Recommendations for the Development of Mine Action in Vietnam

Towards 2045

Norwegian People's Aid
Vietnam

Introduction

The lives and livelihoods of people in Vietnam continue to be affected by cluster munition remnants (CMR) and other explosive ordnance (EO) that remains scattered across the country following the Indochina Wars from the 1950s to the 1970s. The socio-economic development of communities in each of Vietnam's 63 provinces continue to be negatively affected despite the conflict ending so many decades ago. Contamination from different EO is a long-term problem that will continue to affect the country for many years.

To better coordinate efforts to address these consequences, Vietnam will enter a new strategic period for national mine action planning, which is expected to cover 20 years from 2025 to 2045. This new national strategic plan will guide how donors and international organisations can best assist the government and people of Vietnam in reducing the huge impacts of the remaining EO.

This paper was developed by Norwegian People's Aid (NPA) Vietnam. It places the current survey and clearance efforts of international organisations in Quang Tri province in the greater context of nation-wide contamination, and seeks to provide clear recommendations to Vietnamese authorities and the international community for the continued development of mine action in Vietnam from 2023 towards 2045.

Norwegian People's Aid in Vietnam

NPA's vision in Vietnam is that contamination from cluster munitions and other explosive ordnance is reduced to a level where people can live safely and development is not constrained.

NPA established operations in Vietnam in 2007 to address the long-term consequences of EO that continue to impact lives and livelihoods across the country. To achieve its long-term goal, and to support the strategies and objectives of national and provincial mine action authorities, NPA has supported and implemented cluster munition remnants survey (CMRS), clearance, explosive ordnance disposal (EOD) and explosive ordnance risk education (EORE). In an effort to ensure the sustainability of mine action and to further increase the capacity of national and provincial mine action stakeholders, NPA has also conducted many capacity development projects.

NPA has received significant support from the governments of the United States and Norway for these activities. Through many different grants and cooperative agreements, the United States government has provided the largest contribution to NPA Vietnam's mine action efforts over the last 15 years.

Thanks to this support, in 2022 NPA is implementing CMRS, clearance and EOD projects in Quang Tri, Quang Binh and Thua Thien Hue provinces, as well as capacity development activities to support national and provincial mine action partners.

NPA continues to receive funding from the United States Department of State, Norwegian Ministry of Foreign Affairs and the United States Department of Defense. NPA Vietnam's total anticipated budget for 2023 is USD 6.6 million (more than NOK 68 million).

Lessons learned in Quang Tri province

Mine action in Vietnam has long been focused on Quang Tri province, due to the high humanitarian need as well as the political importance of the province to the governments of both Vietnam and the United States. As such, mine action efforts have progressed more in Quang Tri province than in any other province.

Map of Vietnam showing Quang Tri province. Not all land areas of Vietnam are depicted.

Quang Tri province in central Vietnam was the epicentre of the conflict known in Vietnam as the American War. The province is home to the 17th Parallel, where the demilitarized zone was drawn to divide North and South Vietnam from 1954 until 1975. The Ho Chi Minh Trail, which runs along Vietnam's mountainous western border including through Quang Tri province, was a network of roads and trails that moved troops, weapons and supplies from Northern Vietnamese forces to their supporters in the South. Dong Ha, the provincial capital of Quang Tri province, was the northernmost town in South Vietnam and home to an important United States combat base until 1972. These factors made the province critically important to both sides of the conflict, and saw it suffer from some of the heaviest bombing the world has ever seen.

One of the greatest successes in Quang Tri province has been the establishment of the 'Quang Tri Model' of successful mine action implementation. The model is based on close cooperation between international and national organisations, provincial military and provincial civilian authorities in all stages of mine action. This model has resulted in the open and transparent sharing of data, well-coordinated mine action activities, and national ownership of all mine action results. The model of cooperation is highly regarded by central government agencies and international stakeholders.

Because of the successes seen through many years of work in Quang Tri province, it is often used as a benchmark for understanding mine action in Vietnam. However, few other provinces have experienced any long-term, sustained mine action funding. Only Quang Binh province and Thua Thien Hue province, which are located to the north and south of Quang Tri respectively, have benefitted from some international mine action funding, but not at the same level as Quang Tri.

