

KEY DEVELOPMENTS

With the adoption of a new national mine action decree in 2019, followed by a more detailed Guiding Circular in February 2020, the Vietnam National Mine Action Centre (VNNMAC) has now been officially empowered to start coordinating humanitarian mine action in Vietnam. This provided a legal basis for VNNMAC to make significant progress in 2020 in ongoing efforts to review and update the national mine action standards to bring them more in line with the International Mine Action Standards (IMAS), establish a fully functioning national information management database, and build a national quality management (QM) capacity.

RECOMMENDATIONS FOR ACTION

- Vietnam should accede to the Convention on Cluster Munitions (CCM) as a matter of priority.
- Despite not yet being a State Party to the CCM, Vietnam has obligations under international human rights law to clear cluster munition remnants (CMR) in areas under its jurisdiction or control as soon as possible.
- In collaboration with implementing partners, VNNMAC should define a strategy for enhancing understanding of the extent of CMR contamination, with a view to establishing a nationwide baseline of CMR contamination. As part of these efforts, VNNMAC should seek to expand non-technical and technical survey.
- VNNMAC should specify criteria for the prioritisation of CMR survey and clearance tasks.
- VNNMAC should elaborate annual work plans for CMR, with clear targets for survey and clearance.
- The National Technical Regulations (QCVNs), revised in 2020 in line with IMAS, should be approved and published as soon as possible.
- The revision of National Mine Action Standards (TCVNs), in line with IMAS, should be completed as soon as possible.
- VNNMAC should continue progress to develop a fully functional national information management database and make Information Management System for Mine Action (IMSMA) data available to all clearance operators and relevant stakeholders.
- VNNMAC should publish comprehensive annual reports on the results of survey and clearance by all operators.
- VNNMAC should more actively engage in regional sector discussions aimed at accelerating the progress of CMR survey, particularly on survey efficiencies and effectiveness.

UNDERSTANDING OF CMR CONTAMINATION

Vietnam is massively contaminated by CMR but no accurate estimate exists, even to the nearest hundred square kilometres. An explosive remnants of war (ERW) impact survey, started in 2004 and completed in 2014, was only published in 2018. It said that 61,308km² or 19% of Vietnam's land surface area was affected by ERW, but did not specify the area affected by CMR. It found, though, that CMR affected 32 of Vietnam's 63 provinces and cities.¹

According to VNNMAC, the total area still contaminated with bombs, mines, and explosive ordnance in Vietnam in 2021 is more than 57,000km², which accounts for more than 17% of Vietnam's land surface. Contamination is mainly concentrated in central provinces including Quang Tri, Quang Binh, Ha Tinh, Nghe An, and Quang Ngai.² VNNMAC does not plan to conduct a separate survey for CMR, and instead is implementing its clearance plan for all types of ERW and mines.³

In **Quang Tri province**, reputedly Vietnam's most contaminated province, Norwegian People's Aid (NPA) is carrying out a province-wide survey.⁴ Estimates of CMR-contaminated area are increasing sharply as survey progresses. As at end of April 2021, NPA had completed non-technical survey of 613 of the 690 accessible villages (89%) in Quang Tri province. A further 109 were not accessible to NPA. Technical survey by NPA had confirmed 457km² of confirmed hazardous area (CHA) as contaminated by CMR, approximately 9% of the total area of Quang Tri province.⁵ In response to requests from NPA, the Quang Tri Provincial Mine Action Center (QTMAC) and the Quang Tri Department of Foreign Affairs facilitated discussions with the Provincial Military Command, including border military units, to discuss the expansion of mine action activities into more villages and to clarify the final list of restricted areas in Quang Tri province. As a result of these discussions, in

July 2020, NPA and other mine action non-governmental organisations (NGOs) received an updated list of new operational areas from the Quang Tri provincial Mine Action Steering Committee. Under the new list, CMRS can be conducted in 86% of the total villages in Quang Tri province (a total of 690 villages).⁶ With the current capacity (eight technical survey teams), NPA anticipated it could take between four and five years to complete technical survey in remaining villages, though this estimate may change in response to direct evidence identified during survey.⁷

In **Quang Binh province**, a joint consortium between Mines Advisory Group (MAG), NPA, PeaceTrees Vietnam (PTVN), and the Provincial People's Committee (PPC) of Quang Binh was signed and approved in May 2020, and aims to transfer experience from adoption of the Cluster Munition Remnant Survey (CMRS) approach in Quang Tri province and tailor it to Quang Binh province. Planned CMRS of the whole province, will help better understand the nature and extent of contamination and help inform planning processes.⁸ In Quang Binh province, MAG has historically used a non-technical survey methodology – Evidence Point Polygon (EPP) mapping – to map initial CHAs. The EPP technique, pioneered by MAG, uses historical and ongoing operational data from GPS-recorded explosive ordnance disposal (EOD) spot tasks involving submunitions to plot what are termed Initial CHAs (iCHAs). From April 2019, MAG deployed one technical survey team in Quang Binh province to complement EPP mapping data and to define CHAs for clearance and survey the areas in between adjacent iCHAs, to merge them into one larger CHA.⁹

