

**CONVENTION ON CLUSTER MUNITIONS ARTICLE 4 DEADLINE: 1 AUGUST 2020**  
**FIVE-YEAR EXTENSION REQUEST SUBMITTED TO 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 EXISTS, AS YET.

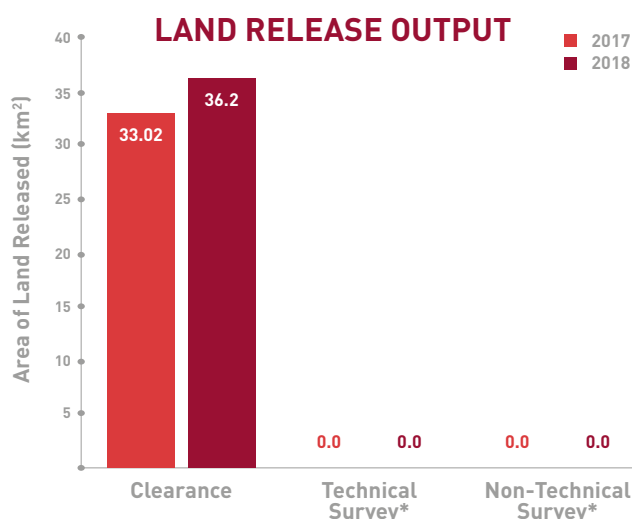
SUBMUNITION CLEARANCE IN 2018

**36.2 km<sup>2</sup>**

SUBMUNITIONS DESTROYED IN 2018

**90,798**

\* Non-technical survey (NTS) and technical survey (TS) are conducted in Lao PDR, but are focused on finding evidence of cluster munition contamination as part of a nationwide survey. The output of the Cluster Munition Remnants Survey (CMRS) being undertaken in Lao PDR is the creation of evidence-based confirmed hazardous areas (CHAs).



### KEY DEVELOPMENTS

The national mine action programme in the Lao People’s Democratic Republic (Lao PDR) continued to make solid progress in 2018, strengthening both structures and processes. The Prime Minister approved a decree in February 2018 on the organisation and operations of the National Regulatory Authority (NRA), defining and clarifying its role, duties, organisational structure, and working principles. Coordination and collaboration at national and provincial level between the NRA, clearance operators, and other stakeholders strengthened, with the creation of a sector-wide work plan for 2018 which included input from all stakeholders. Towards the end of 2018, Lao PDR submitted a five-year extension request to its CCM Article 4 deadline for consideration at the Ninth Meeting of States Parties in September 2019.

National unexploded ordnance (UXO) survey standards were formally approved in July 2018, requiring evidence-based survey methodology to identify confirmed hazardous areas (CHAs) as standard practice. Efforts were also ongoing to clean up historical errors and strengthen information management systems and processes.

Land release by clearance in 2018 was a 10% increase on the previous year’s achievement, at more than 36km<sup>2</sup>.

### RECOMMENDATIONS FOR ACTION

- Cooperation and coordination between clearance operators should be further strengthened. In particular, the NRA should help facilitate effective collaboration by ensuring that UXO Lao data from historic tasks, which is not on the database, be made available to international operators as and when needed, and without unnecessary delay, to help inform survey and clearance operations.
- The NRA should maintain efforts to address inaccurate and incomplete historical operational data in the IMSMA database, and improve information management systems and processes, to ensure the quality, credibility, and transparency of data, especially given the increased volume of data resulting from the ongoing nationwide cluster munition remnants survey (CMRS).
- Procedures for issuing, amending, or renewing Memoranda of Understanding (MoU) should be streamlined, standardised, and made transparent, to avoid inefficiencies and excessive delays.
- The National Regulatory Authority (NRA) should strengthen guidance on the prioritisation processes and criteria for cluster munition remnant (CMR) clearance tasks.

- 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 considerations.
- The NRA should seek to expand and strengthen its external quality management (QM) capacity.

## ASSESSMENT OF NATIONAL PROGRAMME PERFORMANCE

Criterion	Score (2018)	Performance commentary
<b>UNDERSTANDING OF CLUSTER MUNITION REMNANT</b> (20% of overall score)	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. Some 2,873 villages are believed to be impacted by CMR.
<b>NATIONAL OWNERSHIP AND PROGRAMME MANAGEMENT</b> (10% of overall score)	7	There is strong national ownership from the NRA and the relevant prime ministerial decree in 2018 clarified and confirmed the role of the NRA as the primary coordinator and national focal point for the sector. Mine action in Lao PDR is also firmly linked to the government's sustainable development planning. However, MoU procedures remain complex and heavy, causing significant delay and impeding the implementation and expansion of survey and clearance, including by preventing the acquisition and import of equipment.
<b>GENDER</b> (10% of overall score)	7	In partnership with UN Women and the Lao Women's Union, the NRA held a workshop in December 2018 on how to promote gender rights in the Lao PDR UXO sector and, in early 2019, finalised a manual for trainers on gender mainstreaming. The four major international clearance operators in Lao PDR either have gender policies in place or are in the process of implementing such policies.
<b>INFORMATION MANAGEMENT AND REPORTING</b> (10% of overall score)	6	There are ongoing efforts to correct historical data in IMSMA and to improve information management systems and processes to ensure the quality, credibility, and transparency of data, especially given the increased volume of data resulting from the ongoing nationwide CMRS. Lao PDR submitted its CCM Article 4 extension request on time, for consideration at the Meeting of States Parties in September 2019.
<b>PLANNING AND TASKING</b> (10% of overall score)	6	A first sector-wide annual workplan for Lao PDR (for 2018), was developed in an inclusive manner with input from all relevant stakeholders and subsequently approved by the NRA Board. In its draft Article 4 extension request, Lao PDR outlined a workplan for the five-year period of the extension, with three potential clearance output estimates, each with measurable benchmarks, dependent on the level of funding and capacity obtained. No comprehensive national-level guidance on the prioritisation of clearance tasks exists, but a project began in 2019 to create a nationwide prioritisation matrix.
<b>LAND RELEASE SYSTEM</b> (20% of overall score)	8	Lao PDR UXO Survey Standards, which specify the minimum standards and requirements for the survey of all cluster munition-contaminated areas in Lao PDR, were officially approved in July 2018. The survey standards are well adapted to the local threat and context and adopt an evidence-based land release methodology, in line with international best practice.
<b>LAND RELEASE OUTPUTS AND ARTICLE 4 COMPLIANCE</b> (20% of overall score)	7	The use of CMRS is a solid basis for the targeting of clearance and improvements to the survey methodology in 2018 will further enhance the efficiency of clearance operations.
<b>Average score</b>	<b>7.0</b>	<b>Overall programme performance: GOOD</b>

