2004, tasked with establishing clearance priorities in consultation with affected communities to ensure that clearance addresses their housing, agricultural, and infrastructure needs.²¹ MAPU planning and prioritisation units meet regularly with all mine action operators to plan annual mine action activities.²²

The Cambodian government established the Technical Working Group on Mine Action (TWG-MA) as a consultative mechanism between the government and implementing partners.²³ It meets on a bi-annual basis and is attended by the CMAA, relevant ministries, operators, and donors.²⁴ The Mine Action Coordination Committee (MACC) and several Technical Reference Groups (TRGs) have been established by the CMAA to facilitate coordination and feedback at a strategic and technical level in areas such as survey and clearance, risk education, victim assistance, information management, gender, and capacity development.²⁵ The TRG on survey and clearance meets on a quarterly basis.²⁶ During a TRG meeting in March 2020, clearance operators proposed the creation of a separate TRG for the survey and clearance of CMR, which was agreed by the CMAA.²⁷ The CMAA subsequently established a TRG on CMR survey and clearance to share best practice among operators and address challenges related to the CMRS process. The first meeting of the newly formed TRG was scheduled for October 2020.²⁸

The operating environment in Cambodia is permissive, with the Cambodian government open to the presence of international operators and supportive in administrative actions such as the granting of visas, approval of Memoranda of Understanding (MoUs), and importation procedures. The CMAA is open to the trialling and use of innovative clearance methods and tools to improve efficiency.²⁹

The UN Development Programme (UNDP), NPA, and the Geneva International Centre for Humanitarian Demining (GICHD) all support capacity development of the CMAA. NPA, as part of a United Kingdom Department for International Development (DFID)-funded partnership that includes MAG and The HALO Trust, focuses on information management, planning and prioritisation, gender mainstreaming, quality management, and strategic planning.³⁰

The GICHD provides information management and risk management support to the CMAA. In 2019, GICHD support to capacity development included stakeholder workshops on the IMSMA Core migration; initial development of the new database; support on developing residual capacity in line with Cambodia's mine action strategy; and workshops on risk management and national mine action standard (NMAAS) development.³¹

The Cambodian government contributes funding towards clearance and the management of the sector,³² which includes covering expenses of the CMAA in 2019 and providing funds to support planning and prioritisation, quality assurance/quality control (QA/QC), database management, Cambodia mine victim information service (CMVIS), and risk education activities.³³ The cost of the database unit is, however, shared by NPA and UNDP.³⁴ The Cambodian government also provides a 10% in-kind contribution to any new donor funding.³⁵ From 2010 to 2018, the Cambodian government has reported contributing just under 30% of the total funding to the mine action sector (US\$99.49 million of US\$340.2 million).³⁶ Cambodia funds mine and ERW clearance by CMAC and the National Centre for Peacekeeping Forces Management, Mines and Explosive Remnants of War Clearance (NPMEC) in support of infrastructure development.³⁷ Indirectly, tax exemptions on mine action equipment have contributed to humanitarian demining.³⁸ Cambodia has reported that it will need an estimated \$118.9 million for CMR clearance in 2020–25.³⁹

Cambodia is not yet a State Party to the CCM but made accession by 2020 a goal of the National Mine Action Strategy 2018–2025.⁴⁰ In April 2019, the CMAA stated that the Cambodian government was ready to accede to the CCM, but “for security reasons” is not willing to do so until other countries in the region also accede.⁴¹

GENDER AND DIVERSITY

The CMAA has developed a Gender Mainstreaming in Mine Action Plan (GMAP 2018–2022), an objective of the National Mine Action Strategy 2018–2025, which consists of six goals. These include:

- Preparation of guidelines to aid gender mainstreaming across all mine action
- Capacity building of relevant stakeholders to implement the GMAP 2018–2022
- Female representation and participation in planning and prioritisation, risk education, and in mine action and advocacy at all levels.

The Three-Year Implementation Plan 2018–2020 sets out activities in support of these goals.⁴² NPA, as part of its capacity development, is supporting the CMAA with training on gender mainstreaming in mine action, on implementation of the GMAP 2018–22 and the development of associated guidelines, and on how to use gender- and age-disaggregated data in planning and prioritisation processes.⁴³ Guidelines for gender mainstreaming in mine action were approved in December 2019. Trainings were provided to MAPU and quality management team (QMT) staff on the new guidelines, as well as on implementation of the GMAP 2018–22.⁴⁴ Sex and age disaggregated data (SADD) has been integrated in all reporting forms, which can help inform planning, prioritisation, risk education, and advocacy.⁴⁵ Furthermore,

the GICHD conducted a gender and diversity baseline assessment of the CMAA in 2019 and has a joint action plan to support gender and diversity mainstreaming efforts for the remainder of the GMMAP strategy period.⁴⁶

A CMAA Gender Mainstreaming Team (GMT) was established to coordinate with the TRG on Gender (TRGG), one of five TRGs ensuring coordination of the sector. The TRGG is composed of representatives from UNDP, Ministry of Women's Affairs (MoWA), Ministry of Social Affairs, Veterans and Youth Rehabilitation (MoSVY), MAPU, operators, and international and national organisations working in mine risk education (MRE) and victim assistance (VA).⁴⁷ Of CMAA's employees, 23% are female, but only 5% of managerial/supervisory level positions are held by women. Overall in the mine action sector in Cambodia, 876 (25%) of the 3,446 staff are female, an increase from the 15% of women staff in 2015.⁴⁸

