

ARTICLE 4 DEADLINE: 1 AUGUST 2025

LAO PDR WILL REQUIRE MULTIPLE EXTENSIONS BEFORE REACHING COMPLETION

KEY DATA

CLUSTER MUNITION CONTAMINATION: MASSIVE

NO RELIABLE ESTIMATE OF CLUSTER MUNITION CONTAMINATION

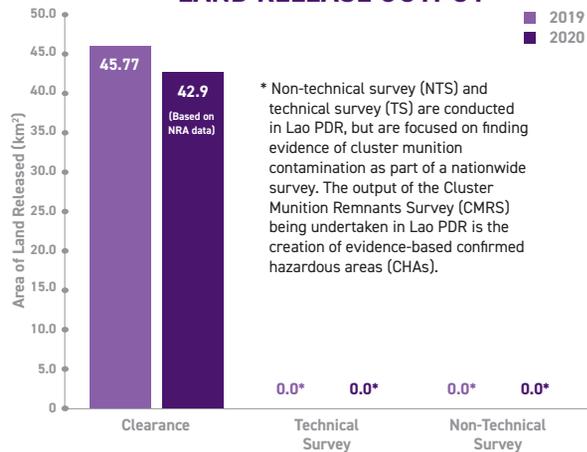
SUBMUNITION CLEARANCE IN 2020

42.90 KM² (BASED ON HUMANITARIAN CLEARANCE DATA THE NRA REPORTED TO MINE ACTION REVIEW)

SUBMUNITIONS DESTROYED IN 2020

71,235 (BASED ON CCM ARTICLE 7 REPORT)

LAND RELEASE OUTPUT



KEY DEVELOPMENTS

The national programme in the Lao People’s Democratic Republic (Lao PDR) continued to make solid progress in the destruction of cluster munition remnants (CMR) in 2020. However, the amount of confirmed hazardous area (CHA) confirmed through survey and the amount of cluster munition-contaminated area cleared, both decreased in 2020 compared to the previous year, according to the National Regulatory Authority (NRA). This is likely, in part, related to the impact of COVID-19 on operations.

In consultation with stakeholders, the NRA elaborated a sector-wide work plan for 2020, however the work plan was not then shared with operators. As at June 2021, the new National Strategy for the UXO [unexploded ordnance] Sector (2021–30), “The Safe Path Forward III” was in the process of being elaborated.

RECOMMENDATIONS FOR ACTION

- The NRA should facilitate the development, together with inclusive participation from all operators and other relevant mine action stakeholders, of a new Safe Path Forward III strategy for the sector for 2021–30.
- The NRA should prioritise the development of a planning and prioritisation system to support the CMR survey and clearance process.
- Procedures for issuing, amending, or renewing memorandums of understanding (MoUs) should be streamlined to avoid inefficiencies and excessive delays.
- The NRA should ensure the Information Management System for Mine Action (IMSMA) database is comprehensive and up to date, especially given the increased volume of data resulting from the ongoing nationwide CMRS.
- The NRA should be more consistent in its reporting on which of Lao PDR’s 18 provinces are contaminated with CMR. Those provinces which contain UXO other than unexploded submunitions, should not be classified as CMR-contaminated and should not be included in Lao PDR’s baseline of CMR contamination.

- Cooperation and coordination between clearance operators should be further strengthened. In particular, the NRA should ensure that UXO Lao data from historic tasks, which is not already on the database, be made readily available to international operators to help inform survey and clearance operations.
- The NRA and clearance operators should strengthen coordination with provincial, district, and village-level authorities during implementation and planning of CMRS and clearance, incorporating gender and diversity considerations.
- The NRA should consider expanding the mine action toolbox to include the use of mine/explosive detection dogs (MDDs/EDDs) and drones in order to increase operational efficiency.
- Lao PDR should establish a country coalition, to bring together key stakeholders on a quarterly basis to discuss progress and challenges in Article 4 implementation.

ASSESSMENT OF NATIONAL PROGRAMME PERFORMANCE

Criterion	Score (2020)	Score (2019)	Performance Commentary
UNDERSTANDING OF CMR CONTAMINATION (20% of overall score)	7	7	Lao PDR does not yet have a reliable estimate of CMR contamination, but is undertaking a nationwide survey that should produce an evidence-based assessment of the full extent of CMR contamination. As at end 2020, almost 1,300km ² of CHA had been identified through survey, a figure that will continue to rise over the coming years as CMRS continues to confirm CMR-contaminated area.
NATIONAL OWNERSHIP AND PROGRAMME MANAGEMENT (10% of overall score)	6	6	There is strong national ownership from the NRA and mine action in Lao PDR is also firmly linked to the government's sustainable development planning. However, MoU procedures continued to remain complex and heavy, causing notable delays and significantly impeding the implementation and expansion of survey and clearance, and in some cases preventing the spending of international funding.
GENDER AND DIVERSITY (10% of overall score)	7	7	In Lao PDR, gender mainstreaming in the UXO sector is led by the NRA, as well as by the Lao Women's Union. Clearance operators report having gender policies in place, consult with women and girls during survey and clearance operations, and disaggregate data by sex and age. International operators also reported putting measures in place to take into account diversity considerations in their survey and clearance programming, such as inclusion of minority ethnic groups and language groups, and persons with disabilities.
INFORMATION MANAGEMENT AND REPORTING (10% of overall score)	6	6	There are ongoing efforts to correct historical data in IMSMA and to improve information management systems and processes to ensure the quality and transparency of data, especially given the increased volume of data resulting from the ongoing nationwide CMRS. The National Mine Action Standard (NMAS) on information management (IM) was reviewed and updated in 2019, but had yet to be formally approved as at March 2021.
PLANNING AND TASKING (10% of overall score)	6	6	In its 2019 Article 4 extension request, Lao PDR outlined a work plan for the five-year extension period, with three potential clearance output estimates, each with measurable benchmarks, dependent on the level of funding and capacity obtained. As at June 2021, the new National Strategy for the UXO Sector (2021–30), "The Safe Path Forward III", was still being elaborated. The NRA did, however, have a sector-wide annual work plan in place for Lao PDR for 2020. No comprehensive national-level prioritisation matrix of clearance tasks exists.
LAND RELEASE SYSTEM (20% of overall score)	8	8	Lao PDR's UXO Survey Standards, which specify the minimum standards and requirements for the survey of all cluster munition-contaminated areas, are well adapted to the local threat and context and adopt an evidence-based land release methodology. Land release operations in Lao PDR are conducted by a range of implementing partners, which includes the national operator UXO Lao; international non-governmental organisations (INGOs), HALO Trust, Humanity and Inclusion (HI), Mines Advisory Group (MAG), and Norwegian People's Aid (NPA); commercial clearance operators; and humanitarian teams of the Lao People's Army (Unit 58).
LAND RELEASE OUTPUTS AND ARTICLE 4 COMPLIANCE (20% of overall score)	8	8	Lao PDR is continuing the nationwide CMRS of cluster munition contamination, with the amount of CHA continuing to increase each year as the survey progresses. However, the amount of land confirmed through survey as CHA decreased in 2020, compared to 2019, and the cluster munition clearance output also decreased.
Average Score	7.1	7.1	Overall Programme Performance: GOOD

CLUSTER MUNITION SURVEY AND CLEARANCE CAPACITY

MANAGEMENT

- National Regulatory Authority (NRA) Board
- National Regulatory Authority (NRA)

NATIONAL OPERATORS

- UXO Lao
- Humanitarian teams of the Lao People's Army (Army 58)
- Commercial operators

INTERNATIONAL OPERATORS

- The HALO Trust
- Humanity and Inclusion (HI)
- Mines Advisory Group (MAG)
- Norwegian People's Aid (NPA)
- Commercial operators

OTHER ACTORS

- Asian Regional Mine Action Center (ARMAC)
- Geneva International Centre for Humanitarian Demining (GICHD)
- United Nations Development Programme (UNDP)
- Tetra Tech

UNDERSTANDING OF CMR CONTAMINATION

Lao PDR does not yet have a reliable estimate of CMR contamination,¹ but is undertaking a nationwide cluster munition remnants survey (CMRS) that should produce an evidence-based assessment of the full extent of CMR contamination.² US bombing data indicate 70,000 individual target locations across Lao PDR.³

Lao PDR is not consistent in its reporting of which of its 18 provinces are contaminated with CMR. The inconsistency appears to be due to the fact that reporting is based on which provinces contain UXO contamination of all types, rather than CMR specifically.⁴ In Lao PDR's statement to Part 1 of the Convention on Cluster Munitions (CCM) Second Review Conference in November 2020, 15 provinces were said to be contaminated by cluster munitions.⁵ However, in its latest Article 7 report (covering 2020), all 18 provinces were listed as having cluster munition-contaminated area.⁶ Furthermore, in its previous Article 7 report (covering 2019), 14 provinces were reported as contaminated, but in the same report CMR clearance was recorded in an additional two provinces not

listed as contaminated.⁷ The latter may be because Lao PDR included commercial clearance data in its Article 7 report, much of which is conducted in areas not contaminated by CMR. Those provinces which contain UXO other than submunitions should not be classified as CMR-contaminated and should not be included in Lao PDR's baseline of CMR contamination. Most recently, in July 2021, 18 provinces (17 plus Vientiane) have cluster munition remnants.⁸

The nine most heavily affected provinces are: Attapeu, Champasak, Houaphanh, Khammouane, Luang Prabang, Saravan, Savannakhet, Xekong, and Xiengkhouang.⁹

As at end of 2020, a total of more than 1,299km² of CHA had been identified through survey,¹⁰ an increase on the 1,115km² of CMR-contaminated area as at the end of 2019.¹¹ The nationwide survey is ongoing in ten provinces (see Table 1), and has yet to be completed in any province.¹² The amount of CHA is expected to continue to increase and may double or even triple over the next few years.¹³

Table 1: Cluster munition-contaminated area confirmed through survey (at end 2020)¹⁴

Province	No. of villages	CHAs	Total area (km ²)
Attapeu	121	1,496	140.78
Bolikhamxai	29	21	1.31
Champasak	108	367	19.78
Houaphanh	109	399	40.87
Khammouane	98	537	98.86
Luang Prabang	48	244	25.68
Saravan	357	2,359	109.09
Savannakhet	355	4,037	173.16
Xekong	151	1,295	88.86
Xiengkhouang	225	1,400	600.92
Totals	1,601	12,155	1,299.31

In both its 2019 Article 4 deadline extension request and its latest Article 7 transparency report covering 2020, Lao PDR estimated that the total CMR contamination is approximately 8,470km², a figure unchanged since its September 2011 clearance statement to the CCM Second Meeting of States Parties.¹⁵

Lao PDR certainly has the world's highest level of contamination by unexploded submunitions as a result of the Indochina War of the 1960s and 1970s. The United States conducted one of the heaviest aerial bombardments in history, dropping more than two million tonnes of bombs between 1964 and 1973,¹⁶ including more than 270 million submunitions (known locally as bombies). The failure rate is not known, but Lao PDR reports it may have been as high as 30 per cent, and an estimated 80 million submunitions are thought to have remained unexploded at the end of the war.¹⁷

During the period of its Article 4 extension period (2020–25), Lao PDR will focus survey on the most heavily contaminated provinces currently being surveyed, but the remaining affected provinces will also need to be surveyed in order to quantify the extent of CMR contamination nationwide.¹⁸ According to the co-chairs of the UXO Sector Working Group, the United States and the United Nations Development Programme (UNDP), significant and efficient planning will be needed if the national survey is to be completed during Lao PDR's first five-year extension period.¹⁹

Through survey at the village level, the current baseline of CMR contamination is being established through inclusive consultation with women, girls, boys, and men, including, where relevant, from minority groups.²⁰

OTHER EXPLOSIVE REMNANTS OF WAR AND LANDMINES

Lao PDR also has extensive contamination from other explosive remnants of war (ERW), including both air-dropped and ground-fired UXO, though the extent of contamination is not known. Clearance operators have reported the presence of at least 186 types of munition in Lao PDR. These range from 20lb fragmentation bombs to 3,000lb general-purpose bombs, as well as artillery shells, grenades, mortars, and rockets.²¹ Lao PDR is also contaminated, but to a much lesser extent, by anti-personnel mines and anti-vehicle mines (See Mine Action Review's *Clearing the Mines* report on Lao PDR for more information).