## CLUSTER MUNITION SURVEY AND CLEARANCE CAPACITY

### MANAGEMENT

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

### NATIONAL OPERATORS

- UXO Lao
- Humanitarian teams of Lao Army
- Commercial operators Humanitarian teams of Lao Army
- Commercial operators

### INTERNATIONAL OPERATORS

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

### OTHER ACTORS

- United Nations Development Programme (UNDP)
- Tetra Tech

## UNDERSTANDING OF CMR CONTAMINATION

Lao PDR does not yet have a reliable estimate of CMR contamination,<sup>1</sup> but is undertaking a nationwide CMRS that should produce an evidence-based assessment of the full extent of CMR contamination.<sup>2</sup> US bombing data indicate 70,000 individual target locations across Lao PDR.<sup>3</sup> Fourteen of the country's seventeen provinces are contaminated: Attapeu, Bolikhamxay, Champasak, Houaphanh, Khammouane, Luang Prabang, Oudomxay, Phongsaly, Saravan, Savannakhet, Vientiane Capital, Vientiane Province, Xekong, and Xiengkhouang.<sup>4</sup> Of these, nine provinces are heavily affected: Attapeu, Champasak, Houaphanh, Khammouane, Luang Prabang, Saravan, Savannakhet, Xekong, and Xiengkhouang.<sup>5</sup>

In its 2019 Article 4 extension request, Lao PDR estimated that the total land contaminated by CMR is approximately 8,470km<sup>2</sup>, a figure unchanged since its September 2011 clearance statement to the CCM Second Meeting of States Parties. National authorities acknowledged that the nationwide survey will confirm the extent of cluster munition contamination far more accurately.<sup>6</sup>

Lao PDR 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,<sup>7</sup> 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 percent, and an estimated 80 million submunitions are thought to have remained unexploded at the end of the war.<sup>8</sup>

During the period of its Article 4 extension request (2020–25), Lao PDR will focus survey on the six 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.<sup>9</sup>

According to Lao PDR, in 2014–18, UXO operators in Lao PDR (UXO Lao, humanitarian teams of Lao Army, HI, The HALO Trust, Mines Advisory Group (MAG), and Norwegian People's Aid (NPA)) conducted non-technical and technical survey in ten contaminated provinces, including Attapeu, Bolikhamxai, Champasak, Khammouane, Saravan, Savannakhet, and Xekong. By the end of 2018, non-technical survey had been conducted in 1,558 villages and technical survey in 1,217 villages, resulting in 9,284 CHAs, equivalent to 85,829 hectares (858km<sup>2</sup>) – see Table 1.<sup>10</sup> The amount of CHA is expected to continue to increase as the nationwide CMRS continues, and may double or even triple over the next five years.<sup>11</sup>

**Table 1: CMR survey results (at end 2018)<sup>12</sup>**

Province	No. of villages	No. of CHAs	Total area (km <sup>2</sup> )
Attapeu	108	1,301	124.0
Bolikhamxai	3	1	0.1
Champasak	69	215	10.9
Houaphanh	98	287	30.6
Khammouane	92	432	68.2
Luang Prabang	43	175	17.9
Saravan	277	1,911	83.5
Savannakhet	209	2,897	128.0
Xekong	119	1,075	76.6
Xiengkhouang	199	990	318.4
<b>Totals</b>	<b>1,217</b>	<b>9,284</b>	<b>858.2</b>

Between the time Lao PDR became a state party to the CCM on 1 August 2010 (when the Convention as a whole entered into force) and the end of 2018, a total of 41,088 hectares (410.9km<sup>2</sup>) has been cleared, with the destruction of 518,368 submunitions. This includes clearance by humanitarian operators, commercial operators, and humanitarian clearance teams of the Lao Army.<sup>13</sup>

### 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 unexploded ordnance (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.<sup>14</sup> 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.<sup>15</sup> 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.<sup>16</sup>

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.<sup>17</sup> While the NRA has the central role of UXO Sector coordination, increased coordination and collaboration between all stakeholders, including line ministries, local authorities, UXO operators, development partners, and others are essential for the NRA to fulfil its coordination role.<sup>18</sup> Effective coordination is particularly crucial in the context of prioritising clearance of the large number of CHAs already recorded in the database as a result of the ongoing CMRS.<sup>19</sup>

Prior to 2004, nearly all humanitarian clearance operations in the UXO Sector had been conducted under the umbrella of the national mine action operator, Lao National Unexploded Ordnance Programme (UXO Lao), which was established in 1996.<sup>20</sup>

The Lao government adopted UXO clearance as a ninth Millennium Development Goal in 2010, targeting removal of all UXO from priority agricultural land by 2020.<sup>21</sup> Subsequently, 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 Eighth National Socio-Economic Development Plan (2016–20) also reflects the importance of UXO clearance for realising Lao PDR’s development targets.<sup>22</sup>

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.<sup>23</sup> In 2018, further capacity development in information management, QM, and operations support, was provided primarily to UXO Lao, and to a lesser extent the NRA, through a US-funded grant manager, Janus Global Operations. As part of its work in 2018, Janus supported UXO Lao with survey and data analysis and correction as a follow-on to training they conducted in 2017.<sup>24</sup> Effective 31 December 2018, Tetra Tech replaced Janus as the US-funded grant manager in Lao PDR.<sup>25</sup>

There is a Sector Working Group (SWG), led by the chair of the NRA board, and co-chaired by UNDP and the US Ambassador in Vientiane, which meets annually and brings together key stakeholders, including donors, to share information and enhance coordination and resource mobilization.<sup>26</sup> The last SWG meeting was convened in November 2018.<sup>27</sup> National authorities in Lao PDR planned to diversify the sources of funding throughout the extension request 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.<sup>28</sup>