Survey and community liaison teams are said to be inclusive and mixed gender. Women are given access to job announcements and female candidates are given priority during the recruitment process. Women and children in affected communities are consulted during village meetings and community liaison activities, including regarding prioritisation. This commitment is reinforced by the demand for all reporting forms to have SADD and by the provision of training to MAPU and QMT staff.⁴⁹

CMAC says it provides equal employment opportunities to both men and women. As at May 2020, women made up 12.5% of CMAC's workforce. CMAC operates in accordance with Cambodian Labour Law and is actively recruiting women to reach 15% female employment. Women currently work across all levels of the organisation, including in managerial level/supervisory positions. Two of the six directors were women.⁵⁰

During non-technical survey and pre-clearance impact assessments, MAG deploys mixed-gender community liaison teams to gather information on the suspected location of mines and the impact on the community. In its survey and clearance teams, 42% of staff are women as are 24% of their managerial level/supervisory positions.⁵¹ MAG planned to conduct a detailed gender analysis in 2020, at both the programming and organisational level, in order to promote meaningful gender equity and mainstreaming, and ensure an increased proportion of women in operational supervisory and management roles within the programme.⁵²

NPA takes the needs of women and children in communities affected by CMR-contaminated areas, into account in the prioritisation, planning, and tasking of its survey and clearance activities. It is working towards achieving gender equality in Cambodia both in the composition of its survey and clearance teams and in the consultation of all groups affected by CMR contamination.⁵³ Overall, 53% of NPA's employees in Cambodia are women, including 60% of operational staff and 65% of managerial level/supervisory positions.⁵⁴

According to CMAA data, as at March 2019, NPMEC had a total of 294 employees (290 operational), all of whom were men.⁵⁵

All international operators in Cambodia disaggregate relevant mine action data by gender and age.

INFORMATION MANAGEMENT AND REPORTING

The CMAA upgraded to the Information Management System for Mine Action New Generation (IMSMA NG) in 2014. As at June 2020, the CMAA was in the process of upgrading its information management system to IMSMA Core.⁵⁶ As part of this process, a significant backlog of data was resolved in 2019/20, before migration of existing data to IMSMA Core could begin in earnest. International Mine Action Standards (IMAS) minimum data requirements will be incorporated as Cambodia migrates to IMSMA Core.⁵⁷

The CMAA's database unit (DBU) is responsible for collecting, storing, analysing and disseminating data in support of planning and prioritisation.⁵⁸ Improvements to information management are ongoing in Cambodia,⁵⁹ and include the development of tools to allow for mobile data collection in the field and which allow MAPUs and QMTs to make online data entries and verify data submitted by operators.⁶⁰

Strengthening the national information management system for mine action is an objective of the National Mine Action Strategy 2018–25.⁶¹ NPA has been conducting capacity development activities with the CMAA under a DFID consortium project.⁶² This included introduction of a web-based application for MAPUs to enable better prioritisation of the tasks for operators' annual work-plans, which is expected to increase the effectiveness of mine clearance across the sector in Cambodia.⁶³ It also included the development of an NMAS on information management. Regular TRG meetings are held with operators to share progress and challenges.⁶⁴ As part of an information management capacity assessment of the CMAA's DBU, operators (CMAC, HALO, and MAG) agreed that data collection forms are consistent.⁶⁵

The CMAA shares all available data with operators on a monthly basis. In 2018, the DBU set up a virtual private network (VPN), which allows operators to send their daily data input directly into the DBU IMSMA database. The DBU controls the quality of all submitted reports and approves them via this online network.⁶⁶ According to non-governmental organisation (NGO) operators, the CMAA has issued clear directives on the submission of data via VPN into the CMAA IMSMA system.⁶⁷

CMAA have introduced a new reporting form following the endorsement of the national standard on CMRS in November 2018.⁶⁸ The new reporting form, the CMTS, in conjunction with the standard, should aid the improvement of both the effectiveness of the CMRS and the reporting of the survey results to the national database.⁶⁹

Between August and December 2019, NPA/CMAC deployed 11 BLS teams in the eastern provinces, creating a huge number of records. Due to lack of capacity, there had been a delay in entry of the BLS reports into the national database, but NPA confirmed in September 2020 that the backlog of 2019 had been resolved and data entry of records for 2020 was ongoing.⁷⁰

As mentioned previously, issues remain with the accuracy of historical information on CMR contamination data, collected under the BLS.⁷¹

PLANNING AND TASKING

Cambodia's National Mine Action Strategy 2018–2025 was officially launched in May 2018 with eight goals for clearance of mines, CMR, and other ERW. It includes targets for tackling CMR contamination as the second of its eight goals. It called for "release of prioritised cluster munition-contaminated areas of 43.4km² of total 130.2km² by 2025" and specified two CMR-related objectives:⁷²

- Plan and prioritise CMR-contaminated areas to be released
- Conduct survey and release confirmed areas of CMR contamination, develop national standards for survey and clearance, implement the CMRS methodology and increase survey and clearance capacity.