Vietnam's other 60 provinces – all of which are contaminated with explosive ordnance – still remain largely unsupported by the international community, and have received little attention.

Context

How do explosive remnants of war continue to impact people?

The majority of the items found by NPA and other operators in Vietnam are cluster munitions. These are large, indiscriminate air-dropped bombs that scatter smaller submunitions – known locally as 'bombies' – across large areas of land. An estimated 30% of these failed to explode on impact, leaving millions of unexploded bombs scattered across Vietnam.

Other unexploded ordnance, including large air-dropped bombs, mortars and grenades, also continue to pose a threat to human lives and livelihoods. While landmines do impact some smaller parts of the country, the majority of mined areas are still located in areas controlled by the military, and therefore the known humanitarian impact from landmines is considered to be low.

From 2004 to 2013, the government of Vietnam conducted a survey to identify the status of contamination from EO and their impact on socio-economic development. This report, titled 'Report on Explosive Remnants of War (ERW) Contamination in Vietnam' was approved by the Prime Minister of Vietnam in 2018, and has since been used by the government as the official baseline for the remaining EO contamination in Vietnam.

Since 1975, accidents in Vietnam are estimated to have impacted more than 105,000 people, resulting in more than 38,000 fatalities and 66,000 injuries – however, complete and actual updated country-wide statistics are not available so this number is likely to be a conservative estimate.

The Minister of Defense reported that in recent years the number of EO victims per year has totalled less than 50, a significant reduction from the nearly 400 per year prior to 2010. It is believed that the number of accidents has been reducing particularly in those few provinces where large-scale survey, clearance and risk education activities have been conducted.

However, unsafe land practices remain very common as people continue to utilize land despite evidence of contamination. This is often out of economic necessity, as the areas with the highest level of contamination are also some of the poorest and least developed in Vietnam. The continued dangers from cluster munitions and other EO are also linked with high levels of fear among the people living in affected communities – and the removal of fear from having accidents when using land is one of the most significant impacts of NPA's work in Vietnam.

The thirty-year war left Vietnam with hundreds of thousands of tons of explosive remnants of war (ERW), among several millions of tons used, according to statistics. Residual ERW are scattered across communities nationwide and become a potential risk. ERW contamination left a severe impact on the socio-economic development, social security and order, and the effective use of natural resources of local inhabitants.

- Report on Explosive Remnants of War Contamination in Vietnam

How does the government of Vietnam coordinate mine action?

The Vietnam National Mine Action Centre (VNMAC) was established in 2014 by Prime Ministerial decree, with mandate to monitor, coordinate and implement mine action activities across Vietnam through the approval of Decree 18 and Guiding Circular 195 in 2019. Since this clear mandate and responsibility was received, VNMAC have been taking steps to more fully adopt their role as national authority, particularly the responsibility of managing the national mine action database.

VNMAC is nationally funded as part of Vietnam's Ministry of National Defence, and receives contributions through a variety of internationally-funded capacity development projects. NPA's support to VNMAC, funded by the United States government until 2025, focuses on information management and increasing capacity for coordination and management of mine action in line with international standards. All NPA capacity development activities support the National Mine Action Plan, which outlines the government strategy for addressing EO until 2025. The National Mine Action Plan is expected to soon be renewed for a 20-year period, 2025 to 2045.

Mine action operations are also conducted by military and commercial teams in many provinces, including response-based explosive ordnance disposal as well as more systematic humanitarian and commercial clearance. Detailed information on these activities is not readily available to international stakeholders, however this may change as the national information management system, including systems for provincial reporting on all mine action activities, continues to develop.

Mr. Ngo Quang Tho is a survivor of an EO accident living in Huong Hoa district, Quang Tri province. Like many other families in his village, Tho grows coffee and raises livestock to feed his family. In 2000, while he was digging to plant coffee seedlings, Tho hit a wartime munition. It detonated, causing Tho to lose two fingers and suffer shrapnel injuries to his torso and limbs. **"Unexploded ordnance has also injured other villagers,"** said Tho. "This area has not been cleared, but we hope the contaminated land will be made safe for local villagers to farm safely."