International clearance operators recognised a notable improvement in both cooperation and coordination with the NRA throughout 2018, particularly at national level but also provincial and district levels.<sup>29</sup> Humanitarian clearance operators are involved in key decision-making processes by the national authorities, including through participation in Technical Working Groups (TWGs).<sup>30</sup> There are four TWGs, namely: for survey and clearance, information management, UXO risk education, and victim assistance. The TWGs, which are held regularly, are designed to promote information sharing and progress in the four thematic aspects.<sup>31</sup> Operators were also consulted during the elaboration of Lao PDR’s CCM Article 4 extension request.<sup>32</sup> In addition, there were efforts to establish a survey working group in 2019, involving the NRA, clearance operators, and other key stakeholders.<sup>33</sup>

Despite some efforts by the national authorities in 2018 to clarify the procedure for MoUs,<sup>34</sup> MoU procedures in Lao PDR remain complex and heavy, causing significant delay and impeding the implementation and expansion of survey and clearance, including by preventing the acquisition and import of equipment.<sup>35</sup> It should, though, be noted that MoU procedures are long and complex for all NGO activities in Lao PDR, not only those related to mine action. MoUs are typically issued to international clearance operators on a project basis. Operators are required to report and get approval for completed projects before an MoU for a new project can be approved. The lack of an MoU prevents expansion of operations or acquisition of new equipment.<sup>36</sup> Furthermore, even after formal approval of an MoU, operators may still experience challenges importing necessary equipment.<sup>37</sup>

The NRA acknowledged delays in procurement of vehicles and equipment<sup>38</sup> and accepted that improvements could be made on the part of the national and local authorities involved in the MoU process. However, it also highlighted that some of the delays are due to incorrect reporting or a failure to follow correct procedures by clearance operators.<sup>39</sup> MoUs for The HALO Trust and NPA were finally signed on 21 June 2019,<sup>40</sup> marking a positive step forward for implementation. HI and MAG had already had their MoUs signed previously.

## GENDER

As at end-June 2019, the national authorities in Lao PDR had not responded to Mine Action Review's questionnaire, therefore no data on gender was provided by the Ministry of Foreign Affairs or the NRA.

In 2018, UN Women, the NRA, and the Lao Women's Union worked in partnership on how to promote gender rights in the UXO sector. A capacity-building training took place in December 2018 in Vientiane, piloting a sector-specific manual which covers all mine action pillars. The objectives of the workshop were in line with the priorities of the Lao Women's Union to promote women's rights and the Lao government's commitment to advance gender equality in all sectors. The initiative also supports progress towards the National Action Plan for Gender Equality for 2016–20 and Lao PDR's own national Sustainable Development Goal 18 (SDG 18), to remove, by 2030, the obstacles that UXO pose to national development.<sup>41</sup> A "Manual for Trainers on Gender Mainstreaming in the UXO Sector, Lao PDR" was finalised in the first quarter of 2019.

The HALO Trust, MAG, and NPA all reported having gender policies in place. These include consulting women and children during survey and community liaison activities. NPA planned to strengthen its efforts regarding gender in 2019, with the adoption of a gender-specific action plan.<sup>42</sup> HI is establishing a gender, equality and inclusion (GESI) unit to help mainstream these aspects in its development and humanitarian action in Lao PDR.<sup>43</sup> UXO Lao does not have a gender policy at present.<sup>44</sup> The HALO Trust, HI, MAG, NPA, and UXO Lao all reported that their mine action data is disaggregated by sex and age.<sup>45</sup>

The HALO Trust reported that all its teams are gender balanced and there is equal access to employment for qualified women and men in HALO's survey and clearance teams in Lao PDR. Overall, women account for 42% of operational roles in its survey and clearance teams in Lao PDR and 47% of managerial level/supervisory positions.<sup>46</sup>

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. Overall, women account for 40% of HI's survey and clearance teams in Lao PDR and 50% of managerial level/supervisory positions.<sup>47</sup>

MAG reported that there is equal access to employment for qualified women and men in its survey and clearance teams in Lao PDR. Overall, women account for 31% of operational roles in MAG's survey and clearance teams in Lao PDR and 32% of managerial level/supervisory positions.<sup>48</sup>

NPA also reported that it prioritises minorities, particularly ethnic and language minorities, and women, as part of its recruitment process. While NPA survey and clearance teams are gender inclusive, they are not yet gender balanced. Overall, women account for 23% percent of operational roles in NPA's survey and clearance teams in Lao PDR and 16% of managerial level/supervisory positions.<sup>49</sup>

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 SOPs. UXO Lao also ensures its survey and community liaison teams are inclusive and gender balanced, to facilitate access and participation from all groups.<sup>50</sup> 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.<sup>51</sup> UXO Lao employs 1,366 staff, of whom 360 (i.e. 26%) are female.<sup>52</sup> In its field operations women held three senior positions, five team leader positions, and two deputy team leader positions, in addition to an unspecified number of female deminers. At the national office management level, UXO Lao has one female unit chief and two deputies.<sup>53</sup>

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## INFORMATION MANAGEMENT AND REPORTING

The national IMSMA database has multiple data 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 from the migration to IMSMA; and delays in entering new or corrected data into the database.<sup>54</sup>

The NRA has identified that capacity building on data management needs to be strengthened to provide quality control of data and prevent data errors in IMSMA.<sup>55</sup> It has also stressed that upgrading information management systems will be crucial given the greatly increased volume of data resulting from the ongoing nationwide CMRS.<sup>56</sup> According to international clearance operators, access to IMSMA data deteriorated in 2018, and rather than data being freely available as was previously the case, it is now only provided on a request-by-request basis.<sup>57</sup> They also believed there is scope for the data gathering forms to be strengthened to also

ensure socio-economic and impact data is also available for use in planning and prioritisation.<sup>58</sup> Revision of the IMSMA data collection forms is planned to be addressed under the UK Department for International Development (DFID) capacity development project in 2019–20.<sup>59</sup> In addition, the information management system in Lao PDR must also be equipped to record operator conclusion reports, in order to know how many villages have been surveyed. This analysis was missing as at early 2019.<sup>60</sup>