The accompanying Three-Year Implementation Plan 2018–20 sets out the activities and indicators that will need to be completed in order to meet these goals and objectives. This includes the development of the planning and prioritisation guidelines on CMR which were finalised by the CMAA in 2018, although according to operators, they lack clarity and are not systematically applied.⁷³

Since March 2018, the CMAA, NPA, and CMAC have been working together as part of a United States (US)-funded project to define and draft a comprehensive plan, that references the Cambodian National Mine Action Strategy 2018–2025, to make eight targeted provinces in eastern Cambodia free from the humanitarian impact of ERW, including CMR.⁷⁴ The significant deployment of BLS teams in 2019 and early 2020 was expected to contribute to more accurate data on the scope of CMR contamination and to inform the third draft of the work plan.⁷⁵ The third work plan was elaborated in July 2020, with a long-term objective of reducing the effects of landmines, CMR, and other ERW to a level requiring a reactive response capacity only. Specific objectives include resolving data backlogs; completing the BLS in districts allocated by the CMAA to CMAC/NPA; capacity building of CMAC staff to conduct

updated CMRS methodology and conduct CMRS in target provinces; and to release prioritised CMR-contaminated areas.⁷⁶

The CMAA maintains the annual national clearance work plan made up of all the provincial clearance work plans. MAPUs are responsible for developing their own work plans in accordance with the planning and prioritisation guidelines. The PMACs approve the MAPU's work plans, which are then endorsed by the CMAA. The MAPUs use the provincial work plan to monitor clearance performance and report progress to the PMAC and the CMAA.⁷⁷

The current planning and prioritisation practices in Cambodia follow a combination of top-down and bottom-up approaches. The top-down approach involves CMAA establishing a list of priority villages based on agreed criteria. The bottom-up approach involves MAPUs coordinating at the provincial level to develop a clearance list, again, using agreed criteria.⁷⁸

However, the prioritisation process for the selection of CMR tasks is not as well established as the prioritisation process for mined areas, largely due to the absence of comprehensive, verifiable CMR data. Task prioritisation begins with the MAPU as part of the annual work plan development process. Although the exact prioritisation criteria are not as well defined for CMR clearance as they are for landmine clearance, the process typically works as follows: consultation with village leaders > commune workshop > SHA reconnaissance > SHA prioritisation > district workshop > provincial workshop > work plan finalisation.⁷⁹ The end use for most clearance tasks is agriculture and often the land is already being cultivated regardless of CMR contamination. This makes it difficult to produce clear prioritisation criteria, so the survey and the clearance plan is based on village-by-village, commune-by-commune, and district-by-district approaches.⁸⁰

According to NGO operators, survey and clearance task dossiers are issued in a timely and effective manner.⁸¹

LAND RELEASE SYSTEM

STANDARDS AND LAND RELEASE EFFICIENCY

Mine action is conducted according to Cambodian Mine Action Standards (CMAS), which are broadly consistent with IMAS and enable evidence-based land release efforts and do not impede any activities.⁸²

The CMAA approved the CMRS methodology in principle in 2017 and signed a national mine action standard for CMRS (CMAS-16) in November 2018, which is being implemented by operators.⁸³ CMAS-16 is based on the experience of other programmes implementing the CMRS method across the region. Implementation of CMAS-16 began in January 2019 and is ongoing.

The CMAA has agreed that operators can apply evidence-based technical survey to SHA polygons generated through the BLS, which are often inflated, in order to reduce the area and ensure a more efficient use of resources.⁸⁴ Previously, operators were expected to fully clear the entire BLS polygon regardless of whether technical survey had defined a much smaller CHA within the original SHA. The CMRS methodologies were to be further discussed

during a US-funded regional CMRS workshop in August 2019.⁸⁵ The CMAA said that while no changes were made to CMRS methodology in 2019, it will consider reviewing methodology.⁸⁶ It is expected that further modifications to standards and methodology relating to CMR will be discussed through the CMR-specific TRG on survey and clearance.⁸⁷

In 2019–21, the CMAA, with support from NPA with DFID funding and in consultation with other mine clearance operators, is in the process of developing new standards.⁸⁸ New standards on animal detection, mechanical demining, information management, and the environment were elaborated in 2019,⁸⁹ although final copies of all standards had not yet been shared with operators as at April 2020.⁹⁰ National standards on explosive ordnance risk education (EORE), accreditation of demining organisations and licensing of operations and on the monitoring of demining organisations were still in progress as at June 2020,⁹¹ as well as planned review of the BLS and land release chapters in 2021–22.⁹²

National standards are reflected in operators' standing operating procedures (SOPs).⁹³ Updates to the SOPs are conducted as and when required, such as when a need is identified through the CMAA-led TRG which has been the case for standards relating to landmines and is expected to be the case also for those relating to CMR. Reviews are conducted in consultation with all operators, and against IMAS and best practice.⁹⁴ A comprehensive review of CMAS in 2020 was mooted; this was also referenced in the National Strategy.⁹⁵

OPERATORS AND OPERATIONAL TOOLS

CMR clearance in 2019 was undertaken by national operators, CMAC and Cambodian Self-help Demining (CSHD), and international operators MAG and NPA (see Table 2).