NATIONAL OWNERSHIP AND PROGRAMME MANAGEMENT

The NRA, created by government decree in 2004 and active since mid 2006, has an interministerial board composed of representatives from government ministries and is chaired by the Minister of Labour and Social Welfare.²² The Prime Minister of Lao PDR approved a new decree, "On the Organisation and Operations of the National Regulatory Authority for UXO in Lao PDR" in February 2018. The decree defines the position, role, duties, rights, organisational structure, and the working principles and methods of the NRA.²³

The NRA acts as the coordinator for national and international clearance operators and serves as the national focal point for the sector. This includes overall management and consideration of policy, planning, projects, and coordination of the implementation of the national strategy nationwide, as well as NRA planning and coordination functions at the provincial and district levels.²⁴ Effective coordination is particularly needed to help prioritise clearance of the huge number of CHAs already in the database as a result of the ongoing CMRS.²⁵ A new Director of the NRA was appointed in June 2019.²⁶

Lao PDR contributed \$30,911 towards rental of the NRA office in 2020 and training of UXO Lao deminers; the same amount as contributed in 2019. Lao PDR also makes in-kind contributions to mine action including the salaries of the humanitarian clearance teams of the Lao People's Army (Unit 58), and through tax exemptions for visas, and importing vehicles and equipment for humanitarian operators.²⁷ Clearance operators are, however, required to pay visa fees for expatriates and the previous tax concession of tax exemption for international experts was removed from all MoUs after 2018.²⁸ In addition, a new Income Tax Law means that NGO international staff now pay income tax since the start of 2021.²⁹

During the Association of Southeast Asian Nations (ASEAN) summit in September 2016, Lao PDR launched sustainable development goal (SDG) 18, "Lives Safe from UXO", which focuses on freeing the country from UXO. The inclusion of UXO as a specific output in the Ninth National Socio-Economic Development Plan (NSED) for 2021–2025, launched in April 2021, demonstrates Lao PDR's commitment to removing UXO as a barrier to development. The new NSED aims to clear an average of 10,000 hectares (10km²) of land per year for socio-economic development purposes. This ambitious goal more than doubles the clearance achievements of 2020. Furthermore, thanks to the UXO survey which began in 2015, significant amounts of CHA have been identified and clearance capacity of humanitarian operators in 2021 has been strengthened to address these, which will positively impact the scope and efficiency of UXO removal.³⁰

UNDP provides programmatic and technical support to the NRA and UXO Lao, including with regard to information sharing and coordination, albeit at a reduced capacity compared to previous years.³¹ Further capacity development in information management (IM), quality management (QM), and operations support, is provided primarily to UXO Lao, and to a lesser extent the NRA, through a United States (US)-funded contractor, Tetra Tech.³² In 2020, the Geneva International Centre for Humanitarian Demining (GICHD) was supporting the development of Lao's new national strategy, as well as mine action IM and risk management.³³ Norwegian People's Aid (NPA) provided capacity development to the NRA, primarily on IM, under the United Kingdom's Foreign and Commonwealth Development Office (FCDO, previously the Department for International Development (DFID)) project, until the project's conclusion at the end of March 2020.³⁴ Humanity and Inclusion (HI) provides capacity development support to the provincial NRA in Houaphanh province.

There is a UXO Sector Working Group (SWG), led by the chair of the NRA board, and co-chaired by UNDP and the US Ambassador in Vientiane, which normally meets biannually and brings together key stakeholders, including donors, to share information and enhance coordination and resource mobilisation.³⁵ There were two SWG meetings in 2020.³⁶ The NRA plans to diversify the sources of funding in the extension period, including engaging the private sector and non-institutional donors. The Lao government also planned to approach new potential donors, such as China, India, and Russia.³⁷

International clearance operators continued to have good cooperation and coordination with the NRA at the national level, and at provincial and district levels.³⁸ Lack of resources and capacity of some of the provincial NRAs can, however, impact their ability to fulfil their roles. Humanitarian clearance operators are involved in key decision-making processes by the NRA, including through participation in sector meetings and Technical Working Groups (TWGs), and during discussions during informal meetings and field visits.³⁹ There have been four TWGs, namely: for survey and clearance, IM, UXO/mine risk education, and victim assistance. The TWGs, which meet regularly, are designed to promote information sharing and progress in the four thematic aspects.⁴⁰

One of the biggest challenges encountered by operators in Lao PDR continues to be the procedure for MoUs, which remains lengthy, complex, and labour-intensive. Complications at each level (district, provincial, and central) continue to cause significant delay and impede the implementation and expansion of survey and clearance, including by preventing the procurement and import of equipment. Operators are required to report and secure approval for completed projects before an MoU for a new project can be approved.⁴¹ Where existing teams are deployed, MAG typically requests and receives interim approval to enable the continued deployment of these teams until the MoU process is complete, which MAG believe is a useful process that ensures the continuity of operations.⁴² The lack of an MoU prevents expansion of operations or procurement of new equipment.⁴³ Typically it takes a minimum of six months for an MoU to be approved; sometimes it is significantly longer, and the process may even take several years to complete, sometimes resulting in donor funding not being spent and being returned.⁴⁴ According to Ministry of Foreign Affairs (MoFA) rules, it

is not possible to present a consortium of international organisations in the same MoU, and it is also difficult to present projects over more than one province within the same framework.⁴⁵ Furthermore, even after formal approval of an MoU, operators may still experience challenges importing necessary equipment⁴⁶ or small items of additional equipment, which require time-intensive MoU amendments.⁴⁷

HI reported that the turnover of many key positions in 2020 at the central NRA, in particular the International Cooperation Unit, had slowed down its ability to support the project administration process, mainly regarding accreditation renewal, project extension requests, and obtaining MOU. There remains a lack of understanding regarding the accreditation process, which authorities kept [incorrectly] attaching to the MOU process.⁴⁸

There were, however, efforts made by the national authorities in 2020, in particular by the national level NRA and MoFA offices, to shorten the turn-around time for approval.⁴⁹ The MoFA asserted a two-week time line for Ministerial approval of documents and held a workshop of local staff of international non-governmental organisation (INGO) operators to review the MoU submission protocols.⁵⁰ Mines Advisory Group (MAG) reported that in late 2020 it was able to organise a round table at the central level, following the provincial and district level sign-off of the MoU. MAG organised a joint meeting with the NRA, MoFA, and the Ministry of Labour and Social Welfare (MoLSW), during which the draft MoU was discussed. This is said to have streamlined the final process.⁵¹ NPA also reported similar roundtable meetings with the key decision-makers from the NRA, MoLSW, MoFA in both 2020 and 2021.⁵²

Operators were consulted during the elaboration of the 2019 Article 4 extension request.⁵³ When commenting on the extension request in September 2019, the Article 4 Analysis group recommended the establishment of a Country Coalition in Lao PDR to enhance coordination in implementing the work plan included in its extension request.⁵⁴ Following a meeting on the concept in September 2019, hosted by the Netherlands and Peru in their capacity as CCM Coordinators on International Cooperation and Assistance, Lao PDR reported it had begun to create a Country Coalition "by modifying the existing mechanism through the Round Table Meeting process". However, progress had been delayed by the outbreak of COVID-19.⁵⁵

GENDER AND DIVERSITY

While the NRA has yet to develop a gender and diversity policy, gender is integrated into all core UXO documents including work plans and the national strategy, and relevant mine action data is disaggregated by sex and age. Women are consulted in group discussions as part of survey and clearance activities, but the needs of women and children have yet to be fully taken into account in prioritisation and planning. Of the 60 employees at the NRA (including the national training centre), 16 (27%) were women, including two NRA Officers.⁵⁶

Gender mainstreaming in the UXO sector is led by Lao Women's Union, as well as the NRA.⁵⁷ Following the establishment of a partnership in 2018 between UN Women, the NRA, and the Lao Women's Union on how to promote gender rights in the UXO sector, a "Manual for Trainers on Gender Mainstreaming in the UXO Sector, Lao PDR" was piloted during a workshop in December 2018 and published in 2019.⁵⁸

In partnership with the government of Lao PDR, and with the support of the GICHD, the ASEAN Regional Mine Action Center (ARMAC) delivered a Regional Workshop on Gender Equality and Empowerment in ASEAN Mine/ERW Action in October 2019, in Vientiane.⁵⁹

The HALO Trust, HI, MAG, and NPA all reported having gender and diversity policies in place, and that they disaggregate mine action data by gender and age, and consult with women and girls during survey and clearance operations.⁶⁰

HALO continued to prioritise the hiring of women into operations roles to ensure that the proportion of men to women remained at 50%. This was done by setting quotas during recruitment drives. The programme also ensured that individuals from minority ethnic groups were adequately represented by providing battle area clearance (BAC) training in a number of different ethnic dialects and languages.⁶¹ HALO also has a relationship with ARMI (Association for Rural Mobilisation and Improvement) in Savannakhet to provide employment opportunities to people with disabilities. Currently HALO employs six staff with disabilities, two of whom are UXO victims. As at the end of 2020, HALO Laos employed 373 female staff (50%) out of a total of 744; including 50% of operational roles. Of the programme's 20 most senior managerial positions, half were filled by women.⁶²

HI provides equal opportunities to employment for qualified women and men in its survey and clearance teams in Lao PDR, and trains and promotes women to managerial positions. HI has mixed non-technical survey teams, with employees of different ethnic origins and persons with disability, including UXO survivors. HI has developed marker tools to support the mainstreaming of gender and diversity into projects.⁶³ Of HI's 95 staff in Lao PDR, 40% are women, including 60% of managerial/supervisory positions and 35% of provincial positions (which include operations positions).⁶⁴

During recruitment for the 17 new teams in Xiengkhouang, MAG employed a weighted application system to promote the recruitment of women and people from traditionally disadvantaged backgrounds. In 2020, MAG underwent a country strategy development, of which an organisational priority is that MAG will embed gender-sensitivity and diversity and inclusion into its programming and practices. Women account for 36% of MAG's employees in Lao PDR, including 32% of those in operational positions and 35% of managerial level/supervisory positions.⁶⁵

NPA has had a programme-specific gender strategy in place since 2018. Previously, activities focused primarily on gender equality in terms of increasing the number and participation of women in the workforce. In 2020, NPA Laos invited "Proud To Be Us Laos", a national organisation campaigning for greater respect for and recognition of gender identity, sexual orientation, and diversity, to carry out a "Gender and Diversity Audit" of NPA's programme. Results of the audit report will inform NPA's new strategy for gender and diversity in 2021.⁶⁶ NPA also prioritises ethnic and language minorities and women as part of its recruitment process. In 2020, women made up more than one quarter of NPA Lao PDR's 346 staff members. This included 79 women (26%) in a total of 307 operational staff, including IM and field interpreter-assistant personnel. Approximately 30% of managerial positions in the programme were held by women. Once the MoU is approved, NPA will have 39 new female "searchers", which is 55% of 71 selected trainees to be deployed in its new teams for 2021 project implementation.⁶⁷

UXO Lao ensures that all groups affected by CMR contamination, including women and children, are consulted during its survey and community liaison activities. This requirement is included in its standing operating procedures (SOPs). UXO Lao also ensures its survey and community liaison teams are inclusive and gender balanced, to facilitate access and participation from all groups.⁶⁸ UXO Lao reported that it offers employment opportunity to all and is trying to increase the number of women in survey and clearance teams and in management positions.⁶⁹ UXO Lao reported that it is working to improve gender mainstreaming. It advocates for equality in the workplace and that its human resource policies encourage female applicants at all levels, and has one female unit chief and three deputy unit chiefs. Of its 1,467 staff employed, 400 (27%) are female, including 35 women in managerial and supervisory positions.⁷⁰