Janus Global Operations provided capacity support to the UXO Lao IM department during 2018 to identify and correct historical data, and developed a tool to help identify data issues in IMSMA.<sup>61</sup> A 2017 report by Sterling International, the US contractor before Janus, 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.<sup>62</sup>

Efforts to correct historical data within IMSMA (including incorporation of correct current data) are ongoing on all survey tasks and across all operators.<sup>63</sup> NPA reported that the quality of its data in the IMSMA database had improved and there were no mismatches in 2018 operations data between NPA's internal reporting systems and the IMSMA database. NPA attributed this improvement to the introduction of IMSMA VPN, which has increased the speed and quality of the data entry and reporting process. The test of the new IMSMA system took place from July to September 2018, with technical support from NPA, and was considered successful. The NRA plans to use this system sector-wide in Lao PDR.<sup>64</sup> 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.<sup>65</sup>

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 explosive ordnance disposal (EOD) roving tasks, area clearance, and accident data.<sup>66</sup> In general, 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.<sup>67</sup> 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.<sup>68</sup> UXO Lao reported that it is not permitted to share data not in IMSMA directly with operators, by directive of the NRA.<sup>69</sup> HI highlighted the importance of having access to the overall contamination picture for Houaphanh province, in which it is operating, especially due to the discovery of landmines in HI's target villages.<sup>70</sup>

It is also important that village-level data corrections made by operators during the nationwide CMRS are updated in IMSMA in a timely manner.<sup>71</sup> According to international operators, information in the national database continues to be two to three months behind operators' information, as the NRA's capacity to check and enter data is limited. However, there are also gaps where operators are slow in submitting data to the national authority.<sup>72</sup>

In 2018, evidence of falsification of UXO Lao CMR CHA data in Houaphanh Province came to light, and was subject to internal and external investigation.<sup>73</sup> The NRA confirmed that the incident had been investigated by the NRA, UXO Lao, and the European Union (EU). The findings of the investigation were shared and lessons learned to ensure that systems are put in place to prevent such occurrences in the future, and that if such incident does occur it is picked up swiftly. The investigation report demonstrates the need to strengthen and improve systems, including quality control at the local, provincial, and head office level. The incident also resulted in "restructuring" of UXO Lao personnel.<sup>74</sup> UXO Lao reported that its Information Management unit now has rigorous quality checks in place for all survey outputs (CHAs), as part of efforts to prevent such instances in the future.<sup>75</sup>

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.

Lao PDR submitted a timely CCM Article 4 deadline extension request for consideration at the CCM Ninth Meeting of States Parties in September 2019. Lao PDR's extension request details progress to address its CMR contamination to date, including the ongoing efforts to determine a baseline of CMR contamination through the nationwide CMRS. The survey will take several years to complete, but for the purposes of its Article 4 extension request, Lao PDR has outlined a workplan for the five-year period of the extension, with three potential clearance output estimates, each with measurable benchmarks, dependent on the level of funding and capacity obtained. The first estimate is based on current capacity and clearance output; the second, on required capacity and funding needed to clear the 800km<sup>2</sup> of CHA already identified as at the end of 2018; and the third estimate details projected funding and capacity needed to clear the existing 800km<sup>2</sup> of CHA already identified as at end 2018 as well as a further 800km<sup>2</sup> of CHA expected to be identified and added to the information management database during the five-year period of the request.<sup>76</sup>

## 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 is "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.<sup>77</sup> 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.<sup>78</sup> There is a corresponding multi-year workplan 2016–20 for implementation of the Safe Path Forward II strategy.<sup>79</sup>

which called for spending on clearance of \$57 million, and targeted clearance for 2017–21 of 45km<sup>2</sup> a year, considerably in excess of actual clearance rates.<sup>80</sup>

In a positive development, a first-ever sector-wide annual workplan for Lao PDR (for 2018), was developed in an inclusive manner with input from all relevant stakeholders and subsequently approved by the NRA Board.<sup>81</sup> This is a step forward for the mine action sector in Lao PDR, which should lead to increased coordination and steering from the Lao authorities at all levels so the outcomes are agreed and accepted by all stakeholders.<sup>82</sup> Unfortunately, stakeholders were not brought together to help inform elaboration of the annual sector-wide workplan for 2019, in the same way as for 2018, reportedly due to lack of budget. Instead the ministry collected the data to inform the 2019 plan.<sup>83</sup>

According to Lao PDR's 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".<sup>84</sup> 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.<sup>85</sup>

In 2018, Lao PDR began its national CMRS baseline survey, with funding from the United States. The first phase of the survey involves six province-wide surveys by international operators The HALO Trust, MAG, and NPA of all villages suspected or confirmed as CMR-contaminated, according to the NRA's village list, in Attapeu, Champasak, Saravan, Savannakhet, Xekong, and Xiengkhouang.<sup>86</sup> The second phase of the US-funded project will likely be survey of an additional three heavily contaminated provinces, and would only start once phase one is completed.<sup>87</sup> 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.<sup>88</sup> However, survey of the first six provinces is falling behind schedule.<sup>89</sup>

#### **Workplan estimates for the extension request period (2020–25)**

Lao PDR's CCM Article 4 extension request includes a five-year workplan for survey and clearance, with progress dependent on the level of funding it secures.

Based on existing capacity, over the five-years 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 (US\$0.9 million per year) and 76 technical survey teams would survey 2,873 villages (466 in year 1; 655 in year 2; 723 in year 3; 529 in year 4; and 500 in year 5), 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.<sup>90</sup>

As at the end of 2018, more than 9,284 CHAs, equivalent to 858km<sup>2</sup> 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. 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 can be cleared.<sup>91</sup>

In its Article 4 extension request, Lao PDR outlines three different estimates for CMR clearance, based on three different scenarios for available resources.

The first estimate (estimate one), outlines predicted clearance output based on existing resources during 2020–25; namely 108 teams, with a total clearance output of 50km<sup>2</sup> per annum, at a cost of US\$12.5 million per year. This would result in clearance of 250km<sup>2</sup> at a costs of \$62.6 million, during the five-year extension request period.<sup>92</sup> This seems highly ambitious, based on current output.