Table 2: Operational CMR clearance capacities deployed in 2019⁹⁶

Operator	Manual teams	Total clearance personnel	Animal detection capacity	Machines	Comments
CMAC	12	100	4 dogs (10 handlers)	1	
CSHD	1	15	0	0	
MAG	5	47	0	0	Excludes one team leader, one deputy team leader, and one medic per team, plus operational supervisory/ managerial staff. Excludes MAG's roving EOD capacity.
NPA	2	5	4	0	Two manual teams of five staff, with two explosive detection dogs (EDDs) in each team.
Totals	20	167	8 dogs	1	

With regard to survey capacity, CMAC had 11 non-technical survey teams, totalling 44 survey personnel and four technical survey teams totalling 16 personnel;⁹⁷ MAG had two non-technical survey teams, totalling four survey personnel and one technical survey team, of ten survey personnel;⁹⁸ and NPA had one non-technical survey team, with four survey personnel and two technical survey teams, totalling eight survey personnel.⁹⁹

NPA and CMAC have an ongoing CMR survey and clearance partnership project in eastern Cambodia targeting the seven provinces in the east of the country (Kampong Cham, Tbong Khmum, Pre Veng, Svay Rieng, Kratie, Stung Treng and Modulkiri) which are believed to account for most of the CMR contamination. Under this project CMAC Demining Unit 5 (DU5) teams conduct CMRS and clearance while NPA is providing mentoring and monitoring of all aspects of the project. In addition, CMAC conducts EOD with one team based in Takeo province (mainly working around Takeo and Kandal provinces around Phnom Penh, but sometimes further afield). CMAC's DU5 (191 CMAC staff) has been fully supported by NPA since 2014 with funding from the United States.¹⁰⁰ The objectives of the project were to resolve the CMAC data backlog, complete baseline survey in the remaining districts allocated to NPA/CMAC, develop the capacity of CMAC staff to conduct CMRS in the targeted provinces, and to release prioritised CMR contaminated areas in the targeted provinces.¹⁰¹

In 2018, with regard to both mine and ERW survey capacity, CMAC deployed 25 non-technical survey personnel across five teams, but there had been no plans to deploy non-technical survey teams in 2019. CMAC also deployed

a total of 202 technical survey personnel across 30 teams of between five and seven staff each. In 2019, the number of technical survey personnel was due to increase to 231 across 37 teams.¹⁰² CMAC also employs explosive detection dogs as the primary clearance tool for CMR-contaminated areas while machines provide support for field preparation and brush-cutting. In 2019, a pilot was planned for dogs to also conduct CMRS,¹⁰³ but no data were made available on whether CMAC conducted the pilot. Data on CMAC's capacity in 2019 was not provided upon request.

As well as having its main operational base in the west of the country focused on minefield survey and clearance, MAG also has an operations base in Ratanakiri province concentrating on CMR survey and clearance. MAG uses the data from EOD tasks to plot initial CHAs using its Evidence Point Polygon (EPP) mapping approach pioneered in the Lao People's Democratic Republic.¹⁰⁴ MAG also continues to trial advanced detection systems for CMR survey and clearance, provided by the US Humanitarian Demining Research and Development programme, and uses drones to conduct non-technical survey, task planning, and post-impact monitoring.¹⁰⁵

NPA conducted a successful trial of explosive detection dogs (EDDs) for technical survey in 2018, and did not deploy EDDs for technical survey of CMR in 2019.¹⁰⁶ NPA deploys drones for aerial mapping of both technical survey and BAC tasks. Drones are also used during EOD tasks and for quality assurance. NPA has also been conducting field tests of all-terrain vehicles (ATVs) and have found them particularly useful in transporting personnel and EDDs in hard to reach areas.¹⁰⁷

LAND RELEASE OUTPUTS AND PROGRESS TOWARDS COMPLETION

LAND RELEASE OUTPUTS IN 2019

Based on data provided by the CMAA, in 2019, clearance operators in Cambodia cleared a total of over 25.2km² of CMR-contaminated area, destroying 5,749 submunitions in the process. A further 2,718 submunitions were destroyed during EOD spot tasks.

A total of more than 33.3km² was confirmed by operators through technical survey in 2019, while nearly 4.5km² was reduced from the baseline survey through technical survey.

SURVEY IN 2019

In 2019, CMAC, MAG, and NPA confirmed nearly 33.32km² as containing CMR (see Table 4), an increase on the 26.5km² of CMR-contamination confirmed through technical survey in 2018. In addition, almost 4.48km² of CMR-contaminated area was reduced through technical survey, primarily by CMAC (see Table 3). This represents a decrease compared to 2018, when 8.2km² was reduced.