On 21 December 2020, "Proud To Be Us Laos" led an intensive workshop for 13 members of management staff from UXO Lao's Head Office in Vientiane. The workshop aimed to gauge the level of knowledge and attitudes of participants and provide an overview of definitions of key terms, as well as a global and cultural history of the Lesbian, gay, bisexual, transgender, queer, and intersex (LGBTQI) rights movement.⁷¹

INFORMATION MANAGEMENT AND REPORTING

The national IMSMA database has several problems, including incorrect or incomplete historical data (mainly that of UXO Lao data stored as hard-copy documents in provincial UXO Lao offices); missing data resulting from the migration to IMSMA; and delays in entering corrected data into the database.⁷² The NRA has identified the need for better quality control of data in the IMSMA database.⁷³ In 2020, it was reported to be continuing to improve data quality, focusing again on the quality of forms and correcting data errors.⁷⁴ It has also stressed that upgrading IM systems will be crucial given the greatly increased volume of data resulting from the ongoing nationwide CMRS.⁷⁵ The TWG on IM met quarterly in 2020.⁷⁶

A 2017 report by Sterling International, the former US contractor before Janus and Tetra Tech, said analysis of data in the NRA IMSMA database found errors affecting up to 9,300 entries, or 14% of the 67,000 entries on the database. Sterling believed that the errors could affect 22% of the area recorded in the database as cleared or technically surveyed. The errors included operators' misreporting of coordinates and mistaken entry of reports into IMSMA. Other errors included use of the wrong GPS format or the wrong map datum. The result was to put many tasks in the wrong location. Sterling found that the errors occurred mostly with UXO Lao's work, and mostly between 2004 and 2010, but that it affected "many" organisations.⁷⁷ Efforts to correct historical data within IMSMA (including incorporation of correct current data) are ongoing. It is also important that village-level data corrections made by operators during the nationwide CMRS are updated in IMSMA in a timely manner.⁷⁸ During the IM TWG meeting in 2020, the NRA tasked the operators to correct their own historical data and resubmit to the NRA for approval. As at March 2021, this process had not yet been fully completed or reflected in the IMSMA database.⁷⁹

When the organisation conducting the CMRS is different to the one holding historical records, the nationwide CMRS demands good cooperation and timely sharing of data relating to villages between clearance operators. This pertains to historical information on EOD roving tasks, area clearance, and accident data.⁸⁰ Communication between international operators and UXO Lao is continuing to improve. However, while UXO Lao does provide its data on historical tasks to international operators to help inform desktop studies before sending in survey teams, data is often slow to be made available.⁸¹ Delays in the timely provision of historical data by UXO Lao are understood to be partly connected to the lack of an appropriate and clear structure for the granting of permissions for data sharing at the provincial level. UXO Lao reported that it is not permitted to share corrected data not in IMSMA directly with operators, unless approval is granted by the NRA.⁸² UXO Lao said that efforts to ensure and improve the quality of data in the mine action database were ongoing.⁸³

In July 2019–March 2020, NPA provided support to strengthen the IM capacity of the NRA and provincial authorities, as part of the UK FCDO funded project.⁸⁴ NPA supported the NRA in its revision of the IM national mine action standard (NMAS), based on the International Mine Action Standards (IMAS), and in the development of an IM SOP, including IM process maps and guidelines. The revised IM NMAS better defines the minimum requirements, and roles and responsibilities of different organisations in IM.⁸⁵ However, as at June 2021, the revised IM NMAS had yet to be officially approved.⁸⁶ IMSMA data collection forms were revised in 2020 to better collect socio-economic and impact data.⁸⁷

Following the NPA capacity development, four provincial authorities in the south (Attapeu, Champasak, Saravan, and Xekong) were equipped with necessary technology and provided training. They are now in a position to access and use the IMSMA database. The same training package and approach was also used to conduct IMSMA training in the remaining 11 provinces by the NRA.⁸⁸ This is a positive development, but will require continuous follow-up and commitment.⁸⁹

In 2020, HI continued to provide training, including on IMSMA, to provincial NRA offices in Houaphanh province in IM.⁹⁰

Operators reported that data submitted to the NRA were typically updated in a timely manner and accurately.⁹¹ IMSMA virtual private network (VPN) was tested from July to September 2018, with technical support from NPA, and was considered successful and subsequently rolled out. As at May 2021, all operators, except for UXO Lao, were using IMSMA VPN.⁹² It has helped improve the accessibility of data, the speed and quality of the data entry, and the reporting process, with crosschecks raising any discrepancies for correction.⁹³ However, IMSMA is still not fully accessible to operators, who can only access their own data in the system and have to formally request the additional data.⁹⁴

Expanding the use of IMSMA to support survey planning and the review of all historical operational data (both electronic and paper), will help ensure that non-technical survey is followed up by robust technical survey operations.⁹⁵ In addition, the IM system in Lao PDR must also be equipped to record operator conclusion reports, in order to know how many villages have been surveyed.⁹⁶ This topic had been discussed at the IM TWG and the survey and clearance TWG, but it had yet to be agreed as of writing how conclusion reports should be recorded in IMSMA.⁹⁷

Lao PDR provides regular updates on its progress in Article 4 implementation, both in its annual Article 7 transparency reporting and in statements at the CCM meetings of States Parties.

PLANNING AND TASKING

As part of efforts to implement the CCM Vientiane and Dubrovnik Action Plans, the Lao Government adopted “Safe Path Forward II, 2011–20”, a 10-year national strategy for the UXO sector. The strategy’s goal was “to reduce the humanitarian and socio-economic threats posed by UXO to the point where the residual contamination and challenges can be adequately addressed by a sustainable national capacity fully integrated into the regular institutional set-up of the Government.”

Safe Path Forward II was reviewed in June 2015, when the NRA set a number of specific targets for the remaining five years up to 2020.⁹⁸ Many of these were superseded in March 2016 when the NRA issued a landmark paper committing to time-bound nationwide non-technical and technical survey through the CMRS project, with a view to producing Lao PDR’s first baseline estimate of CMR contamination.⁹⁹ There was a corresponding multi-year work plan 2016–20 for implementation of the Safe Path Forward II strategy,¹⁰⁰ which called for spending on clearance of \$57 million, and targeted clearance for 2017–21 of 45km² a year, considerably in excess of previous clearance rates.¹⁰¹

A new national strategic plan for the UXO Sector is being elaborated for 10 years, in line with SDG 18 under the 2030 SDG agenda.¹⁰² A GICHD-facilitated strategy stakeholder workshop, planned for March 2020 in Vientiane, unfortunately had to be postponed due to the COVID-19 outbreak. A GICHD-led online/hybrid strategy stakeholder workshop was scheduled for November 2020, but was cancelled at the last minute by the NRA.¹⁰³

Lao PDR said in November 2020 that it planned to adopt the new National Strategy for the UXO Sector (2021–30), “The Safe Path Forward III”, in 2021.¹⁰⁴ As of early 2021, UNDP was supporting the development of Safe Path Forward III, and had informed operators that an initial draft would be developed by June 2021.¹⁰⁵ As at June 2021, the NRA reported that the new strategy was in the process of being drafted.¹⁰⁶ Through its funding of the agreement between Tetra Tech and the NRA, the United States is continuing to “support the Lao Government as it formulates its 10-year National Strategic Plan for the UXO Sector, a plan that will map the path to achieving SDG 18 – the elimination of UXO as a barrier to national development by 2030.”¹⁰⁷ HALO, MAG, NPA, and the US Embassy met with UNDP in March 2021 to discuss sector priorities.¹⁰⁸

In a positive development, a first-ever sector-wide annual work plan for Lao PDR for 2018 was developed in an inclusive manner with input from all relevant stakeholders and subsequently approved by the NRA Board.¹⁰⁹ Stakeholders were not brought together in the same way to help inform elaboration of the annual sector-wide work plan for 2019, reportedly due to lack of budget,¹¹⁰ but a consultative workshop was, however, held in June 2019 to support the development of the sector-wide work plan for 2020.¹¹¹ An NRA workshop was also held in September 2020 with all stakeholders, including UXO Lao and the four INGOs, to inform elaboration of a sector-wide work plan for 2021.¹¹² However, the resultant sector-wide work plans (for either 2020 or 2021), were not shared with clearance operators, therefore limiting their utility.

In 2018, Lao PDR began a national CMRS baseline survey, with funding from the United States, and the baseline survey is ongoing. The first phase of the survey involves six province-wide surveys (in Attapeu, Champasak, Saravan, Savannakhet, Xekong, and Xiengkhouang) by HALO Trust, MAG, and NPA of all villages suspected or confirmed as CMR-contaminated, according to the NRA’s village list.¹¹³ In September 2018, Lao PDR announced that three additional contaminated provinces would be added to the national survey plan in 2019 and another five provinces in 2020–21, with the aim to have 14 provinces fully surveyed by end of 2021.¹¹⁴ However, survey has fallen behind schedule and had yet to be completed in any province as at June 2021.¹¹⁵

As HALO, MAG, and NPA make continued progress in province-wide CMRS in the seven provinces in which they operate, there is a shift towards increasing clearance capacity and reducing survey capacity, in order to clear the CHAs identified during CMRS.

According to Lao PDR’s 2019 Article 4 deadline extension request, “all sector activities are implemented in order to achieve SDG18 “Lives Safe from UXO”, to remove the UXO obstacle to national development and the activities should be implemented in line with the strategic documents and policies”.¹¹⁶ The UXO Sector has been further integrated into the national development agenda, such as the National Policy on Rural Development and Poverty Eradication, including the National Socio-Economic Development Plan (2016–20), on the approval of priority development areas.¹¹⁷

In November 2020, the NRA said it had conducted initial capacity building for provincial authorities on identifying priority areas following the National Standard combined with the Social-Economic Development Plan, to help inform non-technical survey, technical survey, and clearance plans. However, COVID-19 has impacted the capacity building rollout and as at November 2020, only five of the fifteen cluster munition-contaminated provinces had completed their planned trainings, which was equivalent to only 30% of the NRA’s target.¹¹⁸

WORK PLAN ESTIMATES FOR THE ARTICLE 4 EXTENSION REQUEST PERIOD (2020–25)

The Article 4 extension request includes a five-year work plan for survey and clearance, with progress dependent on the level of funding it secures. There will be a strong concentration on survey during the extension period, with a focus on the six most contaminated provinces to be completed as soon as possible, followed by the others. Clearance will take place simultaneously with survey activities.¹¹⁹

Based on existing capacity, over the five-year period of Lao PDR’s extension (1 August 2020–31 July 2025), 25 non-technical survey teams will survey 1,463 cluster munition-contaminated villages (292 villages per year), at a total cost of US\$4.5 million and 76 technical survey teams would survey 2,873 villages at a predicted total cost of US\$38 million (US\$7.6 million per year). Re-survey is to be conducted, as required, if new evidence of CMR is reported and found.¹²⁰

As at the end of 2020, 12,155 CHAs, equivalent to nearly 1,300km² in size, had already been identified through the ongoing CMRS and entered into IMSMA, representing several years of clearance efforts based on current clearance capacity.¹²¹ The NRA predicts that the number of CHAs containing CMR will significantly increase during the five-year period of the extension request, at a rate far faster than the CMR-contaminated areas can be cleared.¹²²

In its 2019 Article 4 extension request, Lao PDR outlines three different estimates for CMR clearance, based on three different scenarios for available resources. The first outlines predicted clearance output based on existing resources during 2020–25; namely 108 teams, with a total clearance output of 50km² per annum, at a cost of US\$12.5 million per year. This would result in clearance of 250km² at a cost of \$62.5 million, during the five-year extension request period.¹²³ This seems highly ambitious, based on current output.