MAG expects to combine existing EPP methodology within the CMRS methodology to speed-up survey and support early prioritisation for clearance to be deployed to where the impact will be the highest.¹⁰

In **Thua Thien Hue province**, in collaboration with VNMAC and the provincial authorities, NPA has been implementing CMRS in four districts. As at December 2020, over 17km² of CHA had been identified in the western district of A Luoi.¹¹ Based on a desk exercise, NPA estimates that total cluster munition contamination in A Luoi is likely to be around 45km².¹²

The United States (US) dropped 413,130 tons of submunitions over Vietnam between 1965 and 1973, reportedly striking 55 provinces and cities. Vietnam's Military Engineering Command has recorded finding 15 types of US-made submunitions. Most submunition types were air-dropped, but artillery-delivered submunitions were also used in central Quang Binh and provinces to the south.¹³ Most of the CMR that international operators encounter in Quang Tri province are BLU-26, BLU-29, and BLU-61 submunitions, and occasionally Mk 20 Rockeyes,¹⁴ as well as BLU-63 (in Quang Binh province).¹⁵ In Quang Nam province, almost all the CMR cleared by Danish Demining Group (DDG) were M83 submunitions.¹⁶ The Military Engineering Command encountered substantial amounts of cluster munitions abandoned by the US military, notably at or around old US air bases, including eight underground bunkers found in 2009, one reportedly covering 4,000m² and containing some 25 tons of munitions.¹⁷

OTHER EXPLOSIVE REMNANTS OF WAR AND LANDMINES

Vietnam has huge contamination from unexploded ordnance (UXO) and an unquantified mine problem (see Mine Action Review's *Clearing the Mines* report on Vietnam for further information). The ERW impact survey identified the most heavily contaminated regions as the central coastal provinces, the Central Highlands, the Mekong River delta, and the Red River delta.¹⁸ The experience of international operators in central Vietnam points to wide variations in contamination types from district to district. International operators report encountering mainly projectiles, mortars, grenades, and some aircraft bombs.¹⁹

NATIONAL OWNERSHIP AND PROGRAMME MANAGEMENT

VNMAC was established in 2014 by Prime Ministerial decree to strengthen the direction of mine action and provide a focal point for mine action operations,²⁰ although management and operations continued to depend largely on the Armed Forces.

In a positive development, Vietnam's mine action programme is undergoing significant restructuring, following the Decree on the Management and Implementation of Mine Action Activities (Decree No. 18), which entered into effect on 20 March 2019 and subsequent approval of a Guiding Circular (Guiding Circular No. 195) which came into effect in February 2020.²¹ Under Decree 18, while the Ministry of National Defence (MoD) will continue to elaborate and preside over the national mine action programme, as the lead authority, in coordination with other relevant ministries and sectors;²² and VNMAC will, under the direction of the Prime Minister and management of the MoD, "monitor, coordinate and implement mine action tasks".²³ Guiding Circular 195, which details a number of articles and methods regarding implementation of the Decree, also officially appoints VNMAC as the national coordinator of mine action activities in Vietnam.²⁴

The adoption of Decree and Guiding Circular has given VNMAC a clear mandate, roles, and responsibilities, as the national coordinating entity for mine action operations and have established the legal basis for revision and updating of the national regulations and standards (QCVNs and TCVNs), which began in 2020.²⁵ VNMAC now have authority over mine action data, which they are beginning to exercise by requiring provinces to collect and report data to the VNMAC Information Management Unit (IMU) on a quarterly basis.²⁶ The adoption of the legal framework also paves the way for provincial authorities to be recognised as having a key role in the reporting system between operators and VNMAC.²⁷

VNMAC is entirely nationally funded, and implementation of the National Mine Action Programme (Programme 504) is funded by both state and international funding.²⁸ According to VNMAC, the government has provided support for mine action, including i) establishment of coordinating agencies and associations to support all levels of mine action activities; ii) completion of a legal system, mechanism and policies, which create a legal basis for post-war demining

activities (the MoD cooperates with other ministries to develop Circulars guiding QCVNs, TCVNs, and standing operating procedure (SOP) on QM, survey, and clearance and related issues); iii) facilitation of activities to develop the management and administration capacity, and the survey and clearance capacity, of demining organisations; iv) formation of a national QM system for survey and clearance in accordance with international standards; and v) formation of an information management system.²⁹