MAG surveyed significantly more CMR-suspected area in 2019, compared to 2018, due to a dedicated CMRS team established in October 2018.¹⁰⁸

CLEARANCE IN 2019

In 2019, more than 25.23km² of CMR-contaminated area was cleared by CMAC, CSHD, MAG, and NPA (see Table 5). This is a marked reduction on the equivalent 39.6km² cleared in 2018. According to the CMAA, several reasons help to explain for the decrease in the amount of land released in 2019 compared to the previous year. These include the lack of area meeting the criteria for priority clearance; high mineral content, as well as high degrees of clutter and complexity in clearance tasks; training to enhance staff capacity; and considerable movement between task sites.¹⁰⁹ These raise considerable concern about priority setting and tasking in Cambodia.

Table 3: CMAA data on area of CMR-contaminated area reduced through technical survey in 2019^{110*}

Operator	Area reduced from BLS (m ²)
NPA	75,171
MAG	203,367
CMAC	4,197,924
Totals	4,476,462

* Submunitions destroyed during technical survey are included in the clearance table.

Table 4: CMR-contaminated area surveyed and confirmed through technical survey in 2019^{111*}

Operator	Area surveyed (m ²)	Area confirmed (m ²)
CMAC	31,535,394	26,760,654
MAG	1,237,512	1,703,155
NPA	6,010,000	4,855,536
Totals	38,782,906	33,319,345

* Submunitions destroyed during technical survey are included in the clearance table.

Table 5: CMR clearance in 2019¹¹²

Operator	Province	Area cleared (m ²)	Submunitions destroyed*	Other UXO destroyed
CMAC	Kampong Cham	4,065,186	1,197	131
CMAC	Kampong Thom	529,114	135	19
CMAC	Kratié	2,547,552	490	59
CMAC	Mondulkiri	1,183,111	280	16
CMAC	Prey Veng	2,922,381	425	230
CMAC	Stung Treng	2,100,097	461	2,565
CMAC	Svay Rieng	3,879,872	756	2,613
CMAC	Tboung Khmum	3,732,056	983	173
CSHD	Kampong Thom	576,778	90	56
MAG	Ratanakiri	2,655,961	551	10
NPA	Ratanakiri	1,039,494	381	1
Totals		25,231,602	5,749	5,873

* Includes submunitions destroyed during technical survey.

According to CMAA, during EOD spot tasks in 2019, a further 2,718 submunitions were destroyed: 261 by CMAC; 3 by CSHD; 2,147 by MAG; 252 by NPA; and 55 by the HALO Trust.¹¹³

MAG's clearance output increased in 2019, compared to the previous year, due to one additional clearance team deployed from late 2018.¹¹⁴ CMR were found in all MAG's clearance tasks completed through standard tasking processes. MAG also cleared five emergency tasks at the request of the government (4 x health centres, 1 x cemetery) where no items were found, with a total area of 59,794m².¹¹⁵

PROGRESS TOWARDS COMPLETION

Cambodia has committed to address 80% of the total known CMR contamination by 2025: 499km² of an estimated total of 645km² in the National Mine Action Strategy 2018–2025. The remaining 20% of CMR will be categorised as “residual” contamination and dealt with accordingly. To reach the clearance goal, Cambodia planned to release 62km² every year from 2018 to 2025, of which 30% would be through land reclamation/cancellation and the remaining 70% through land release methodology. Based on this analysis, Cambodia calculated that approximately 44km² will need to be released annually through technical survey and full clearance. From 2014 to 2016, Cambodia released an average of 11km² per year through technical survey and clearance, but it expected to achieve vastly increased clearance output through improved land release methodology, innovative technology, and animal detection systems.¹¹⁶

The implementation of CMRS should mean that operators are more effective in their approach and focus clearance on CHAs while reducing SHAs through technical survey. However, the CMAA will need to ensure that the standard is being applied consistently by all operators and in the most efficient and effective way possible.

PLANNING FOR RESIDUAL RISK AFTER COMPLETION

Goal seven of Cambodia's National Mine Action Strategy 2018–2025 is to establish a sustainable national capacity to address residual threats after 2025. Reference to the issue is also included in the foreword signed by the Cambodian Prime Minister and noted throughout the document. Objectives include reviewing by 2020 the legal, institutional, and operational framework, strategy, and capacity needed to address the residual threats.¹¹⁷

In Phase I (2018–22) of the national strategy Cambodia planned to “develop a comprehensive residual threats strategy; establish a residual threat legal and institutional framework; and establish residual threats regulatory and operational frameworks including coordination, planning, and prioritisation, and sustained information management system”. In Phase II (2023–25), Cambodia plans to “develop residual threat capacity in preparation to transition from the traditional mine action program; determine resource mobilisation schemes to support the development of residual threat capacity and its future activities; and to conduct post-programme evaluation of achievements and outcomes after the conclusion of the strategy in 2025 to evaluate performance, lessons learned, recommendations for efficiencies and improvements in any remaining mine action”.¹¹⁸

In 2018, the GICHD presented a case study on the Management of Residual ERW in Cambodia, and hosted a Long-Term Risk Management workshop and an exchange visit between the CMAA and the national mine action centre in Sri Lanka.¹¹⁹

The CMAA has said it is likely that the Royal Cambodian Army will be tasked with addressing explosive threats after 2025.¹²⁰