The second estimate predicts clearance output based on the additional resources needed to address the 800km² of CHA already recorded in IMSMA as at end of 2018. This would see annual clearance output incrementally increased from 60km² per annum in 2020 to 280km² per annum in 2024, with total clearance output of 800km² during the five-year extension request period, at a total cost of US\$200 million.¹²⁴

The third estimate predicts clearance based on the additional resources needed to address 1,600km² of CHA, which includes the further 800km² of CHA predicted to result from CMRS during the five-year extension request period, at a total cost of US\$400 million.¹²⁵

Lao PDR will, “for the foreseeable future”, integrate the Article 4 Extension Plan into the indicators of the 9th National Social-Economic Development Plan (NSED) 2021–2025, where the five-year plan sets targets to conduct non-technical survey in 2,776 villages; conduct technical survey to confirm hazardous area of 250,000 hectares (2,500km²) (average 50,000 Ha/500km² per year); and conduct UXO clearance of 50,000 hectares (500km²) (average 10,000 Ha/100km² per year).¹²⁶

Prioritisation of clearance is a critical step in the land release cycle and a key component of an integrated survey and clearance programme, especially given the large and increasing number of CHAs produced by the ongoing nationwide CMRS. However, at present, there is no comprehensive national-level guidance on the prioritisation of clearance tasks and prioritisation systems and criteria vary markedly between the operators.¹²⁷ The co-chairs of the UXO Sector Working Group, the United States and UNDP, believe a prioritisation plan will need to be developed for the entire UXO Sector, including both commercial and humanitarian operators.¹²⁸ The sector would benefit from the strengthening of the capacity and participation of the NRA at the provincial level and of district officers from the Labour and Social Welfare authorities. Operators also stressed the need for community participation in the process.¹²⁹ The NRA acknowledges difficulties in sector planning and prioritisation by local authorities.¹³⁰ Prioritisation workshops were first organised in 2019 and continued into 2020.¹³¹

Under the UK FCDO contract, which commenced in 2019, NPA was assisting the NRA in developing national capacity and creating a nationwide prioritisation matrix, with input from fellow consortium partners, HALO Trust and MAG.¹³² However, due to a delay in the MoU process and the resulting reduction in the implementation timeframe of the capacity development project (cut from 18 months to 9 months), the planning and prioritisation outputs of the related work plan could not be implemented.¹³³ As at March 2021, no further progress had been made regarding a nationwide prioritisation matrix, but operators believe this remained a critical area requiring further development.¹³⁴ The NRA reported that, as at June 2021, the prioritisation matrix was in the process of being drafted.¹³⁵

At the micro level, prioritisation of clearance tasks in Lao PDR is in part dictated by the wet and dry seasons. During the dry season, operators are able to access and clear paddy fields, while in the wet season, they focus on clearing grazing and community land, or on higher elevations.¹³⁶

LAND RELEASE SYSTEM

STANDARDS AND LAND RELEASE EFFICIENCY

The “Lao PDR UXO Survey Standards” (UXO Survey Standard No. 21/NRA) specify the minimum requirements for the survey of all cluster munition-contaminated areas in Lao PDR.¹³⁷ The standards were officially approved by chair of the NRA on 4 July 2018.¹³⁸ They are said to conform to the International Mine Action Standards (IMAS)¹³⁹ and are fully reflected in the SOPs of clearance operators, who reported that they are well adapted to the local threat and context.¹⁴⁰

The NRA plans to formally review the national standards at least every three years, in collaboration with stakeholders, to ensure they evolve to meet changing circumstances and the introduction of new technologies and methodologies.¹⁴¹ Operators understand that the NRA is planning to review the national standards in 2021.¹⁴²

With capacity development support from NPA, revisions to the IM NMAS were submitted to the NRA for consideration in 2019, but as at March 2021 had yet to be approved. IM SOPs for the NRA, including IM process maps and guidelines, were also drafted.¹⁴³

Prior to 2014, UXO operators in Lao PDR primarily carried out general survey on areas intended for clearance and roving clearance tasks, based on requests and reports from villagers.¹⁴⁴ CMRS has resulted in clearance being directed to confirmed cluster munition strikes, across land boundaries where necessary, and away from the clearance of areas with low or no CMR contamination. There has been a significant improvement in the number of CMR destroyed per hectare cleared since 2015.¹⁴⁵ As part of the new CMRS procedure, and the corresponding national standard, non-technical survey is to be carried out on whole villages (i.e. all land within a village boundary), not just individual areas of land, with the aim to identify evidence points for follow-on technical survey. An additional aim during survey is to correct errors or omissions in historical data in IMSMA or in operator files.¹⁴⁶

The survey approach has been strengthened over the last couple of years, with more emphasis on the importance of desk assessment of historical data and comprehensive non-technical survey. Technical survey is only carried out based on CMR evidence points and is also conducted on whole villages.¹⁴⁷ Technical survey works outwards from the initial evidence point, searching no less than 50% of each 50 metre by 50 metre box with a detector, with emphasis on finding a submunition. As soon as a submunition is found, technical survey moves to the adjacent boxes. If cluster munition fragments are found, searching must continue until a submunition is found or at least 50% of the box is covered.¹⁴⁸

Operators continue to refine their CMRS methodology in a bid to accelerate operations, including using the technique of "skipping boxes", in which teams finding CMR in one survey box skip one or more of the immediate neighbouring boxes and then survey the next box. Skipping boxes is permitted in the national survey procedure, and, where appropriate, has become standard practice for technical survey teams, where the focus is on identifying the boundaries of CHAs.¹⁴⁹

CHAs are established based on red boxes and include a 50-metre fade-out from the place submunitions are found during technical survey, unless fade-out extends into inaccessible or commercial concession areas (responsibility for survey and clearance in commercial concession areas is then that of the concession holder).¹⁵⁰

According to the national survey standards, clearance must only be conducted in CHAs, unless either "official agreements with the NRA permit a dispensation" or "the UXO clearance is being paid for by a client and 100% clearance without survey is a requirement of the agreement".¹⁵¹ The NRA maintained the need to retain some flexibility to accommodate donor stipulations which sometimes require full clearance of UXO in non-CHAs, for development projects such as schools, and there is an official procedure for such instances.¹⁵² In late 2016, the Prime Minister issued Order No. 43/PM, which stipulates that development projects in provinces and districts affected by UXO must undergo survey and clearance before project implementation, and these development projects must also allocate funding for survey and clearance.¹⁵³

Except in the case of permanently inaccessible land or commercial concession areas, CHAs that are incomplete or have not been created using the technical survey process are not to be entered into IMSMA.¹⁵⁴ Interpretation and understanding as to what constitutes "inaccessible" is not clearly defined and can vary between clearance operators,¹⁵⁵ but according to the national survey standards, dense vegetation and seasonal flooding are not valid reasons for the non-completion of technical survey.¹⁵⁶ Clearance teams deployed to CHAs are required to have the knowledge and necessary equipment to operate in difficult areas such as steep hillsides and dense jungle terrain, which requires strong monitoring mechanisms to ensure that the physical obstacles do not reduce the quality of the survey and clearance work.¹⁵⁷ The minimum clearance depth in Lao PDR is 25cm, which is intended to capture all surface and shallow CMR contamination.¹⁵⁸ Operators have been collecting data on the depth at which CMR are found.¹⁵⁹

With regard to completion of CHAs/cluster munition footprints, international clearance operators reported difficulty conducting CMRS in certain areas, due to national security or restrictions to access land due to cultural sensitivities and beliefs.¹⁶⁰ Furthermore, in technical survey tasks in areas of massive contamination, with overlapping strikes, it is not always possible to continue to fade-out, as the confirmed areas extend too far.¹⁶¹

HI has suggested that as CMRS can be time consuming, clearance could replace CMRS earlier where it is well established that there is CMR contamination, as clearance would cover the entire CHA anyhow, including a 50m buffer zone.¹⁶² In locations where operators are called back year-on-year to destroy submunitions found by farmers, HI believes evidence-based clearance could be commenced directly, rather than needing to first conduct CMRS.¹⁶³ Similarly, in places with severe contamination, UXO Lao is in favour of having the option to forego survey and move directly to clearance.¹⁶⁴ UXO Lao is focusing its technical survey on its annual clearance work plan, which is based on the needs of local authorities and communities.¹⁶⁵

Based on the areas in which it is operational, NPA reported that typically CHAs cover the strike area and submunitions are not being found outside of CHAs polygons during clearance,¹⁶⁶ an indication of the effectiveness of evidence-based CMRS.

MAG uses Evidence Point Polygon (EPP) mapping methodology to support CMRS planning. The technique, pioneered by MAG, uses historical and ongoing operational data from GPS-recorded EOD spot tasks involving submunitions to plot what are termed Initial CHAs (iCHAs). Within the boundaries of iCHAs, including fade-out, no technical survey is required, resulting in time and resources efficiencies. However, in order to be effective, this technique relies on accurate and reliable EOD spot-task data, which is not always available. In areas where MAG is applying EPP mapping, it uses its own EOD data.¹⁶⁷

According to the NRA, understanding of the CMRS process, especially at the local and field levels, is sometimes limited.¹⁶⁸ Stakeholders across the mine action sector in Lao PDR agreed on the importance of strengthening coordination with village authorities as an integral component of the survey process, ensuring that communities understand and accept the results of survey. It is especially important that villagers fully understand that, despite demolition of UXO during the CMRS process, CHAs identified through survey remain hazardous until full clearance has taken place, which may not be for many years.¹⁶⁹

With regards to the discovery of landmines during CMRS, HI developed a "clearance while surveying" (CWS) procedure, to allow for safe release of CMR contamination in areas where there is a potential risk of landmines. CWS involves the commencement of full clearance from the evidence point.¹⁷⁰ HI has revised the clearance SOP to integrate CWS and submitted it to the NRA. As at March 2021, it was still pending approval.¹⁷¹

OPERATORS AND OPERATIONAL TOOLS

Land release operations in Lao PDR are conducted by a range of implementing partners, which includes humanitarian operators such as the national operator UXO Lao; international NGOs, HALO Trust, HI, MAG, and NPA; commercial clearance operators; and humanitarian teams of the Lao People's Army (Unit 58).¹⁷²

With regard to survey capacity in 2020: the Lao People's Army (Unit 58) deployed three non-technical survey teams, totalling six personnel and three technical survey teams totalling twenty-one personnel;¹⁷³ HALO deployed 21 technical teams, totalling 168 personnel;¹⁷⁴ HI had 1 non-technical survey team of 2 personnel and 1 technical survey team of 6 personnel;¹⁷⁵ MAG had 4 non-technical survey (community liaison) teams, totalling 16 personnel and 21 technical survey teams, totalling 168 personnel;¹⁷⁶ NPA had 24 CMRS (non-technical survey and technical survey) teams totalling 120 survey personnel (5 searchers per team, excluding team leaders);¹⁷⁷ and UXO Lao had 10 non-technical survey teams totalling 42 personnel and 16 technical survey teams totalling 128 personnel.¹⁷⁸

Table 2: Operational clearance capacities deployed in 2020¹⁷⁹

Operator	Manual teams	Total clearance personnel	Machines	Comments
Lao People's Army (Unit 58)	7	91	0	Each team consists of 13 people, including 1 team leader, 1 deputy team leader, 1 medic, 1 driver, and 9 deminers.
HALO	25	269	0	Medics are included as HALO has technician medics.
HI	1	7	0	In addition, HI also has a part-time roving team of 6 people for EOD spot tasks. When there are no spot tasks the roving team is used for area clearance.
MAG	30	240	0	MAG has 15 clearance teams (8 technicians per team) in both Khammouane province and Xiengkhouang province. It does not have any mechanical assets for clearance, but does have five machines for ground preparation.
NPA	9	108	0	
UXO Lao	81	567	9*	*Two cluster munition demolition machines in Xiengkhouang province. The seven machines operating across Saravan, Xekong, and Champasak provinces only provide support to area clearance operations, by preparing access roads and vegetation cutting where this cannot be done by hand.
Total		More than 1,250 clearance personnel		

UXO Lao, the oldest and largest clearance operator in Lao PDR, is a government organisation working under the Ministry of Labour and Social Welfare,¹⁸⁰ operating in nine provinces (Attapeu, Champasak, Houaphanh, Khammouane, Luang Prabang, Savannakhet, Saravan, Xekong, and Xiengkhouang).¹⁸¹ In Luang Prabang, UXO Lao was operating with funding from Norway and management support from NPA, up until the agreement ended on 31 December 2020 and UXO Lao's field operations were stood down in the province.¹⁸² The United States has subsequently provided funding through Tetra Tech, allowing UXO Lao's operations in Luang Prabang to resume. A new Director of UXO Lao was appointed in 2019.