The second estimate (estimate two), outlines predicted clearance output based on the additional resources needed to address the 800km<sup>2</sup> of CHA already recorded in IMSMA as at end of 2018. This estimate sees annual clearance output incrementally increased from 60km<sup>2</sup> per annum in 2020 to 280km<sup>2</sup> per annum in 2024, with total clearance output of 800km<sup>2</sup> during the five-year extension request period, at a total cost of US\$200 million.<sup>93</sup>

The third estimate (estimate three), outlines predicted clearance based on the additional resources needed to address 1,600km<sup>2</sup> of CHA (i.e. 800km<sup>2</sup> of CHA already recorded as at end of 2018 and a further 800km<sup>2</sup> of CHA predicted to result from CMRS during the five-year extension request period, at a total cost of US\$400 million.<sup>94</sup>

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.<sup>95</sup> No task dossier system is implemented by the NRA.<sup>96</sup> A Geneva International Centre for Humanitarian Demining (GICHD) report in 2017 found that "the current national-level prioritisation policies for UXO clearance in Lao PDR are quite general in nature. And, in the absence of agreed criteria for the sector, each UXO operator uses its own criteria to assist decision-making and work planning at the sub-district level."<sup>97</sup>

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.<sup>98</sup> The NRA acknowledges difficulties in sector planning and prioritisation by local authorities.<sup>99</sup> According to Lao PDR's Article 4 extension request, the NRA, with the support of UNDP, has developed criteria and planning guidelines to align prioritisation of clearance with human development. Lao PDR recognises the importance of adopting and implementing a policy

of clear and transparent prioritisation of tasks for the coming years.<sup>100</sup> Under the new DFID contract which commenced in 2019, NPA will assist the NRA in developing national capacity and creating a nationwide prioritisation matrix, with input from fellow DFID consortium partners, HALO Trust and MAG.<sup>101</sup>

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.<sup>102</sup>

## LAND RELEASE SYSTEM

### STANDARDS AND LAND RELEASE EFFICIENCY

The “Lao PDR UXO Survey Standards” (UXO Survey Standard No. 21/NRA) specify the minimum standards and requirements for the survey of all cluster munition-contaminated areas in Lao PDR.<sup>103</sup> The standards were developed in a participatory manner with assistance and input from the mine action community in Lao PDR and were completed in September 2017, before being officially approved by chair of the NRA on 4 July 2018.<sup>104</sup> The standards are said to conform to the International Mine Action Standards (IMAS).<sup>105</sup> The national standards are fully reflected in the standing operating procedures (SOPs) of clearance operators, who reported that they are well adapted to the local threat and context.<sup>106</sup>

UXO Lao, however, believes that aspects of the standards relating to the creation and reporting of interim (incomplete) CHAs, due to the vast extent of CMR contamination in some areas, needs to be reviewed. It also believes that in some circumstances there may be justification for not carrying out survey, but instead making evidence-based assessments of contamination to establish CHAs. In places with severe contamination, UXO Lao is in favour of having the option to forego survey and move directly to clearance.<sup>107</sup> 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.<sup>108</sup>

Prior to 2014, UXO operators in Lao PDR primarily carried out general survey on areas intended for clearance and roving clearance tasks, based on request and reports from villagers. Then, in 2015, all five humanitarian clearance operators (HI, HALO Trust, MAG, NPA, and UXO Lao) and the humanitarian teams of the Lao Army, changed to evidence-based survey procedures (i.e. the CMRS) in which CHAs are identified for clearance.<sup>109</sup> Acceptance and adoption of an evidence-based methodology to survey, in line with international best practice, represents a significant improvement on the request- and response-based system of the past.<sup>110</sup> CMRS has resulted in clearance being directed to 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.<sup>111</sup>

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 data in IMSMA or in operator files.<sup>112</sup>

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. A review by NPA of villages surveyed between 2011 and 2017 in Attapeu, Saravan, and Xekong provinces concluded that teams had not made sufficient use of historical data in some villages. NPA subsequently amended procedures to include analysis of non-technical survey data by senior information management and operations staff and changed team structures to strengthen quality management.<sup>113</sup> Methodology was also strengthened by having survey teams spend at least three days in each village, and, where possible, staying in the village, to facilitate the collection of all relevant data.<sup>114</sup> The HALO Trust also highlighted the benefit of teams staying in the village during the CMRS process, to help identify further evidence and build trust with the local communities.<sup>115</sup>

Technical survey is only carried out based on CMR evidence points and is also conducted on whole villages.<sup>116</sup> 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.<sup>117</sup>

While operators in Lao PDR are required to conduct CMRS in accordance with the national survey standards, there is still scope for flexibility and adaptability in their individual SOPs, recognising that the approach may differ by province based on conditions on the ground. Factors such as the percentage of each box surveyed (above and beyond the mandatory 50%, and ranging from 50 to 70%), time in box, search patterns, type of detector used, and team size and structure, therefore, varied between operators.<sup>118</sup>



Operators continue to refine their cluster munition survey methodology in a bid to accelerate operations. 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, was successfully trialled in 2016 by MAG and NPA partnering in Khammouane province. The trial demonstrated the potential for significant gains in productivity when applied in areas of heavy CMR contamination with overlapping strikes and large CHA polygons.<sup>119</sup> The new national survey procedure permits operators to skip one or more boxes to speed up the technical survey process, but stipulates that skipped boxes should never be at the edge of a technical survey task and must always have a red or yellow box outside them.<sup>120</sup> Where appropriate, skipping boxes has now become standard practice for technical survey teams, where the focus is on identifying the boundaries of CHAs.<sup>121</sup>

In addition, 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 fadeout, 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.<sup>122</sup>

An end-of-survey report form was created in 2017 to standardise the way clearance operators finish village surveys and then report to the government.<sup>123</sup> The extent to which the form is in widespread use is unclear, however.<sup>124</sup> This topic was due for further discussion in the course of 2019.<sup>125</sup> In addition, a “UXO Hot Line” was approved on 28 November 2017, to make it easier for members of local communities to report UXO<sup>126</sup> and to request support in the aftermath of an incident.<sup>127</sup>