What is the scale of contamination in Vietnam?

There is no evidence-based understanding of the scope of nation-wide contamination, however estimates can be made based on the results in cluster munition remnants survey conducted by NPA in Quang Tri province.

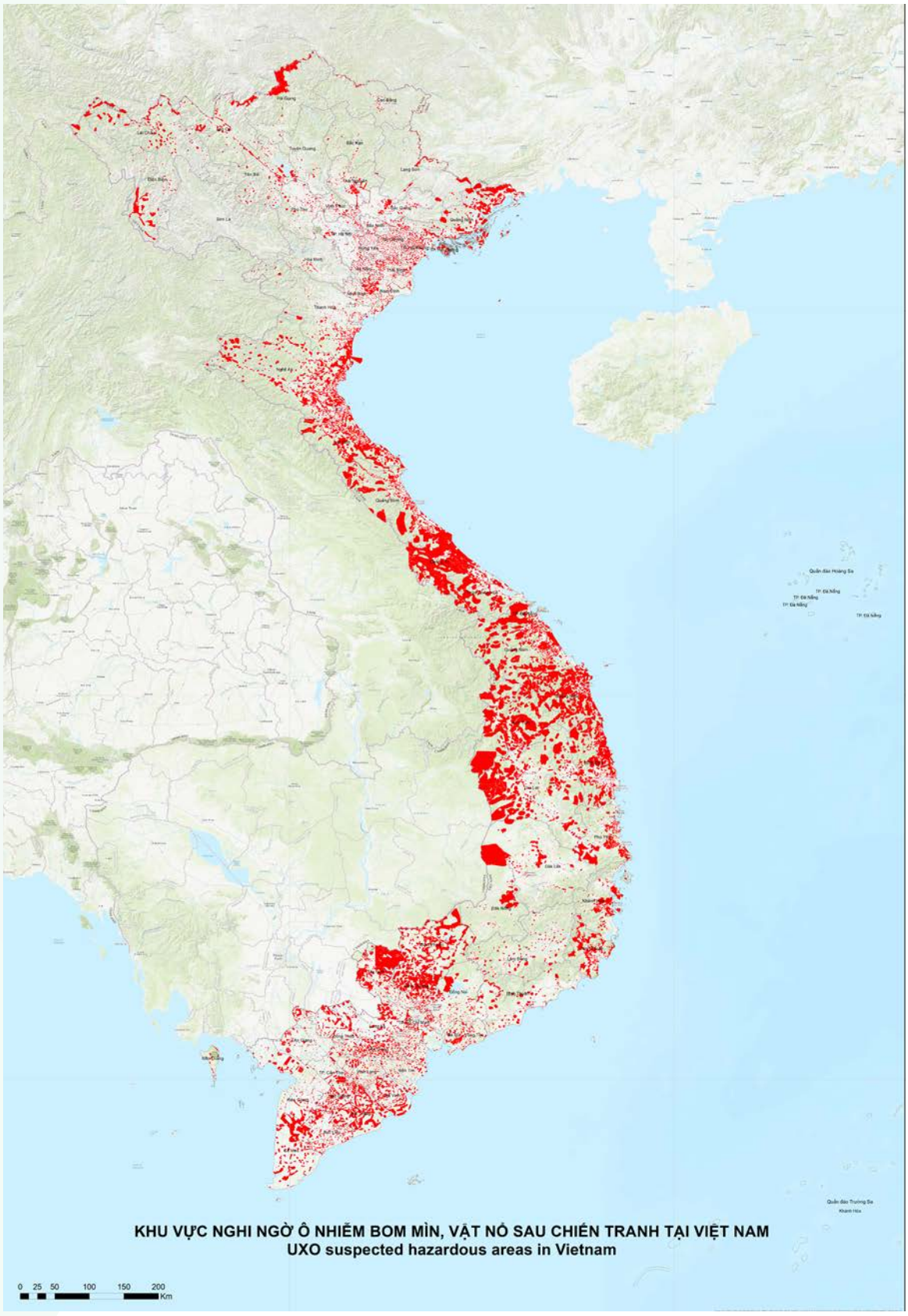
The first nation-wide survey of explosive remnants of war (ERW), the results of which are detailed in the 'Report on ERW Contamination in Vietnam', concludes that all 63 provinces and cities are affected by EO, and estimates an area of 61,300 km^2 - equal to around 19% of Vietnam's landmass - to be contaminated with EO. The Minister of Defense recently reported that this has been reduced to 56,000km^2, equivalent to 17.71% of Vietnam's landmass, as a result of increased clearance activities from 2010 to 2020.