Operators believe that the establishment of a residual-risk-management framework will be essential to define and manage the long-term risk posed by CMR.¹²¹

- 1 South East Asia Air Sortie Database, cited in D. McCracken, "National Explosive Remnants of War Study, Cambodia", NPA in collaboration with CMAA, Phnom Penh, March 2006, p. 15; Human Rights Watch, "Cluster Munitions in the Asia-Pacific Region", April 2008; and Handicap International (HI), *Fatal Footprint: The Global Human Impact of Cluster Munitions*, HI, Brussels, November 2006, p. 11.
- 2 Email from Ros Sophal, Database Unit Manager, on behalf of Prum Sophakmongkol, Director, CMAA, 6 September 2020.
- 3 CMAA, National Mine Action Strategy 2018–2025, p. 9.
- 4 Anti-Personnel Mine Ban Convention (APMBC) Article 5 deadline Extension Request, 27 March 2019, p. 36; and interview with Prum Sophakmonkol, CMAA, Phnom Penh, 24 April 2019.
- 5 Email from CMAA, 22 May 2018.
- 6 APMBC Article 5 deadline Extension Request, 27 March 2019, p. 21.
- 7 Emails from Prum Sophakmonkol, CMAA, 1 July 2020; and Ros Sophal, on behalf of Prum Sophakmongkol, 6 September 2020.
- 8 Email from Rebecca Letven, Country Director, MAG, 7 April 2020.
- 9 Email from Lasha Lomidze, Country Director, HALO Trust, 15 May 2020.
- 10 Emails from Zlatko Vezilic, Programme Manager, NPA, 19 March 2020; and Portia Stratton, Programme Manager, NPA, 4 September 2020.
- 11 Emails from Rebecca Letven, MAG, 7 April and 4 September 2020.
- 12 Email from Zlatko Vezilic, NPA, 19 March 2020.
- 13 Email from Rebecca Letven, MAG, 7 April 2020.
- 14 Emails from Zlatko Vezilic, NPA, 4 April, 25 June, 10 July 2019, and 19 March 2020; and interview with Prum Sophakmonkol, CMAA, Phnom Penh, 24 April 2019.
- 15 Email from Ros Sophal, on behalf of Prum Sophakmongkol, CMAA, 6 September 2020.
- 16 APMBC Article 5 deadline Extension Request, 27 March 2019, p. 6.
- 17 CMAA, "Legal framework and mandate", at: bit.ly/2W7r3dJ.
- 18 Interviews with Su Yeon Yang, and Tong Try, UNDP, 23 April 2019; and Rebecca Letven, MAG, Phnom Penh, 25 April 2019.
- 19 CMAC, "20 Years' Achievement in Mine Action 1998-2018 and Path Ahead", 2018.
- 20 Interview with Heng Rattana, Director General, CMAC, Phnom Penh, 25 April 2019.
- 21 GICHD, "Landmines and Land Rights in Cambodia", December 2010, pp. 9 and 13.
- 22 Email from Zlatko Vezilic, NPA, 5 May 2020.
- 23 CMAA, National Mine Action Strategy 2018–2025, p. 24; and email from Tong Try, UNDP, 18 June 2019.
- 24 Emails from Prum Sophakmonkol, CMAA, 1 July 2020; Rebecca Letven, MAG, 7 April 2020; and Zlatko Vezilic, NPA, 5 May 2020.
- 25 CMAA, National Mine Action Strategy 2018–2025, p. 24; and email from Tong Try, UNDP, 18 June 2019.
- 26 Email from Zlatko Vezilic, NPA, 5 May 2020.
- 27 Emails from Portia Stratton, NPA, 4 September 2020; and Ros Sophal, on behalf of Prum Sophakmongkol, CMAA, 6 September 2020.
- 28 Emails from Ros Sophal, CMAA, 25 September 2020; Rebecca Letven, MAG, 27 September 2020; and Rune Dale-Andresen, NPA, 29 September 2020.
- 29 Emails from Zlatko Vezilic, NPA, 4 April 2019; Rebecca Letven, MAG, 9 May and 28 June 2019; and Damian O'Brien, HALO Trust, 10 April 2019.
- 30 Email from Zlatko Vezilic, NPA, 4 April 2019.
- 31 Email from GICHD, 1 July 2020.
- 32 APMBC Article 5 deadline Extension Request, 27 March 2019, p. 12.
- 33 Email from Prum Sophakmonkol, CMAA, 1 July 2020.
- 34 Email from Rune Dale-Andresen, Country Director, NPA, 26 September 2020.
- 35 Email from Ros Sophal, on behalf of Prum Sophakmongkol, CMAA, 6 September 2020.
- 36 APMBC Article 5 deadline Extension Request, 27 March 2019, p. 6.
- 37 Email from Prum Sophakmonkol, CMAA, 1 July 2020.
- 38 Emails from Prum Sophakmonkol, CMAA, 11 September 2019; Rebecca Letven, MAG, 7 April 2020; and Lasha Lomidze, HALO Trust, 15 May 2020.