The HALO Trust's survey and clearance efforts are focused on Savannakhet province. Capacity increased in 2020 as part of the new US-funded clearance project. With new US funding, HALO was expected to double its clearance capacity in the second half of 2021.¹⁸³

HI is conducting survey and clearance in Houaphanh province, where it also provides capacity building support to the provincial NRA, through training on IM, QM, and first aid.¹⁸⁴ HI also implements projects in Champasak, Savannakhet and Vientiane Provinces, relating to other fields (such as disability inclusion and health and rehabilitation).¹⁸⁵ HI expected to increase its EOD capacity in 2021, with funding approved from the Netherlands for extension of the project into Phongsaly province (two districts) and Houaphan province (two districts, including the current one of Houameuang).¹⁸⁶

MAG is the largest international survey and clearance operator in Lao PDR, and is operational in Xiengkhouang province, in the north and Khammouane province in the south. MAG's overall capacity in 2020 remained the same as in 2019. MAG expected to expand its operations in Xiengkhouang province in 2021 thanks to US funding, adding an additional 17 clearance teams.¹⁸⁷

NPA is operational in the four southern and heavily contaminated provinces of Attapeu, Champasak, Saravan, and Xekong. NPA saw significant increases in operational efficiency of BAC in Lao PDR in 2020. This was due to improved internal task selection procedures and coordination with the provincial NRA and UXO Lao, and improved operational planning which reduced the amount of operational time spent not conducting clearance or EOD spot tasks. NPA relocated all operational staff and equipment to a new office in Pakse, Champasak province. The new location improved the logistical management of the programme. In 2021, NPA planned to shift focus from CMRS to clearance of CHAs identified through survey, and expected to increase clearance capacity to 20 BAC teams, while retaining a survey capacity of 8 CMRS teams to address any limited additional survey requirements.¹⁸⁸

In addition to its survey and clearance operations in 2020, NPA also supported capacity development of the NRA and UXO Lao. In July 2019–March 2020, NPA provided capacity development support to strengthen the IM capacity of the NRA and provincial authorities, as part of the FCDO-funded project. NPA also provided on-the-job capacity development support on CMRS to UXO Lao teams in Luang Prabang province during operational monitoring and support in 2020, in addition to training on gender and on EOD. NPA was the project coordinator for Norwegian Ministry of Foreign Affairs' bilateral support to Lao PDR from 2018 to 2020, through UXO Lao's operations in Luang Prabang. The multi-year government-to-government bilateral agreement between Norway and Lao PDR ended on 31 December 2020, and Lao PDR did not seek to renew it.¹⁸⁹

The capacity of the Lao armed forces was increased from five humanitarian demining teams to seven in November 2019, funded by the Lao PDR Ministry of Defence.¹⁹⁰ According to the NRA, the humanitarian clearance teams of the Lao Army (Unit 58) are a valuable asset, conducting survey and clearance in the same way as national and international clearance operators, and with good coordination between the NRA and the army. In addition, the army was being trained to use IMSMA. Lao Army teams (completely separate to the humanitarian "Army 58" teams) and not coordinated by the NRA started clearance of UXO to enable construction work on the US\$6 billion Laos-China high speed railway to proceed in safety.¹⁹¹

From October 2018 to March 2019, personnel from Russian armed forces and Lao People's Army (Unit 58) worked in partnership to survey and clear 1km² of land in Bolikhamxai province, with equipment supplied by Russia. The partnership project is part of a broader framework of cooperation between the governments and armed forces of the two countries.¹⁹² During the period from October 2018 to March 2019, servicemen from the International Mine Action Centre of the Russian Armed Forces completed joint tasks with members of the Unit 58 mine clearance team of the Laos People's Army. Russia reporting clearing just over 1km² in Lao PDR, during which 344 items of explosive ordnance were destroyed. As part of the same project, it also reported training 20 deminers from the Lao PDR Army and provided demining equipment.¹⁹³ The partnership in Bolikhamxai province finished in 2020. There is, however, another joint project in Xiengkhouang province.¹⁹⁴ According to an online media source, Russian troops are working with Lao counterparts to clear an area of 500 hectares (5km²) to build a new airport and military facility in Xiengkhouang.¹⁹⁵

The use of drones is now permitted to assist CMR operations in Lao PDR, but requires several separate certifications and licenses before approval for an MOU can be sought from the NRA.¹⁹⁶ MAG secured a drone permit in late 2019, and in 2020 mainly used the drone to assess the ground situation.¹⁹⁷ In Houaphanh province, HI had yet to secure approval from local authorities for the use of drones to ensure the safety radius when disposing large items of explosive ordnance, such as aircraft bombs.¹⁹⁸ As at June 2021, NPA was in the process of licencing one drone and had requested permission from the NRA for additional drones.¹⁹⁹ NPA was also seeking permission to use innovations already approved in Lao PDR's National Standards, such as the use of what the organisation prefers to call mine detection dogs (MDDs) as a tool for QM and rapid response, as well as in areas of high metal density, or around powerlines, where the use of metal detectors can be disrupted.²⁰⁰

UXO Lao has reportedly begun implementing innovations in the use of mechanical methods of excavation, and MAG is currently reviewing its use of mechanical excavation tools.²⁰¹

LAND RELEASE OUTPUTS AND ARTICLE 4 COMPLIANCE

LAND RELEASE OUTPUTS IN 2020

According to data reported by NRA to Mine Action Review, humanitarian CMR clearance output in Lao PDR in 2020, was nearly 42.90km².²⁰² A total of 71,235 submunitions were destroyed in 2020, during area clearance and EOD operations (including EOD as part of survey).²⁰³

According to Lao PDR's Article 7 report covering 2020, CMR clearance output in 2020 was more than 53.92km², with the destruction of 71,235 submunitions.²⁰⁴ However, this includes commercial clearance, which unlike humanitarian clearance, is not typically of CHAs and includes large areas not containing CMR, therefore inflating true data on release of CMR-contaminated areas. Furthermore, in Lao PDR's Article 7 report, the total amount of submunitions reported as destroyed in 2020 was significantly less than the total

reported by the NRA and humanitarian operators to Mine Action Review.

As at July 2021, the NRA had yet to publish its Annual UXO Sector Report for 2020, which contains a breakdown of clearance by operator, including by humanitarian and commercial operators. However, the NRA Annual Progress Report to UNDP stated that of a total of 54.26km² cleared in 2020, with the destruction of 71,235 submunitions, 43.27km² was cleared by NGOs and the humanitarian teams of the Army (Lao Army 58), with the destruction of 71,167 submunitions; and the remaining 11km² was cleared by commercial operators with the destruction of 68 submunitions.²⁰⁵

SURVEY IN 2020

According to the NRA data reported to Mine Action Review, a total of more than 181km² of CHA containing CMR was identified in 2020 (see Table 3). This is a significant reduction on the nearly 246km² of CHA identified in 2019, which the NRA explained was due to a decrease in funding and survey teams, and the impact of COVID-19.²⁰⁶

HALO surveyed 46% more area in 2020, compared to the previous year, thanks to increased survey capacity and surveying areas with less vegetation than during the previous year. HALO discovered both emplaced and aerially-dispersed mines in 2020, which resulted in the temporary suspension of CMRS activities until landmine-specific non-technical survey could be conducted in affected villages.²⁰⁷

The amount of area surveyed by HI in 2020 was a reduction on the previous year, due to the impact of anti-personnel mines. HI reported the mines it found in Houameuang district to the NRA and locations were mapped and hazard marked. HI technical survey or clearance operations near these areas were ordered to avoid entering the hazardous area. As at end of 2020, HI had identified 46 suspected minefields in 20 villages during non-technical survey in Houamuang district of Houaphanh province. In 2020, a US-made M7 anti-tank blast mine was discovered during the clearance of a CHA in Ban Vaek following the CMRS. HI applied its "clearance while surveying" (CWS) procedure which enabled the complete CHA to be identified and also cleared.²⁰⁸

UXO Lao also reported discovering of mines during its operations in 2020, which impacted the team from being able to conduct further survey.²⁰⁹

Table 3: Technical survey of CMR-suspected area in 2020 (based on NRA data reported to Mine Action Review)²¹⁰

Operator	Area surveyed (m ²)	Area identified (m ²)	Submunitions destroyed	Other UXO destroyed	Mines destroyed
Lao People's Army (Unit 58)	4,139,700	312,742	49	5	0
HALO Trust	52,417,500	10,542,043	3,314	932	0
HI	1,252,500	603,164	215	5	1
MAG	108,954,622	104,910,952	8,305	39	0
NPA	58,470,000	20,339,085	2,211	164	0
UXO Lao	70,477,000	44,525,560	5,230	1,141	0
Totals	295,711,322	181,233,546	19,324*	2,286	1

* Already included in EOD roving task total

CLEARANCE IN 2020

According to the NRA data reported to Mine Action Review, a total of nearly 42.90km² of cluster munition-contaminated area was cleared in 2020, with the destruction of 39,864 submunitions, 9,592 other items of UXO, and 3 anti-personnel mines during area clearance (see Table 4).²¹¹ In addition, the NRA reported that a 31,178 submunitions were destroyed during roving tasks in 2020, which is also believed to include submunitions destroyed during technical survey) by Lao People's Army humanitarian teams (Unit 58), HALO, HI, MAG, Milsearch, NPA, and UXO Lao.²¹² The NRA data was considerably lower than that reported directly to Mine Action Review by the operators.

Table 4: CMR clearance in 2020 (based on NRA data reported to Mine Action Review)²¹³

Operator	Area cleared (m ²)	Submunitions destroyed	UXO destroyed	Anti-personnel mines destroyed
Lao People's Army (Unit 58)	252,989	332	179	0
HALO Trust	2,891,302	2,697	1,174	0
HI	529,734	835	439	1
MAG	8,956,924	6,115	528	0
MMG	304,870	6	1	0
NPA	4,454,346	5,256	313	0
UXO Lao	25,506,859	24,623	6,958	2
Totals	42,897,024	39,864	9,592	3

N/K = not known

According to Lao PDR's Article 7 report, a total of more than 53.92km² was cleared in 2020, across 15 provinces, with the destruction of nearly 71,235 CMR, in addition to 32 mines, 144 big bombs, and 20,888 items of other UXO, during clearance, technical survey, and roving tasks (see Table 5).²¹⁴ However, as occurred in previous years, this total includes CMR clearance data from all stakeholders, including not only humanitarian clearance by NGOs and the humanitarian demining teams of the Lao Army (Unit 58), but also commercial clearance by commercial operators (See Table 6).

As at June 2021, the NRA had yet to publish its Annual UXO Sector Report for 2020, which contains a breakdown of clearance by operator/by humanitarian and commercial clearance. It was therefore not possible to determine exactly how much of the 53.92km² was humanitarian clearance and how much was commercial clearance. However, as revealed in the NRA's Annual Project Progress Report to UNDP for 2020 (Table 6),²¹⁵ which reported a higher annual clearance total for 2020 (54.26km²), large areas of land were cleared by commercial operators with no or very few submunitions destroyed. This confirms that this is not targeted clearance of CHAs, but instead clearance of often uncontaminated land, required for confidence building for construction and development projects. Mine Action Review does not consider this as CMR clearance.