The methodology used to implement this survey was based on methods used to identify the impact of landmines, not cluster munitions or other EO. This methodology ultimately sought to identify which areas of land were suspected to be mined and therefore could not be utilised effectively for agriculture or development purposes – and subsequently, the survey is referred to as the Landmine Impact Survey (LIS). The survey resulted in 'bombed and mined area' (BMA) polygons, later renamed suspected hazardous areas (SHA) by Vietnamese authorities.

However, there is still no comprehensive, evidence-based understanding of the scope of nation-wide contamination. This prevents clearance from being effectively prioritized at a national level as data on EO contamination is not accurate. This makes it difficult to estimate the level of resource commitment that will be required to clear all EO in Vietnam and help achieve a state of residual risk.

To address this issue, NPA started to develop a context-specific survey methodology called cluster munition remnants survey (CMRS) in 2015. CMRS seeks to identify the boundaries of area that is contaminated with cluster munition remnants, a confirmed hazardous area (CHA), based on direct evidence. CMRS also identifies areas where no direct evidence of contamination can be found. It is a two-step process starting with a non-technical survey (NTS), which aims to analyse all available data and gather information on contamination directly from community members and land users. NTS is followed by technical survey (TS) which uses detection technologies to investigate all direct evidence found during NTS. This methodology is considered by international operators and all donors to be the most effective method of identifying the scope of contamination from cluster munition remnants in Vietnam and South East Asia.

Quang Tri province in central Vietnam has seen the most benefit from NPA's CMRS efforts. While the methodology is also used by NPA in Thua Thien Hue and Quang Binh provinces, many years of work is required before the total scope of contamination in these provinces is known. However, CMRS in Quang Tri is now quickly approaching completion: NTS in all accessible areas was concluded in April 2022, and TS will be completed by April 2023. The result of CMRS is a province-wide map of CHAs that identifies all areas with confirmed contamination that now require follow-on clearance. This provides all stakeholders with an overview of the contamination



Map of BMAs/SHAs identified during the Landmine Impact Survey. Map provided by VNMAC Information Management Unit in August 2022.

situation in Quang Tri province to support efficient planning of clearance resources. The completion of CMRS then enables an initial comparison of results of the CMRS methodology against the 2004 – 2013 LIS. This comparison can be seen in Table 1.

Targeted, evidence-based CMRS, which was designed in response to the specific threat present in central Vietnam, has proven to be the most effective method of identifying the scope of remaining contamination in Vietnam. While detailed information from the LIS – for example, commune- or district-level survey reports or shapefile polygons of BMAs/SHAs – are not publicly available so comparisons are limited to the area of the province that is contaminated. However, these results are a strong indication that the total area of contaminated land identified by the LIS will be significantly reduced if evidence-based CMRS is conducted nation-wide.

NPA has conducted initial calculations that indicate how the BMAs/SHAs identified in the LIS may be reduced if a nation-wide CMRS is implemented. This is based on the estimated 84.46% difference between area of CHAs and BMAs/SHAs in Quang Tri province. This estimation can be seen in Table 2.

	Landmine Impact Survey (2004 - 2008)	Cluster Munition Remnants Survey (2015 - 2023*)
Total area of Quang Tri province affected	3,861 km^2	600 km^2
% of Quang Tri province affected	81.36%	13%
* CMRS is expected to be completed in April 2023, and at the time of publication less than 10% of accessible villages in Quang Tri still require technical survey. Based on operations conducted to date, it is estimated that CMRS will result in 600km^2 of CHA. Full survey results and an updated comparison will be shared in 2023.		