- 39 APMBC Article 5 deadline Extension Request, 27 March 2019, p. 55.
- 40 National Mine Action Strategy 2018–2025, p. 13.
- 41 Interview with Prum Sophakmonkol, CMAA, Phnom Penh, 24 April 2019.
- 42 CMAA, Three-Year Implementation Plan 2018–2020, Phnom Penh, undated but 2018, p. 14.
- 43 DFID Capacity Development Report, Activity Detail Extract, 18 September 2018.
- 44 Emails from Prum Sophakmonkol, CMAA, 1 July 2020; and Zlatko Vezilic, NPA, 19 March 2020.
- 45 Ibid.
- 46 Email from Arianna Calza Bini, Head of GMAP division, GICHD, 7 September 2020.
- 47 CMAA, National Mine Action Strategy 2018–2025, p. 22.
- 48 Email from Prum Sophakmonkol, CMAA, 1 July 2020.
- 49 Ibid.
- 50 CMAC, "20 Years' Achievement in Mine Action 1998-2018 and Path Ahead", 2018; interview with Heng Rattana, CMAC, Phnom Penh, 25 April 2019; and email from Oum Phumro, Deputy Director General, CMAC, 28 July 2020.
- 51 Email from Rebecca Letven, MAG, 7 April 2020.
- 52 Ibid.
- 53 Email from Zlatko Vezilic, NPA, 4 April 2019.
- 54 Email from Zlatko Vezilic, NPA, 19 March 2020.
- 55 APMBC Article 5 deadline Extension Request, Additional Information, undated but August 2019, Annex 18.
- 56 Emails from Prum Sophakmonkol, CMAA, 1 July 2020; and GICHD, 1 July 2020.
- 57 Email from GICHD, 1 July 2020.
- 58 CMAA, National Mine Action Strategy 2018–2025, p. 22.
- 59 Email from Zlatko Vezilic, NPA, 5 May 2020.
- 60 Email from Prum Sophakmonkol, CMAA, 1 July 2020.
- 61 CMAA, National Mine Action Strategy 2018–2025, pp. 14–15.
- 62 Emails from Rebecca Letven, MAG, 7 April 2020; and Lasha Lomidze, HALO Trust, 15 May 2020.
- 63 Email from Lasha Lomidze, HALO Trust, 15 May 2020.
- 64 Email from Rebecca Letven, MAG, 7 April 2020.
- 65 Email from Zlatko Vezilic, NPA, 5 May 2020.
- 66 Email from Rebecca Letven, MAG, 9 May 2019; and interview with Prum Sophakmonkol, CMAA, Phnom Penh, 24 April 2019.
- 67 Email from Rebecca Letven, MAG, 7 April 2020.
- 68 Emails from Zlatko Vezilic, NPA, 4 April 2019; and Rebecca Letven, MAG, 9 May 2019.
- 69 Email from Zlatko Vezilic, NPA, 2 July 2019.
- 70 Emails from Zlatko Vezilic, NPA, 19 March 2020; and Portia Stratton, NPA, 4 September 2020.
- 71 Email from Rebecca Letven, MAG, 7 April 2020.
- 72 CMAA, National Mine Action Strategy 2018–2025, pp. 11–12.
- 73 Email from Rebecca Letven, MAG, 9 May 2019; and Skype interview with Fredrik Holmegaard, Operations Manager, NPA, 30 May 2019.
- 74 Email from Zlatko Vezilic, NPA, 25 June 2019.
- 75 Email from Zlatko Vezilic, NPA, 19 March 2020.
- 76 Email from Ros Sophal, on behalf of Prum Sophakmongkol, CMAA, 6 September 2020.
- 77 APMBC Article 5 Extension Request, 27 March 2019, p. 5.
- 78 Ibid., p. 8; and interviews with Prum Sophakmonkol, CMAA, Phnom Penh, 24 April 2018; and Geneva, 11 February 2020.
- 79 Emails from Rebecca Letven, MAG, 7 April and 4 September 2020.
- 80 Email from Zlatko Vezilic, NPA, 4 April 2019.
- 81 Email from Rebecca Letven, MAG, 7 April 2020.
- 82 Emails from Rebecca Letven, MAG, 7 April 2020; and Zlatko Vezilic, NPA, 19 March 2020.
- 83 Emails from Ros Sophal, on behalf of Prum Sophakmongkol, CMAA, 6 September 2020; and Portia Stratton, NPA, 4 September 2020.
- 84 Email from Rebecca Letven, MAG, 9 May 2019.
- 85 Email from Rebecca Letven, MAG, 28 June 2019.
- 86 Email from Ros Sophal, on behalf of Prum Sophakmongkol, CMAA, 6 September 2020.
- 87 Email from Rebecca Letven, MAG, 4 September 2020.
- 88 Email from Prum Sophakmonkol, CMAA, 11 September 2019; and Zlatko Vezilic, NPA, 4 April 2019.
- 89 Emails from Zlatko Vezilic, NPA, 5 May 2020; and Lasha Lomidze, HALO Trust, 15 May 2020.
- 90 Emails from Rebecca Letven, MAG, 7 April and 4 September 2020.