The 2020 humanitarian clearance output reported by the NRA to Mine Action Review of 42.90km², was a decrease on the 45.77km² of humanitarian clearance of CMR in the data for 2019 used by Mine Action Review in last year's *Clearing the Mines* report on Lao PDR.²¹⁶ The 53.92km² of total CMR clearance (including humanitarian and commercial clearance) reported in Lao PDR's Article 7 report covering 2020, is also a reduction compared to the reported 64.95km² of total clearance in 2019 (similarly including humanitarian and commercial clearance), with the destruction of nearly 79,400 submunitions.²¹⁷ According to the NRA, the reduction on clearance output in 2020 compared to the previous year was due to decreased funding and the impact of the COVID-19 pandemic.²¹⁸

Table 5: CMR clearance by province in 2020 (Article 7 data, including commercial clearance)²¹⁹

Province	Area cleared (m ²)
Attapeu	5,779,326
Bolikhambxai	274,149
Champasak	2,800,483
Houaphanh	1,441,014
Khammouane	7,317,676
Luangnamtha	20
Luang Prabang	2,757,297
Oudomxay	3,846,690
Saravan	3,786,310
Savannakhet	8,140,057
Vientiane Province	2,023,259
Vientiane Capital	1,383,931
Xaisomboun	399,165
Xekong	2,706,294
Xiengkhouang	11,267,440
Total	53,923,111

Table 6: CMR clearance disaggregated by humanitarian clearance operators and commercial operators in 2020 (NRA Annual Project Progress Report data)²²⁰

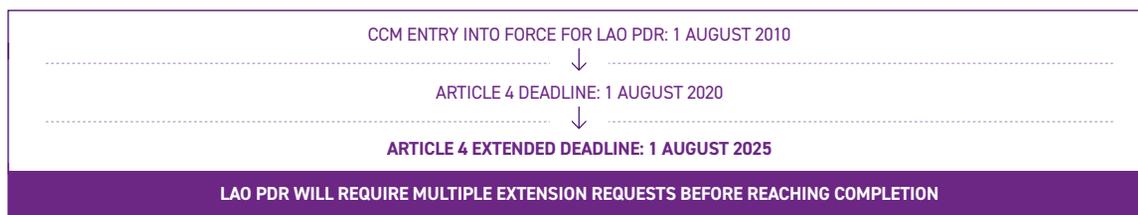
	Operator	Area cleared (m ²)	Submunitions destroyed*	Bombs	Other UXO destroyed	Mines destroyed
Humanitarian clearance operations	Lao People's Army (Unit 58)	399,861	618	8	999	1
	HALO Trust	2,895,891	8,350	34	2,969	0
	HI	546,370	1,060	0	1,154	11
	MAG	9,073,145	17,882	16	2,697	1
	NPA	4,468,784	10,152	39	2,729	12
	UXO Lao	25,886,799	33,105	47	10,113	7
Sub-totals		43,270,850	71,167	144	20,661	32
Commercial clearance operations	L&B	9,205,503	0	0	0	0
	MMG	458,851	41	0	40	0
	Milsearch	387,710	8	0	184	0
	OUMMA	939,482	19	0	3	0
Sub-totals		10,991,546	68	0	227	0
Grand totals		54,262,396	71,235*	144	20,888	32

* Includes submunitions destroyed during survey and EOD roving tasks.

Compared to the previous year, and based on operator data, HI, HALO, and NPA's clearance output was slightly higher in 2020;²²¹ and MAG's clearance output was slightly lower, due to losing operational time as a result of COVID-19.²²² Among the commercial operators, only MMG's could reasonably be considered clearance of cluster munition-contaminated area.

All clearance organisations in Lao PDR are required to have a documented internal QM system, covering both quality assurance (QA) and quality control procedures (QC). External QM inspections of clearance organisations are carried out by the NRA.²²³ However, the NRA's QM capacity is extremely limited, with only two QM teams to cover sector-wide clearance.²²⁴

ARTICLE 4 DEADLINE AND COMPLIANCE



Under Article 4 of the CCM, Lao PDR is required to destroy all CMR in areas under its jurisdiction or control as soon as possible, but not later than 1 August 2025, having been granted a five-year extension (the maximum that can be requested per extension request under the CCM) in 2019. Based on current capacity and output, Lao PDR will require multiple extensions to its Article 4 deadline. According to the NRA, based on current resources and land release practices, "progress towards reaching a residual level of contamination as provided for in the CCM is decades away".²²⁵

As at end of 2020, a total of more than 1,299km² of CHA had already been identified through the ongoing nationwide survey,²²⁶ and as the baseline survey continues the area of confirmed contamination/CHA is expected to continue to increase rapidly. An estimate of the true extent of CMR contamination will not be known until the nationwide CMRS is completed,²²⁷ which the NRA expects will take place by 2025.²²⁸

Clearance of CMR in Lao PDR will take many years and will require long-term national capacity and funding. According to Lao PDR's 2019 Article 4 extension request, annual clearance output based on current capacity and resources available averages approximately 50km²,²²⁹ though annual humanitarian clearance output over the last five years has been significantly less (see Table 7).

Table 7: Five-year summary of CMR clearance

Year	Area cleared (km ²)
2020	42.90*
2019	45.77*
2018	36.20
2017	33.02
2016	30.17
Total	188.06

* Excluding commercial clearance

The NRA has highlighted the challenges in balancing resources for survey and clearance. While nationwide CMRS is essential to quantify the extent of actual contamination in Lao PDR, there is also a need for follow-on clearance in priority areas, which also demands significant resources.²³⁰ Commencement of FCDO-funded clearance operations in Lao PDR in 2019 helped increase clearance output of HALO Trust, MAG, and NPA. In addition, the United States has planned to support increased clearance capacity of both international clearance operators and UXO Lao,²³¹ which will result in a significant increase in clearance capacity in 2021.²³²

Lao PDR has identified several challenges in Article 4 implementation. These include insufficient funding (in particular to the NRA and UXO Lao), and the need to strengthen coordination and collaboration among sector stakeholders in order to increase effectiveness and efficiency of the mine action sector in Lao PDR.²³³ Existing clearance capacity is not sufficient to address the area of CHA identified for clearance through the ongoing nationwide CMRS. Furthermore, because the number of CMR found per hectare during clearance is now much higher, thanks to application of evidence-based land release methodology, more explosives are needed for the destruction of CMR. This increases operational costs as explosives in Lao PDR are reportedly among the most expensive in the region.²³⁴

In addition to insufficient clearance capacity, in its Article 7 report covering 2020, Lao PDR also cites mountainous terrain; unpredictable funding; and outdated clearance equipment as other challenges (e.g. in struggling to distinguish between CMR and scrap metal), and the national authorities highlight the need for more advanced clearance equipment and vehicles. The NRA is also seeking international assistance in order to comprehensively update its national prioritisation system; expand clearance capacity, including that of the Humanitarian Demining units of the Army (Unit 58); and upgrade its data and IM systems.²³⁵

In 2020, COVID-19 resulted in a six-week nationwide lockdown from the start of April to mid-May. HALO's operations were suspended during the lockdown and when operations resumed, HALO re-worked its operational calendar so that only ten working days were lost.²³⁶ HI's field operations were suspended for around one month, but as HI EOD staff work on three-month campaign/one-month break rota, HI was able to discuss a flexible plan with the team, which helped mitigate the impact of the lockdown.²³⁷ MAG was unable to operate during the lockdown and gradually returned its teams to operations at the end of May/early June, with SOPs in place to adhere to government regulations.²³⁸

NPA reported that COVID-19 did not significantly affect its operations in 2020, as the national COVID-19 lockdown occurred during the planned full month of operational stand-down corresponding with Pii Mai (the Lao new year holiday). May's schedule was adjusted slightly in order not

to lose operational days. NPA then deployed its teams on a staggered schedule to limit the number of staff gathering in one place, and COVID-19 prevention social distancing/hygiene measures were systematically applied.²³⁹ UXO Lao field operations were stood down for two months (April-May) as the result of the COVID-19 pandemic, and the annual work plan was revised for remaining months of works. The impact of COVID-19 resulted in 10% of its UXO Lao's 2020 annual work plan being cancelled.²⁴⁰

As mentioned previously, and currently impacting HI's operations in Houaphanh province, discovery of mines during CMRS significantly impedes operations.²⁴¹ Other operational challenges in clearance tasks include heavy rains during the wet season; high scrap-metal contamination and fragmentation from other UXO; difficulty accessing tasks due to flooding and vehicles getting stuck in the mud; and the proximity of high-voltage pylons and power lines.²⁴²

PLANNING FOR RESIDUAL RISK AFTER COMPLETION

Lao PDR is still determining the extent of its baseline of CMR contamination and is many years from completion, but planning for sustainable national capacity to address previously unknown cluster munition contamination following completion (i.e. residual contamination) will be essential.

- 1 Article 4 deadline Extension Request 2019 (hereafter, CCM Extension Request 2019), Part B, Detailed Narrative, p. 5.
- 2 Interview with Phoukhieo Chanthasomboune, Director, National Regulatory Authority (NRA), Vientiane, 4 May 2016; and NRA, "From Survey to Safety, Quantifying and Clearing UXO Contamination in Lao PDR", March 2016.
- 3 "US bombing records in Laos, 1964-73, Congressional Record", 14 May 1975.
- 4 The NRA reported in July 2021 that 17 provinces and 1 capital city contain "UXO contamination" (email from Nicholas Tan, UNDP, 21 July 2021).
- 5 Statement of Lao PDR on Clearance and Risk Reduction, CCM Second Review Conference (Part 1, virtual meeting), 25-27 November 2020.
- 6 Article 7 Report (covering 2020), Form F.
- 7 Ibid. The four provinces not reported as having CMR contamination were Borkeo, Luangnamtha, Sayyabouly, and Xaisomnoun. The two additional provinces not listed as having CMR contamination, but where CMR clearance was reported to have taken place in 2019 were Luangnamtha and Xaisomboun.
- 8 Email from Nicholas Tan, UNDP, 6 August 2021.
- 9 CCM Extension Request 2019, Part B, Detailed Narrative, pp. 1 and 5; and Executive Summary, p. 1.
- 10 Email from Chomyaeng Phengthongsawat, Director General, NRA, 21 June 2021. Lao PDR's Article 7 Report (covering 2020), Form F, put the total amount of cluster munition contaminated areas at end of 2020 at 1,298.34km².
- 11 Email from Mark Frankish, Chief Technical Advisor UXO Unit, UNDP, 26 August 2020. According to the foreword of the 2019 UXO Sector Annual Report, p. iii, a total of 102,112 hectares (1,021km²) of CHA had been identified and registered in the database, but no date was specified.
- 12 Email from Chomyaeng Phengthongsawat, NRA, 21 June 2021.
- 13 Interview with Phoukhieo Chanthasomboune, NRA, in Geneva, 7 February 2019.
- 14 Email from Mark Frankish, UNDP, 26 August 2020.
- 15 CCM Extension Request 2019, Part B, Detailed Narrative, pp. 3 and 5; and Executive Summary, p. 4; and Article 7 Report (covering 2020), Form F.
- 16 CCM Extension Request 2019, Part B, Detailed Narrative, pp. 1 and 5.
- 17 Ibid., Part B, Detailed Narrative, p. 1.
- 18 CCM Extension Request 2019, Executive Summary, p. 5; and Part B, Detailed Narrative, p. 23.
- 19 2019 UXO Sector Annual Report, NRA, undated, Foreword by US Ambassador and UNDP Resident Representative, Co-Chairpersons of the UXO Sector Working Group, p. iv.
- 20 Emails from Mark Frankish, UNDP, 26 August 2020; and Chomyaeng Phengthongsawat, NRA, 21 June 2021.
- 21 CCM Extension Request 2019, Part B, Detailed Narrative, p. 1.
- 22 Ibid., Part B, Detailed Narrative, p. 18.
- 23 Government Decree No. 67, dated 12 February 2018; CCM Extension Request 2019, Part B, Detailed Narrative, p. 17; and Statement of Lao PDR on National Implementation Efforts, CCM Eighth Meeting of States Parties, Geneva, 3 September 2018.
- 24 CCM Extension Request 2019, Part B, Detailed Narrative, p. 18.
- 25 Ibid., p. 26.
- 26 Email from Olivier Bauduin, US PMWRA, 29 September 2020.
- 27 Article 7 Report (covering 2020), Form I.
- 28 Emails from Katherine Harrison, Programme Coordinator, NPA, 9 September 2020; Cameron Imber, HALO, 11 June 2021; Julien Kempeneers, Regional Armed Violence Reduction and Humanitarian Mine Action Specialist, HI, 16 June 2021; and Rebecca Letven, Country Director, MAG, 19 June 2021.
- 29 Emails from Cameron Imber, HALO, 11 June 2021; and Katherine Harrison, NPA, 19 June 2021.
- 30 Email from Olivier Bauduin, US PMWRA, 6 July 2021.
- 31 Interview with Olivier Bauduin, UNDP, Vientiane, 2 May 2018; and email, 10 July 2018.
- 32 Email from Nigel Orr, Technical Advisor Survey and Clearance, Tetra Tech, 14 June 2019; and "US Renews Partnership with Lao PDR to Build Capacity in UXO Sector", US Embassy in Lao PDR, 31 January 2020, at: <http://bit.ly/2LzmG8J>.
- 33 Email from Robert White, Advisor, Strategic Management & Residual Contamination, GICHD, 22 July 2020.