Table 1: Comparison of survey results in Quang Tri province.

Area of BMAs/SHAs identified in the LIS	Estimated area of CHAs resulting from CMRS (LIS contamination reduced by 84.46%)	Area reduced by CMRS
57,447 km^2	8,927 km^2	48,520 km^2

Table 2: Potential reduction of LIS contamination if CMRS was implemented nation wide, based on results in Quang Tri province.


MS. NGUYEN THI DIEU LINH
BRIEFER


LỄ KÝ BẢN GHI NHỚ
VỀ ĐIỀU PHỐI VÀ CUNG CẤP CỐ VẤN KỸ THUẬT CẤP CAO
MEMORANDUM OF UNDERSTANDING SIGNING CEREMONY
ON COORDINATION AND PROVISION OF SENIOR TECHNICAL ADVISOR
VNM

How much will it cost to clear Vietnam of all explosive ordnance?

CMRS will significantly reduce the area that will require clearance when the area of CHAs are compared to the contamination estimates in the LIS. Subsequently, this also significantly reduces the cost associated with clearance. A direct comparison in Quang Tri province demonstrates the enormous potential cost saving – upwards of USD 1 billion – that has been made by conducting CMRS prior to clearance. These estimates are detailed in Table 3.

It is very difficult to state the exact cost of clearance without first conducting a nation-wide evidence-based survey to understand the scope of contamination. However, based on NPA's average costs of USD 0.05c per square meter of CHA created, and USD 0.32c per square meter of clearance, it is estimated that:

- a complete nation-wide survey resulting in 8,927 km^2 of CHA would cost approximately USD 446 million
- clearance of this area would cost approximately USD 2.8 billion
- combined, nation-wide survey and clearance will cost approximately USD 3.3 billion.

Clearance of all BMAs/SHAs identified by the LIS would cost USD 18.5 billion. Therefore, conducting a nation-wide CMRS prior to clearance will save an estimated USD 15 billion.

	Landmine Impact Survey (2004 - 2008)	Cluster Munition Remnants Survey (2015 - 2023*)	Efficiencies gained by conducting CMRS in Quang Tri province
Total area of Quang Tri province affected	3,861 km^2 of suspected hazardous area	600 km^2 of confirmed hazardous area	3,261 km^2 of land in Quang Tri province no longer requires clearance, equal to 84% of the area of BMAs/SHAs
Cost to clear all hazardous areas in Quang Tri province	Clearance: USD 1,235,520,000	CMRS: USD 30,000,000 Clearance: USD 192,000,000 Total USD: 222,000,000	USD 1,013,520,000 saved by conducting CMRS prior to clearance
*CMRS is expected to be completed in April 2023, and at the time of publication less than 10% of accessible villages in Quang Tri still require technical survey. This estimate is based on NPA's CMRS activities to date. Full survey results and an updated comparison will be shared in 2023.			

Table 3: Efficiencies gained by conducting CMRS in Quang Tri province.

Recommendations

What should the future of mine action in Vietnam include?

Continued support for VNMAC's capacity development.

Supporting VNMAC's continuous capacity development is a necessary investment in the country's sustainable national mine action structure. This will ensure mine action outcomes continue to be achieved in the long term. Capacity development should be provided in three key areas:

1. Training on the implementation of existing regional and international best practice, including CMRS, efficient clearance and International Mine Action Standards.
2. Research and development of new tools and methodologies to increase efficiency and effectiveness.
3. Further development of a transparent national information management system.

All support should contribute to the achievement of the Vietnamese authorities' goals, which are expected to be detailed in the 2025 to 2045 National Mine Action Plan.

Adoption of the Quang Tri model in other provinces of Vietnam.

Cooperation between all stakeholders including provincial military, civilian authorities and international operators has proven to be the best model for efficient mine action coordination and implementation. The Quang Tri model has been introduced successfully in other central provinces including Quang Binh and Thua Thien Hue, and further promotion of this model should focus on all provinces with suspected contamination.