- 91 APMBC Article 5 deadline Extension Request, Additional Information, undated but August 2019, p. 1; and email from Zlatko Vezilic, NPA, 5 May 2020.
- 92 APMBC Article 5 deadline Extension Request, Additional Information, undated but August 2019, p. 1.
- 93 Emails from Zlatko Vezilic, NPA, 4 April 2019 and Rebecca Letven, MAG, 7 April 2020.
- 94 Emails from Rebecca Letven, MAG, 9 May 2019 and 4 September 2020; and Damian O'Brien, HALO Trust, 10 April 2019.
- 95 Email from GICHD, 1 July 2020.
- 96 Emails from Rebecca Letven, MAG, 7 April 2020; Rune Dale-Andresen, NPA, 26 September 2020; and Ros Sophal, on behalf of Prum Sophakmongkol, CMAA, 6 September 2020.
- 97 Email from Ros Sophal, on behalf of Prum Sophakmongkol, CMAA, 6 September 2020.
- 98 Email from Rebecca Letven, MAG, 7 April 2020.
- 99 Email from Zlatko Vezilic, NPA, 19 March 2020.
- 100 Email from Rune Dale-Andresen, NPA, 29 September 2020.
- 101 Skype interview with Fredrik Holmegaard, NPA, 30 May 2019; and emails from Prum Suonpraseth, CMAC, 21 June 2019; and Zlatko Vezilic, NPA, 2 July 2019.
- 102 Email from Prum Suonpraseth, CMAC, 21 June 2019.
- 103 Ibid.
- 104 Emails from Rebecca Letven, MAG, 9 May and 28 June 2019; and 4 September 2020.
- 105 Emails from Rebecca Letven, MAG, 9 May 2019 and 4 September 2020.
- 106 Email from Portia Stratton, NPA, 4 September 2020.
- 107 Email from Zlatko Vezilic, NPA, 4 April 2019.
- 108 Email from Rebecca Letven, MAG, 7 April 2020.
- 109 Email from Ros Sophal, on behalf of Prum Sophakmongkol, CMAA, 6 September 2020.
- 110 Emails from Ros Sophal, on behalf of Prum Sophakmongkol, CMAA, 6 September 2020; and Zlatko Vezilic, NPA, 19 March 2020. There was a discrepancy in the CMAA's data on area reduced through technical survey for MAG compared to the 226,118m² reported by MAG. Email from Rebecca Letven, MAG, 7 April 2020.
- 111 Emails from Portia Stratton, NPA, 24 September 2020 and Rebecca Letven, MAG, 23 September 2020. Data for CMAC related to the NPA-CMAC/DU5 project in Kampong Cham, Kratié, Monduliri, Prey Veng, Stung Treng, Svay Rieng and Tboung Khmum provinces were provided by NPA. Additionally 136,461,126m² was identified as SHA through BLS deployment. Email from Rune Dale-Andresen, NPA, 29 September 2020.
- 112 Ibid. There was a discrepancy in the clearance data reported by MAG in comparison to the clearance data reported by the CMAA for MAG. MAG reported clearing 2,604,732m², with the destruction of 366 submunitions and 1 other item of UXO during clearance and a further 114 submunitions and 40 items of UXO during technical survey. Emails from Rebecca Letven, MAG, 7 April and 7 and 23 September 2020. While the CMAA and NPA reported the same size of area cleared during 2019, NPA reported destroying 641 submunitions and 1 other item of UXO during clearance and a further 218 submunitions and 258 other items of UXO during technical survey. Emails from Portia Stratton, NPA, 24 September 2020; and Portia Stratton, NPA, 4 September 2020. There was also a discrepancy in the CMAC data related to the NPA-CMAC/DU5 project in Kampong Cham, Kratié, Monduliri, Prey Veng, Stung Treng, Svay Rieng and Tboung Khmum provinces provided by the CMAA (20,430,255m² cleared, with the destruction of 4,592 submunitions and 5,787 items of UXO) and the data for the NPA-CMAC/DU5 project provided by NPA directly (21,565,439m², with the destruction of 5,414 submunitions and 11,899 items of UXO). Email from Rune Dale-Andresen, NPA, 29 September 2020.
- 113 Email from Ros Sophal, on behalf of Prum Sophakmongkol, CMAA, 6 September 2020. There were discrepancies with EOD data as reported directly by MAG and NPA. MAG reported destroying 2,164 submunitions during spot tasks. Email from Rebecca Letven, MAG, 7 April 2020. NPA reported destruction of 40 submunitions. Emails from Zlatko Vezilic, NPA, 19 March 2020 and Portia Stratton, NPA, 24 September 2020.
- 114 Email from Rebecca Letven, MAG, 7 April 2020.
- 115 Ibid.
- 116 National Mine Action Strategy 2018–2025, pp. 9–10.
- 117 CMAA, National Mine Action Strategy 2018–2025, p. 14.
- 118 Ibid., p. 16.
- 119 Email from Rob White, Advisor, Strategic Management & Residual Contamination, GICHD, 3 July 2019.
- 120 APMBC Article 5 deadline Extension Request, Additional Information, undated but August 2019, p. 5.
- 121 Email from Rebecca Letven, MAG, 7 April 2020.