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).<sup>128</sup>

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”.<sup>129</sup> 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.<sup>130</sup> 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.<sup>131</sup>

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.<sup>132</sup> Interpretation and understanding as to what constitutes “inaccessible” is not clearly defined and can vary between clearance operators,<sup>133</sup> but according to the national survey standards, dense vegetation and seasonal flooding are not valid reasons for the non-completion of technical survey.<sup>134</sup> 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.<sup>135</sup> The minimum clearance depth in Lao PDR is 25cm, which is intended to capture all surface and shallow CMR contamination.<sup>136</sup>

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.<sup>137</sup> 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.<sup>138</sup>

According to the NRA, understanding of the CMRS process, especially at the local and field levels, is sometimes limited.<sup>139</sup> 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 participate, 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.<sup>140</sup>

## OPERATORS

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 Army.<sup>141</sup>

UXO Lao, the oldest and largest clearance operator in Lao PDR, is a government organisation operating under the Ministry of Labour and Social Welfare,<sup>142</sup> in nine provinces (Attapeu, Champasak, Houaphanh, Khammouane, Luang Prabang, Saravan, Savannakhet, Xekong, and Xiengkhouang).<sup>143</sup> In Luang Prabang, UXO Lao operates with funding from Norway and management support from NPA.<sup>144</sup> At present, UXO Lao is conducting more clearance than survey, which is largely determined by the donors. Its 2018 operational capacity was similar to the previous year, with clearance capacity of 82 ten-strong teams at the start of the year, reduced to 81 teams during the year, when one clearance team in Xiengkhouang province was converted to a technical survey team to work on completing

technical survey of incomplete CHAs. UXO Lao's technical survey capacity in 2018 comprised 15 eleven-strong teams at the beginning of the year, increasing to 16 teams during the year (as previously mentioned, when a clearance team was converted to technical survey). Its non-technical capacity in 2018 comprised nine non-technical survey teams (one four-person team in each of the nine provinces it operates, with the exception of Luang Prabang Province where non-technical survey and risk education to conducted jointly, by two teams).<sup>145</sup>

UXO Lao reported that in six of the nine provinces in which it conducts non-technical survey, international NGOs MAG, HALO and NPA, are funded by the US to conduct 100% CMRS of affected villages in the provinces, which includes non-technical survey. UXO Lao is therefore reviewing whether there is a need for it to conduct non-technical survey, but this decision is complicated by the expectation of the Lao PDR government for UXO Lao, as the national operator, to be involved in all survey.<sup>146</sup>

UXO Lao has seven Hitachi tracked excavators adapted for use as vegetation cutting machines, which are used in support of UXO Lao's clearance of CHAs in the provinces of: Saravan (four machines, of which three are new), Xekong (two machines), and Champasak (one machine). In addition, UXO Lao has two Komatsu tracked excavators that have been fitted with an attachment to crush BLU-26s and other small submunition types. These machines are deployed in Xiengkhouang province, where they work alongside two area clearance teams and destroy the smaller CMR located during clearance. Other larger UXOs located during clearance still have to be destroyed using explosives.<sup>147</sup>

In addition, UXO Lao carried out emergency clearance in Sanamxai district of Attapeu, following the collapse of a hydroelectric dam in July 2018 and the subsequent flooding of a number of villages. As part of the emergency response, UXO Lao mobilised 16 clearance teams to help the release of more than 2.9km<sup>2</sup> of resettlement and agricultural land.<sup>148</sup>

The HALO Trust's survey and clearance efforts are focused on Savannakhet province, where in 2018 it operated in the four most contaminated districts: Nong, Phin, Sepon, and Vilabouly.<sup>149</sup> The HALO Trust reported plans to increase survey efforts and decrease clearance in 2018, reflecting the donor emphasis on survey as part of efforts to complete CMRS of Savannakhet province.<sup>150</sup> In 2018, The HALO Trust deployed two teams of two people for non-technical survey. This marked a change from 2017, when all survey teams conducted non-technical survey when entering a village for the first time, so all 14 teams shared the work. In 2018, two specialist teams were created for the sole responsibility of conducting non-technical survey across HALO Trust's programme in Lao.<sup>151</sup> The HALO Trust increased its technical survey capacity in 2018 to 160 personnel, compared to 70 in 2017, and by May 2018, it was deploying 16 technical survey teams.<sup>152</sup> HALO's clearance capacity decreased from 10 teams of 13 personnel (including driver) from January to April 2018, to 4 teams from May to December 2018. However, HALO Trust expected to increase clearance

capacity substantially in 2019, due to a new DFID contract which will see 17 new clearance teams (each with 13 personnel, including driver) deployed.<sup>153</sup> In 2019, HALO Trust planned to expand operations into two new districts within Savannakhet province.<sup>154</sup>

HI reported a decrease in land release operations in 2018, due to the MoU process and the relocation of its operations from Savannakhet to Houaphanh province, in the north of Lao PDR. HI's MoU was approved in December 2018, with operations beginning in Houaphanh province in early 2019.<sup>155</sup> HI has one technical survey team, composed of a team leader, a section commander, and six technicians. This is a reduced survey capacity compared to the previous year and is due to a different approach to project implementation in 2018, which involves HI working with development partners to better shape the prioritisation process. In addition, HI has two clearance teams that were trained in 2018 and were ready to be deployed in 2019.<sup>156</sup>

Although under the national UXO Survey Standards, technical survey is supposed to be finalised in one village before moving to another village, HI focuses on its own prioritisation system for both survey and clearance based on the probability of local communities encountering CMR. As some of the villages are very remote, with very steep areas covered with forests, HI prefers to focus on community areas and agricultural land first.<sup>157</sup>

HI has discovered the presence of M-16 and M-14 anti-personnel landmines in most of the seven villages in Houamuang district, in Houaphanh province, in which it had conducted non-technical survey as at March 2019. This will have a significant impact on the methodology HI employs and will impede CMR land release operations. As at March 2019, HI planned to try to better determine the probable location of landmines to help reduce the probability of its teams operating in unknown mined areas. HI also planned to suggest a new SOP to the NRA for a combined technical survey/area clearance.<sup>158</sup>