- 34 Email from Katherine Harrison, NPA, 19 June 2021.
- 35 Interview with Phil Bean, US PMWRA, and Olivier Bauduin, Sterling International, in Geneva, 14 February 2018; CCM Extension Request 2019, Part B, Detailed Narrative, pp. 4 and 25; and email from Blossum Gilmour, Programme Manager, MAG, 21 March 2019.
- 36 Emails from Rebecca Letven, MAG, 26 March 2021; Cameron Imber, Programme Manager, HALO, 14 March 2021; and Julien Kempeneers, HI, 16 March 2021.
- 37 CCM Extension Request 2019, Part B, Detailed Narrative, p. 7.
- 38 Emails from Rebecca Letven, MAG, 26 March 2021; Cameron Imber, HALO, 14 March 2021; Katherine Harrison, NPA, 22 March 2021; and Julien Kempeneers, HI, 16 March 2021.
- 39 Emails from Simon Rea, Regional Director, South and South East Asia, MAG, 17 June 2020; Rebecca Letven, MAG, 26 March 2021; Katherine Harrison, NPA, 6 May 2020 and 31 March 2021; and Cameron Imber, HALO, 14 March 2021.
- 40 CCM Extension Request 2019, Part B, Detailed Narrative, p. 25.
- 41 Interviews with international operators, Lao PDR, 1–12 May 2018; and emails from Fiona Kilpatrick, HALO Trust, 29 March 2019; Blossum Gilmour, MAG, 21 March 2019; Rebecca Letven, MAG, 26 March 2021; Katherine Harrison, NPA, 6 May 2020 and 31 March 2021; and Julien Kempeneers, HI, 16 March 2021.
- 42 Email from Rebecca Letven, MAG, 19 June 2021.
- 43 Interviews with international operators, Lao PDR, 1–12 May 2018; and emails from Fiona Kilpatrick, HALO Trust, 29 March 2019; Blossum Gilmour, MAG, 21 March 2019; Rebecca Letven, MAG, 26 March 2021; Katherine Harrison, NPA, 6 May 2020 and 31 March 2021; and Julien Kempeneers, HI, 16 March 2021.
- 44 Email from Katherine Harrison, NPA, 9 September 2020.
- 45 Email from Julien Kempeneers, HI, 16 June 2021.
- 46 Interviews with international operators, Lao PDR, 1–12 May 2018.
- 47 Email from Julien Kempeneers, on behalf of Yvon Le Chevanton, Technical Survey/Clearance Operations Manager, HI, 25 March 2020.
- 48 Email from Julien Kempeneers, HI, 16 March 2021.
- 49 Emails from Katherine Harrison, NPA, 22 March 2021 and Julien Kempeneers, on behalf of Minla Nanthavong, Deputy Operations Manager, HI, 16 March 2021.
- 50 Email from Katherine Harrison, NPA, 22 March 2021.
- 51 Email from Rebecca Letven, MAG, 26 March 2021.
- 52 Email from Katherine Harrison, NPA, 19 June 2021.
- 53 Email from Fiona Kilpatrick, HALO Trust, 29 March 2019.
- 54 Statement of the Article 4 Analysis Group (Netherlands, Peru and Sweden) on conclusions of the extension request by Lao PDR, 9th Meeting of States Parties to the Convention on Cluster Munitions, Geneva, 2 September 2019.
- 55 Statement of Lao PDR on International Cooperation and Assistance, CCM Second Review Conference (Part 1, virtual meeting), 25–27 November 2020.
- 56 Email from Chomyaeng Phengthongsawat, NRA, 21 June 2021.
- 57 Statement of Lao PDR on National Implementation Measures, CCM Second Review Conference (Part 1, virtual meeting), 25–27 November 2020.
- 58 UN Lao PDR, "Training of Trainer's Workshop Promotes Gender Equality in UXO Sector", 13 December 2018, available at: <http://bit.ly/3haKMnB>.
- 59 ASEAN Regional Mine Action Center (ARMAC), Annual Report 2019, p. 17; and email from Arianna Calza Bini, GICHD, 27 July 2021.
- 60 Emails from Fiona Kilpatrick, HALO Trust, 29 March 2019; Blossum Gilmour, MAG, 21 March 2019; Aubrey Sutherland, NPA, 25 March 2019; Julien Kempeneers, HI, 22 March 2019; and Saomany Manivong, Chief of Programme Office and Public Information, UXO Lao, 10 May 2019.
- 61 Email from Cameron Imber, HALO, 14 March 2021.
- 62 Ibid.
- 63 Emails from Julien Kempeneers, HI, 25 March 2020; and on behalf of Minla Nanthavong, HI, 16 March 2021.
- 64 Email from Julien Kempeneers, HI, 16 March 2021.
- 65 Email from Rebecca Letven, MAG, 26 March 2021.
- 66 Email from Katherine Harrison, NPA, 31 March 2021.
- 67 Ibid.
- 68 Email from Saomany Manivong, UXO Lao, 10 May 2019.
- 69 Ibid.
- 70 Email from Saomany Manivong, UXO Lao, 3 August 2020.
- 71 Email from Katherine Harrison, NPA, 21 June 2021.
- 72 Emails from Bouala Thongsavanh, NRA, on behalf of Phoukhieo Chanthasomboune, NRA, 30 April 2018; and Aubrey Sutherland, NPA, 25 March 2019; NRA, draft "Lao PDR UXO Survey Procedures", 20 September 2017; interview with Phoukhieo Chanthasomboune, NRA, Vientiane, 2 May 2018; and interview with Hugh Hosman and Marco Heuscher, (then with) Sterling International, Vientiane, 2 May 2018.
- 73 CCM Extension Request 2019, Part B, Detailed Narrative, p. 4.
- 74 Emails from Mark Frankish, UNDP, 26 August 2020; and Chomyaeng Phengthongsawat, NRA, 21 June 2021.
- 75 CCM Extension Request 2019, Executive Summary, p. 1, and Part B, Detailed Narrative, p. 6; and Article 7 Report (covering 2019), Form F.
- 76 Emails from Katherine Harrison, NPA, 22 March 2021; Rebecca Letven, MAG, 26 March 2021; Cameron Imber, HALO, 14 March 2021; and Julien Kempeneers, HI, 16 March 2021.
- 77 "Data errors on IMSMA", Nigel Orr, Technical Adviser, (then with) Sterling International, 26 April 2017.
- 78 Presentation by HALO Trust, Sepon, 10 May 2018.
- 79 Email from Katherine Harrison, NPA, 22 March 2021.
- 80 NRA, draft "Lao PDR UXO Survey Procedures", 20 September 2017, p. 26; and Statement of Lao PDR on International Cooperation and Assistance, CCM Seventh Meeting of States Parties, Geneva, 4–5 September 2017; interview with Phoukhieo Chanthasomboune, NRA, Vientiane, 2 May 2018; and interviews with national and international clearance operators, Laos, 1–12 May 2018.
- 81 Emails from Fiona Kilpatrick, HALO Trust, 29 March 2019; and Blossum Gilmour, MAG, 21 March 2019.
- 82 Email from Saomany Manivong, UXO Lao, 11 May 2021.
- 83 Email from Saomany Manivong, UXO Lao, 11 May 2021.
- 84 Email from Katherine Harrison, NPA, 31 March 2021.
- 85 Emails from Katherine Harrison, NPA, 6 May and 9 September 2020.
- 86 Emails from Katherine Harrison, NPA, 22 March and 21 June 2021.
- 87 Emails from Katherine Harrison, NPA, 22 March 2021; Rebecca Letven, MAG, 26 March 2021; and Julien Kempeneers, on behalf of Vilaysack Xaysana, Community Safety and Information Manager, HI, 16 March 2021.
- 88 Emails from Katherine Harrison, NPA, 6 May and 9 September 2020 and 31 March 2021.
- 89 Email from Katherine Harrison, NPA, 31 March 2021.
- 90 Email from Julien Kempeneers, HI, 16 March 2021.
- 91 Emails from Katherine Harrison, NPA, 6 May and 9 September 2020; Cameron Imber, HALO, 7 April 2020; and Julien Kempeneers, HI, 25 March 2020.
- 92 Emails from Mark Frankish, UNDP, 26 August 2020 and Saomany Manivong, UXO Lao, 11 May 2021.
- 93 Emails from Katherine Harrison, NPA, 6 May 2020; Simon Rea, MAG, 17 June 2020; Cameron Imber, HALO, 7 April 2020; and Julien Kempeneers, HI, 25 March 2020.
- 94 Emails from Cameron Imber, HALO, 7 April 2020; Julien Kempeneers, HI, 25 March 2020; and Katherine Harrison, NPA, 9 September 2020.
- 95 CCM Extension Request 2019, Part B, Detailed Narrative, p. 3.
- 96 Interview with Phil Bean, US PMWRA, in Geneva, 6 February 2018.
- 97 Emails from Rebecca Letven, MAG, 19 June 2021; and Chomyaeng Phengthongsawat, NRA, 21 June 2021.
- 98 Interview with Phoukhieo Chanthasomboune, NRA, Vientiane, 4 May 2016.
- 99 NRA, "From Survey to Safety, Quantifying and Clearing UXO Contamination in Lao PDR", March 2016.
- 100 CCM Extension Request 2019, Part B, Detailed Narrative, p. 26.
- 101 "Survey and clearance plan for UXO/mine action sector in Lao PDR, 2017–2021".
- 102 Email from Olivier Bauduin, US PMWRA, 29 September 2020.
- 103 Emails from Katherine Harrison, NPA, 22 March 2021; and Rebecca Letven, MAG, 26 March 2021.
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- 105 Email from Katherine Harrison, NPA, 22 March 2021.
- 106 Email from Chomyaeng Phengthongsawat, NRA, 21 June 2021.
- 107 "US Renews Partnership with Lao PDR to Build Capacity in UXO Sector", US Embassy in Lao PDR, 31 January 2020.