Implementation of an updated national survey using the CMRS methodology.

CMRS should be conducted in all provinces to enable an evidence-based understanding of the scope of contamination nationwide, with results owned by the national mine action authority and their provincial counterparts. This will support more efficient and effective planning of clearance resources. CMRS should also include other humanitarian or environmental follow up, including environment and explosive ordnance risk education, collection of household-level climate resiliency data, and mapping of victim assistance needs and services, and delivery of EORE.

Continued clearance of cluster munition remnants from confirmed hazardous areas.

Clearance of CHAs is the best way to ensure the safety of people across Vietnam, and should always be preceded by CMRS to ensure available clearance resources are targeted to those areas with confirmed contamination. Areas requiring clearance should be prioritized by Vietnamese authorities, based on known levels of contamination identified through CMRS and the anticipated socio-economic benefits of clearance. Clearance should also include the continual trial of detection technologies and methodologies to ensure it is conducted in the most efficient manner possible.

Increased use of provincial military units to support and assist in survey and clearance efforts.

The costs estimated in this document are based on the cost of an international non-government organization conducting CMRS and follow-on clearance of CHAs. This model is expensive due to the high cost of implementing mine action operations in Vietnam. To alleviate some of this cost, provincial and district military commands can implement CMRS and clearance of CHAs if they are supported with training, equipment and mentoring to consistently achieve IMAS-standard operations. These units would also be permitted to access areas that are currently restricted to international operators. NPA has successfully trialled this model of cooperation between VNMAC, provincial military and international operators in Thua Thien Hue province. This partnership resulted in significant improvements to the national standards for survey and clearance.

Continued assistance to the Vietnamese government to help identify an end state and level of acceptable residual risk after survey and clearance has completed.

Residual risk is the risk that will remain after all reasonable effort has been made to identify and remove explosive ordnance in Vietnam. No post-conflict environment will ever be completely risk-free, but residual risk can and should be mitigated and managed by the national authority. Defining what this means in the Vietnam context will further assist the international community in understanding the level of work required to make Vietnamese people safe from the impact of explosive ordnance.

Support for better integration of gender mainstreaming and environmental protection into national mine action plans.

While significant progress has been made on gender and diversity mainstreaming in Vietnam's mine action sector, continual improvement is necessary to ensure that the important contribution that women make to mine action is recognised and promoted. It will also ensure that women, men, girls and boys equally benefit from mine action activities. Better integration of environmental protection will ensure that any harm that might come to Vietnam's natural environment or natural resources as a result of mine action activities is understood, monitored, and mitigated, so that land is fit for its intended use when mine action activities conclude.

Encouragement for Vietnam to accede to the Convention on Cluster Munitions and the Anti-Personnel Mine Ban Convention.

Universalisation of these two international treaties is the best way to ensure that no other country will experience contamination from indiscriminate weapons in the way that Vietnam has. It will also enable Vietnam to better engage with the international mine action community, which will result in better sharing of lessons learned, access to the most up-to-date information and technology, and potentially lead to increases in funding for mine action. Vietnam's global political defence will also strengthen, as it will have the support of all countries that have signed these treaties, should the weapons ever be used in Vietnam again.

Further reading

Clearing Cluster Munition Remnants (Vietnam). Mine Action Review, 2022.

Cluster Munition Remnants Survey: Best practice in South East Asia. Norwegian People's Aid, Mines Advisory Group and HALO Trust, 2020.

Report on Explosive Remnants of War (ERW) Contamination in Vietnam – Phase 1. Vietnam National Mine Action Centre, 2018.

Report of the Minister of Defense on the implementation results of the National Action Program to overcome the post-war consequences of bombs and mines in Vietnam in the period of 2010-2020 and mission orientation in the period of 2021-2025 (at the Conference to review 10-year implementation of Program 504 on February 17, 2022).

NPA's work in Vietnam is supported by the Governments of the United States and Norway. This document represents the views of NPA only.