In addition to survey and clearance operations, HI also planned to help build the capacity of the provincial NRA in Houaphanh province, through provision of equipment and training in informational management and quality management. The lack of current capacity of the provincial NRA in Houaphanh reportedly hinders its ability to fulfil its role.<sup>159</sup>

MAG is the largest international survey and clearance operator in Lao PDR. In 2018, it was responsible for half of all technical survey conducted in the country, identifying 144km<sup>2</sup> of contaminated land (see Table 2). MAG is operational in two provinces in Lao PDR: Xiengkhouang in the north, where it is conducting technical survey of all villages as part of the nationwide survey project, and Khammouane in the south, where MAG's main focus in 2019 is on surveying 30 priority villages in Boulapha district, one of the most heavily contaminated areas in Lao PDR.<sup>160</sup> In 2018, MAG deployed three non-technical survey teams, each consisting of two men and two women. MAG increased its non-technical survey capacity in 2019, with deployment of five additional non-technical survey teams in Khamouane province from March; and

increased its technical survey capacity from 90 in 2017 to 260 personnel in 2018.<sup>161</sup> In addition to its own teams, MAG subcontracted two NPA technical survey teams from September 2018 to February 2019, in a six-month project under the Norwegian Ministry of Foreign Affairs grant to carry out CMRS in Khamouane province.<sup>162</sup> As at March 2019, MAG had assumed all of the activities under the project and was conducting both survey and clearance.<sup>163</sup>

In addition to survey, MAG also deployed 117 clearance personnel in 2018 in Xiengkhouang and Khammouane provinces, a slight decrease compared to 2017, as some personnel were moved to technical survey under MAG's contract with the United States.<sup>164</sup> MAG's clearance capacity in 2019 was set to significantly increase, with deployment of an additional 23 clearance teams: 11 in Xiengkhouang province and 12 in Khammouane province, totalling 299 new staff, mostly funded by DFID.<sup>165</sup> MAG also deploys mechanical assets in support of clearance operations, significantly increasing overall efficiency. MAG's clearance work is also funded by a private American foundation on the basis of which it deploys three clearance teams in Khammouane.<sup>166</sup>

NPA is operational in the three southern provinces of Attapeu, Saravan, and Xekong. NPA plans to also become operational in Champasak province.<sup>167</sup> In addition, and as mentioned above, NPA was also subcontracted by MAG to carry out CMRS in Khammouane for six months, after which MAG conducted follow-on clearance of the CHAs created by NPA. This joint, fixed-term project was completed in February 2019.<sup>168</sup> NPA also acts as the project coordinator for Norwegian Ministry of Foreign Affairs bilateral support to Lao PDR, through UXO Lao's operations in Luang Prabang, in the north of the country.<sup>169</sup>

In 2018, NPA deployed 23 CMRS (combined non-technical survey and technical survey) teams, totalling 138 personnel. NPA expected an increase of one CMRS team in 2019. NPA's clearance capacity in 2018 stood at 7 battle area clearance (BAC) teams, totalling 105 personnel. This represented an increase of three teams (totalling 45 personnel), compared to the previous year. NPA expected to deploy an additional two BAC teams (totalling 30 personnel) in 2019, under its DFID contract.<sup>170</sup> NPA's survey efforts in 2018 were largely focused on revisiting villages to conduct further investigation of historical data, based on strengthening of best practice for survey, and therefore less new CHAs were created.<sup>171</sup> In addition, NPA also conducted unplanned emergency clearance in Sanamxai district of Attapeu, followed the collapse of a hydroelectric dam in July 2018 and the subsequent flooding of a number of villages. The NRA permitted NPA to use Vallon large-loop detectors (new to Lao PDR) for use

in flood-related emergency clearance in Attapeu, which resulted in swifter clearance compared to the sole use of handheld detectors. The use of a new type of large-loop detector, which has software developed to compensate specifically for the heavily mineralised soil found in Lao PDR, shows great potential to increase efficiency in normal CHA clearance. NPA plans for the detectors to be part of its standard operational toolbox in its new MoU, which was awaiting approval by the NRA as of writing.<sup>172</sup> According to the NRA, the 2018 flooding in Attapeu resulted in some movement of CMR, but not much.<sup>173</sup>

In addition to its survey and clearance operations, NPA also supports capacity development of the NRA and UXO Lao. NPA supports UXO Lao in Luang Prabang and provided support in 2018 for information management activities relating to the testing of IMSMA VPN systems. NPA planned to increase capacity development support under new DFID funding, which aims to support the NRA to train four provinces in the use of IMSMA and in data analysis; revise IMSMA forms to better include socio-economic and impact data, better inform prioritisation; draft an information management SOP; and procure basic ICT equipment for four provinces.<sup>174</sup>

The Lao armed forces have five humanitarian teams in total.<sup>175</sup> The five humanitarian teams were previously funded by the Republic of Korea (through KOICA), but did not receive international funding in 2018.<sup>176</sup> According to the NRA, the humanitarian clearance teams of the Lao Army 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 in IMSMA. Lao army engineers (completely separate to the humanitarian teams) not involved with humanitarian teams and not coordinated by the NRA started clearance of UXO to enable construction work on the \$6 billion Laos-China high speed railway.<sup>177</sup>

From October 2018 to March 2019, Russian and Lao armed forces worked in partnership to survey and clear 1km<sup>2</sup> of land in Bolikhamxay province, with equipment supplied by Russia. The partnership project, which is expected to continue, is part of a broader framework of cooperation between the governments and armed forces of the two countries.<sup>178</sup>

## OPERATIONAL TOOLS

Manual and mechanical assets are deployed by clearance operators in Lao PDR. As at March 2019, the use of drones to assist CMR operations in Lao PDR had not yet been permitted by the NRA.<sup>179</sup>

## LAND RELEASE OUTPUT AND ARTICLE 4 COMPLIANCE

### LAND RELEASE OUTPUT IN 2018

Total release in 2018 (all by clearance) was at least 36.2km<sup>2</sup>, a 10% increase on the previous year's output.