- 108 Email from Katherine Harrison, NPA, 22 March 2021.
- 109 Email from Bouala Thongsavanh, NRA, on behalf of Phoukhieo Chanthasomboune, NRA, 30 April 2018; and interview with Phoukhieo Chanthasomboune, NRA, Vientiane, 2 May 2018.
- 110 Interview with Phoukhieo Chanthasomboune, NRA, in Geneva, 7 February 2019.
- 111 Email from Amanda Shiel, UXO Unit Programme and Partnership Support Officer, UNDP, 4 September 2020.
- 112 Emails from Olivier Bauduin, US PMWRA, 29 September 2020; Rebecca Letven, MAG, 26 March 2021; Katherine Harrison, NPA, 22 March 2021; and Julien Kempeneers, HI, 16 March 2021.
- 113 Statement of Lao PDR on International Cooperation and Assistance, CCM Seventh Meeting of States Parties, Geneva, 4–5 September 2017; and interview with Phil Bean, US PMWRA, and Machut Shishak, Political/Economic Counselor, US Embassy, Vientiane, 3 May 2018.
- 114 Statement of Lao PDR on National Implementation Efforts, CCM Eighth Meeting of States Parties, Geneva, 3 September 2018.
- 115 Email from Chomyaeng Phengthongsawat, NRA, 21 June 2021.
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- 117 CCM Extension Request 2019, Executive Summary, p. 3; and Part B, Detailed Narrative, p. 4.
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- 119 2019 UXO Sector Annual Report, NRA, undated, p. 14.
- 120 CCM Extension Request 2019, Executive Summary, p. 4; and Part B, Detailed Narrative, p. 21.
- 121 Email from Chomyaeng Phengthongsawat, NRA, 21 June 2021.
- 122 CCM Extension Request 2019, Executive Summary, pp. 1, 4, and 6, and Part B, Detailed Narrative, pp. 22 and 25.
- 123 CCM Extension Request 2019, Executive Summary, p. 4; and Part B, Detailed Narrative, pp. 7 and 22.
- 124 Ibid.
- 125 Ibid.
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- 127 Interviews with national and international clearance operators, Laos, 1–12 May 2018.
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- 130 Email from Bouala Thongsavanh, Assistant to the Director of the NRA, on behalf of Phoukhieo Chanthasomboune, NRA, 30 April 2018.
- 131 Emails from Mark Frankish, UNDP, 26 August 2020; and Chomyaeng Phengthongsawat, NRA, 21 June 2021.
- 132 Emails from Fiona Kilpatrick, HALO Trust, 29 March 2019; and Aubrey Sutherland, NPA, 25 March 2019; and interview with Phoukhieo Chanthasomboune, NRA, in Geneva, 7 February 2019.
- 133 Emails from Katherine Harrison, NPA, 6 May 2020; and Simon Rea, MAG, 17 June 2020.
- 134 Emails from Katherine Harrison, NPA, 22 March 2021; and Rebecca Letven, MAG, 26 March 2021.
- 135 Email from Chomyaeng Phengthongsawat, NRA, 21 June 2021.
- 136 Interviews with international and national operators, Laos, 1–12 May 2018.
- 137 NRA, draft "Lao PDR UXO Survey Procedures", 20 September 2017; and CCM Extension Request 2019, Executive Summary, p. 3.
- 138 Emails from Olivier Bauduin, UNDP, 10 July 2018; and Nigel Orr, (then with) Janus Global Operations, 13 July 2018; and interviews with international operators, Lao PDR, 1–12 May 2018; and Phoukhieo Chanthasomboune, NRA, Vientiane, 2 May 2018; and Statement of Lao PDR on National Implementation Efforts, CCM Eighth Meeting of States Parties, Geneva, 3 September 2018.
- 139 CCM Extension Request 2019, Executive Summary, p. 2; CCM Extension Request 2019, Part B, Detailed Narrative, pp. 9 and 17.
- 140 Emails from Email from Cameron Imber, HALO, 7 April 2020; Simon Rea, MAG, 17 June 2020; Katherine Harrison, NPA, 6 May 2020; and Saomany Manivong, UXO Lao, 10 May 2019.
- 141 CCM Extension Request 2019, Part B, Detailed Narrative, p. 18.
- 142 Emails from Julien Kempeneers, HI, 16 March 2021; and Rebecca Letven, MAG, 26 March 2021.
- 143 Emails from Katherine Harrison, NPA, 6 May and 9 September 2020.
- 144 Interview with Phoukhieo Chanthasomboune, NRA, Vientiane, 2 May 2018.
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- 154 NRA, draft "Lao PDR UXO Survey Procedures", 20 September 2017.
- 155 Interviews with international operators, Laos, 1–12 May 2018.
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- 157 CCM Extension Request 2019, Executive Summary, p. 5; and Part B, Detailed Narrative, pp. 24–25.
- 158 CCM Extension Request 2019, Part B, Detailed Narrative, p. 17.
- 159 Email from Katherine Harrison, NPA, 9 September 2020.
- 160 Interviews with Ulric Eriksson, NPA Laos, Saravan, 4 May 2018; and Olivia Meader, HALO Trust, Sepon, 11 May 2018.
- 161 Interview with Neil Arnold, MAG, Phonsavanh, 6 May 2018.
- 162 Email from Julien Kempeneers, on behalf of Yvon Le Chevanton, HI, 25 March 2020.
- 163 Email from Julien Kempeneers, on behalf of Yvon Le Chevanton, HI, 16 March 2021.
- 164 Email from Saomany Manivong, UXO Lao, 10 May 2019.
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- 166 Email from Katherine Harrison, NPA, 6 May 2020.
- 167 Interview with Neil Arnold, MAG, Phonsavanh, 6 May 2018.
- 168 Email from Bouala Thongsavanh, on behalf of Phoukhieo Chanthasomboune, NRA, 30 April 2018.
- 169 Response to Mine Action Review questionnaire from Olivia Meader, HALO Trust, 11 May 2018; and interview with Olivier Bauduin, UNDP, Vientiane, 2 May 2018.
- 170 Email from Julien Kempeneers, HI, 25 March 2020.
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- 181 Email from Saomany Manivong, UXO Lao, 11 May 2021.
- 182 Emails from Katherine Harrison, NPA, 31 March 2021; and Saomany Manivong, UXO Lao, 11 May 2021.
- 183 Emails from Cameron Imber, HALO, 14 March and 11 June 2021.
- 184 Email from Julien Kempeneers, HI, 16 March 2021.
- 185 Emails from Julien Kempeneers, HI, 25 March 2020 and 16 June 2021.
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- 187 Emails from Rebecca Letven, MAG, 26 March and 19 June 2021.

- 188 Email from Katherine Harrison, NPA, 31 March 2021.
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- 196 Email from Katherine Harrison, NPA, 6 May 2020.
- 197 Email from Rebecca Letven, MAG, 26 March 2021.
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- 199 Email from Katherine Harrison, NPA, 19 June 2021.
- 200 *Ibid.*
- 201 Email from Rebecca Letven, MAG, 26 March 2021.
- 202 Email from Chomyaeng Phengthongsawat, NRA, 21 June 2021.
- 203 Article 7 Report (covering 2020), Form F; and email from Nicholas Tan, UNDP, 9 August 2021.
- 204 Article 7 Report (covering 2020), Form F; and NRA Annual Project Progress Report to UNDP for 2020 reporting period, p.17.
- 205 NRA Annual Project Progress Report to UNDP for 2020 reporting period, p.17.
- 206 Email from Chomyaeng Phengthongsawat, NRA, 21 June 2021.
- 207 Email from Cameron Imber, HALO, 14 March 2021.
- 208 Emails from Julien Kempeneers and from Julien Kempeneers on behalf of Yvon Le Chevanton, HI, 16 March 2021.
- 209 Email from Saomany Manivong, UXO Lao, 11 May 2021.
- 210 There was a discrepancy in data reported by the NRA and data reported directly by some operators. HALO Trust reported that it surveyed 66,980,000m², identified 10,613,156m², and destroyed 2,486 submunitions and 609 other UXO (email from Cameron Imber, HALO, 14 March 2021); HI reported that it surveyed 1,235,000m², identified 623,164m², and destroyed 215 submunitions, 932 other UXO, and 1 anti-personnel mine (email from Julien Kempeneers, HI, 16 March 2021); MAG's data matched that reported by the NRA (email from Rebecca Letven, MAG, 26 March 2021); NPA reported that it surveyed 58,385,000m², identified 20,339,085m², and destroyed 2,152 submunitions and 186 other UXO (email from Katherine Harrison, NPA, 31 March 2021); and UXO Lao reported that it surveyed 71,657,000m², identified 47,044,587m², and destroyed 5,554 submunitions and 1,197 other UXO (email from Saomany Manivong, UXO Lao, 11 May 2021).
- 211 Email from Chomyaeng Phengthongsawat, NRA, 21 June 2021. According to Lao PDR's reporting under the CCM and CCW, a total of 32 landmines were discovered and destroyed. CCW Protocol V Article 10 Report (covering 2020), Form A; and CCM Article 7 Report (covering 2020), Form F.
- 212 *Ibid.* HALO Trust reported that it destroyed 3,263 submunitions during spot tasks (email from Cameron Imber, HALO, 14 March 2021); HI reported that it destroyed 225 submunitions (email from Julien Kempeneers, HI, 16 March 2021); MAG reported that it 11,687 submunitions (email from Rebecca Letven, MAG, 26 March 2021); NPA reported that it destroyed 1,371 submunitions (email from Katherine Harrison, NPA, 31 March 2021); and UXO Lao reported that it destroyed 8,845 submunitions during spot tasks (email from Saomany Manivong, UXO Lao, 11 May 2021).
- 213 Email from Chomyaeng Phengthongsawat, NRA, 21 June 2021. There was a discrepancy in data reported by the NRA and data reported directly by some operators. HALO Trust reported that it cleared 2,891,709m², and destroyed 2,139 submunitions and 1,386 other UXO (email from Cameron Imber, HALO, 14 March 2021); HI reported that it cleared 546,370m², and destroyed 842 submunitions, 448 other UXO, and 1 anti-vehicle mine (email from Julien Kempeneers, HI, 16 March 2021); MAG reported that it cleared 9,073,145m², and destroyed 6,195 submunitions, and 560 other UXO (email from Rebecca Letven, MAG, 26 March 2021); NPA reported that it cleared 4,244,214m², destroyed 4,891 submunitions, and 315 other UXO (email from Katherine Harrison, NPA, 31 March 2021); and UXO Lao reported that it cleared 26,743,417m², and destroyed 26,227 submunitions, 7,432 other UXO, and 2 anti-personnel mines (email from Saomany Manivong, UXO Lao, 11 May 2021).
- 214 Article 7 Report (covering 2020), Form F.
- 215 NRA Annual Project Progress Report to UNDP for 2020 reporting period, p.17.
- 216 2019 UXO Sector Annual Report, NRA, undated, pp. 5 and 7.
- 217 Article 7 Report (covering 2019), Form F.
- 218 Email from Chomyaeng Phengthongsawat, NRA, 21 June 2021.
- 219 Article 7 Report (covering 2020), Form F.
- 220 NRA Annual Project Progress Report to UNDP for 2020 reporting period, p.17.
- 221 Emails from Julien Kempeneers, HI, 16 March 2021; Cameron Imber, HALO, 14 March 2021; and Katherine Harrison, NPA, 31 March 2021.
- 222 Email from Rebecca Letven, MAG, 26 March 2021.
- 223 NRA, draft "Lao PDR UXO Survey Procedures", 20 September 2017.
- 224 Email from Chomyaeng Phengthongsawat, NRA, 21 June 2021.
- 225 CCM Extension Request 2019, Executive Summary, p. 1; Part B, Detailed Narrative, p. 5; and Statement of Lao PDR, CCM Eighth Meeting of States Parties, Geneva, 3-5 September 2018.
- 226 Email from Chomyaeng Phengthongsawat, NRA, 21 June 2021.
- 227 Interview with Phoukhieo Chanthasomboune, NRA, Vientiane, 2 May 2018.
- 228 Email from Nicholas Tan, UNDP, 21 July 2021.
- 229 CCM Extension Request 2019, Executive Summary, p. 3.
- 230 Statement of Lao PDR, CCM Seventh Meeting of States Parties, Geneva, 4-5 September 2017; email from Bouala Thongsavanh on behalf of Phoukhieo Chanthasomboune, NRA, 30 April 2018; and interview with Phoukhieo Chanthasomboune, NRA, in Geneva, 7 February 2019.
- 231 Interview with Olivier Bauduin, US PMWRA, in Geneva, 13 February 2020.
- 232 Emails from Rebecca Letven, MAG, 26 March 2021; Cameron Imber, HALO, 14 March 2021; and Katherine Harrison, NPA, 22 March 2021.
- 233 Statement of Lao PDR on National Implementation Efforts, CCM Eighth Meeting of States Parties, Geneva, 3 September 2018.
- 234 CCM Extension Request 2019, Executive Summary, p. 5; and Part B, Detailed Narrative, pp. 24-25.
- 235 CCM Article 7 Report (covering 2020), Form F.
- 236 Email from Cameron Imber, HALO, 14 March 2021.
- 237 Email from Julien Kempeneers, HI, 16 March 2021.
- 238 Email from Rebecca Letven, MAG, 26 March 2021.
- 239 Email from Katherine Harrison, NPA, 22 March 2021.
- 240 Email from Saomany Manivong, UXO Lao, 11 May 2021.
- 241 Emails from Julien Kempeneers, HI, 25 March 2020 and 16 March 2021.
- 242 Presentation by HALO Trust, Sepon, 10 May 2018.