### SURVEY IN 2018

Based on data provided to Mine Action Review by humanitarian clearance operations in Lao PDR, set out in Table 2, a total of 210km<sup>2</sup> of CHA containing CMR was identified in 2018 with the destruction of more than 26,000 submunitions.

**Table 2: Technical survey of CMR-suspected area in 2018<sup>180</sup>**

Operator	Area surveyed (m <sup>2</sup> )	Area identified (m <sup>2</sup> )	Submunitions destroyed	Other UXO destroyed
Lao Army 58	N/R	N/R	N/R	N/R
HALO Trust	47,502,954	23,479,091	3,992	1,020
HI	0	0	0	0
MAG	146,340,474	144,850,179	12,882	25
NPA	33,547,500	12,277,556	1,693	125
UXO Lao	65,223,000	29,638,895	7,556	1,336
<b>Totals</b>	<b>292,613,928</b>	<b>210,245,721</b>	<b>26,123</b>	<b>2,506</b>

### CLEARANCE IN 2018

Based on data provided to Mine Action Review by humanitarian clearance operators in Lao PDR only (i.e. excluding CMR clearance output from the Lao Army and commercial operators), clearance in 2018 was at least 36.2km<sup>2</sup> with the destruction of more than 64,000 submunitions (see Table 3).

**Table 3: Clearance of CMR-contaminated area by operator in 2018<sup>181</sup>**

Operator	Clearance tasks	Area cleared (m <sup>2</sup> )	Submunitions destroyed*	Other UXO destroyed
Army 58	N/R	N/R	N/R	N/R
Lao Army	N/R	N/R	N/R	N/R
HALO Trust	29	702,982	6,704	712
HI	0	0	0	0
MAG	109	3,246,974	3,855	795
NPA	40	2,613,579	2,841	0
UXO Lao**	763	29,638,895	51,275	11,121
<b>Totals</b>	<b>941</b>	<b>36,202,430</b>	<b>64,675</b>	<b>12,628</b>

\* The totals for each operator include submunitions destroyed during roving tasks.

\*\* UXO Lao also reported the destruction of five landmines.

According to Lao PDR's Article 7 report for 2018, a total of nearly 62.1km<sup>2</sup> was cleared in 2018, across 14 provinces, with the destruction of 78,974 CMR, in addition to 148 big bombs, 31 mines, and 18,471 items of other UXO, during clearance, technical survey, and spot tasks.<sup>182</sup> However, there appears to be an error in the Article 7 report table, the total of which actually sums to 59.3km<sup>2</sup>. In addition, in the same table, the 2018 clearance total for Luangnamtha Province and Luang Prabang Province is 20,572m<sup>2</sup> for each province, which is most likely also an error.<sup>183</sup> It is also possible that, as occurred in the previous year, the total includes clearance by commercial companies of areas found to have no CMR contamination.

All clearance organisations in Lao PDR are required to have a documented internal quality management (QM) system, covering both quality assurance (QA) and quality control procedures (QC).<sup>184</sup> External QM inspections of clearance organisations are carried out by the NRA.<sup>185</sup> However, at present the NRA's QM capacity is extremely limited and is inadequate, with only one QM team to cover sector-wide clearance.<sup>186</sup> The NRA has been seeking funding to increase its QM capacity to four teams.<sup>187</sup>

## ARTICLE 4 DEADLINE AND COMPLIANCE

**CCM ENTRY INTO FORCE FOR LAO PDR: 1 AUGUST 2010**

**ARTICLE 4 DEADLINE: 1 AUGUST 2020**

**REQUESTED ARTICLE 4 EXTENDED DEADLINE:  
1 AUGUST 2025**

**LAO PDR WILL REQUIRE MULTIPLE EXTENSION  
REQUESTS BEFORE REACHING COMPLETION.**

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 2020. Lao PDR will not meet this deadline and has requested a five-year extension (the maximum that can be requested per extension request under the CCM) until 1 August 2025. Based on current capacity and output, Lao PDR will not reach completion by the requested new deadline and will require multiple extensions to its Article 4 deadline. According to the national authorities, 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”.<sup>188</sup>

As at end of 2018, 850km<sup>2</sup> of CHA had already been identified through the ongoing nationwide CMRS, and as the baseline survey continues the area of confirmed contamination/CHA is expected to continue to increase rapidly.<sup>189</sup> An estimate of the true extent of CMR contamination will not be known until the nationwide CMRS is completed.<sup>190</sup>

Clearance of CMR in Lao PDR will take many years and will require long-term national capacity and funding. According to Lao PDR’s Article 4 extension request, annual clearance output based on current capacity and resources available is approximately 50km<sup>2</sup> per year on average,<sup>191</sup> but annual clearance output over the last four years has been significantly less. In 2018, the NRA aimed to clear 5,000 hectares (50km<sup>2</sup>) of CHA, based on existing capacity,<sup>192</sup> though actual output seems to have fallen short of this. Over the last five years, Lao PDR has cleared more than 200km<sup>2</sup> (see Table 4).

**Table 4: Five-year summary of CMR clearance (2014–18)**

Year	Area cleared (km <sup>2</sup> )
2018	36.20
2017	33.02
2016	30.17
2015*	41.30
2014*	67.78
<b>Total</b>	<b>208.47</b>

\*2014–15 were transition years from request-based to evidence-based clearance, and so include a higher proportion of clearance of land that did not contain CMR.

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.<sup>193</sup> Commencement of DFID-funded clearance operations in Lao PDR in 2019, will help increase clearance output of HALO Trust, MAG, and NPA.<sup>194</sup>

In its Article 7 report for 2018, Lao PDR reports the need to expand and increase the capacity of the Lao PDR Army teams.<sup>195</sup> It is only in the past few years that the Government of Lao PDR has allocated funds in its budget for UXO clearance, directed to the Lao Army dedicated teams.<sup>196</sup>

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.<sup>197</sup> 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.<sup>198</sup>

In addition to insufficient clearance capacity, in its Article 7 report for 2018, Lao PDR also cites outdated clearance equipment as another challenge (e.g. in distinguishing between CMR and scrap metal) and the national authorities highlight the need for more advanced clearance equipment and vehicles.<sup>199</sup>

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.<sup>200</sup>

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