VNMAC's involvement in coordination meetings, such as the Landmine Working Group (LWG), increased in 2020. The LWG, which was co-chaired by NPA and the International Centre (IC) in 2020, is a platform for humanitarian mine action stakeholders in Vietnam to meet regularly to share and discuss updates that impact the sector.³⁰ During 2020, VNMAC used the LWG for collective discussions, including on the updating of the QCVNs and TCVNs. Quarterly LWG meetings continued throughout 2020, but were not possible in Q1 due to the COVID-19 pandemic.³¹

International NGOs (INGOs) reported that cooperation and collaboration with VNMAC continued to strengthen in 2020, including in its close engagement with the LWG and in discussions seeking input from the international community on the legal frameworks (QCVNs, TCVNs, and SOPs). Coordination also strengthened as a result of the Decree and Circular. This was despite constraints posed by COVID-19, which resulted in limitations on meetings and travel, and which saw VNMAC frequently forced to close their office to non-VNMAC personnel. Despite this, VNMAC have shown an increased understanding in their role and how they need to fulfil, including a greater willingness to discuss ideas and challenges with international operators.³² However, VNMAC still operates within the limits of the MoD which is very regulated, so there is still room for improved transparency and efficiency.³³

VNMAC now produces a twice-yearly mine action calendar covering the work and activities of all international mine action organisations, and in 2019 VNMAC initiated a biannual operations report covering the activities and results of all international NGOs in Vietnam.³⁴ The 2020 biannual operations report also included results for projects funded by the Republic of Korea through the United Nations Development Programme (UNDP).³⁵

MAG, NPA, PTVN, UNDP, and Golden West Humanitarian Foundation (Golden West) all provide capacity development support in Vietnam.

Despite challenges posed by COVID-19, MAG and NPA facilitated and hosted a number of familiarisation visits by VNMAC to their offices and operations, and shared experiences learned, including on the Quang Tri model and the consortium model in Quang Binh.³⁶

NPA is implementing three capacity-development projects with VNMAC. The first project provides financial and administrative support to a US Department of State's Bureau of Political-Military Affairs PM-WRA Senior Technical Advisor who works with VNMAC senior management on issues related to their strategic, organisational, and individual development as well as on donor liaison and resource mobilisation. The second involves the provision of financial and technical support to a PM-WRA Information

Management Technical Advisor who assists VNMAC in its establishment of a national information management system, including mentoring of its Information Management Unit, which runs the national database. Lastly, NPA provides a Capacity Development Advisor who supports QTMAC management in coordination between all mine action actors in accordance with the QTMAC policy, as well as supporting operational planning/prioritisation and policy and procedural development. During 2020, NPA supported QTMAC in the ongoing development of a QM SOP (to be approved and deployed in 2021) as well as provincial guidelines on prioritisation of CHAs for clearance and a new manual on the integration of mine action with provincial socio-economic development plans.³⁷

The NPA-VNMAC technical survey project in **Thua Thien Hue province** is an evolving process to formulate a SOP on technical survey for Vietnam. The first phase of the NPA-VNMAC operational support successfully concluded in 2020 after ten months, and saw the successful revision and strengthening of VNMAC's SOP for technical survey (and non-technical survey). As part of this project, NPA supported the training, management, supervision and monitoring of four VNMAC technical survey teams (five members excluding medic and driver) in A Luoi, and successfully completing this project in November 2020. The next phase in 2021, subject to funding, will focus on improvements to the VNMAC Battle Area Clearance (BAC) SOP, including technical support for revising the SOP as well as in-field monitoring of operations.³⁸

During 2019, MAG also worked with the provincial authorities and the military in **Quang Binh province** to coordinate operations, and supported the development of a provincial Mine Action Strategy. Operations under a joint consortium between MAG, NPA, and PTVN commenced in June 2020. The consortium project includes survey, clearance, EOD, risk education and a capacity development component regarding the establishment of a provincial coordination committee and mine action database in Quang Binh province, which is being conducted with the Quang Binh province Database and Coordination Unit (DBCUC).³⁹ As part of this project, NPA began providing support to the DBCUC in 2020, which included recruitment and training of eight provincial DBCUC staff, who are now responsible for mine action data and coordination of mine action operations in Quang Binh province.⁴⁰ As at May 2021, the DBCUC was almost fully functional to receive (and provide) mine action data from operators in Quang Binh, and to task and coordinate mine action operations in the province.⁴¹

MAG also helped to train some of VNMAC's staff and provided comments on the content of VNMAC's training curriculum and shared all MAG training material with VNMAC.⁴² In 2021, MAG and VNMAC were planning to further formalise cooperation through a memorandum of understanding (MoU). The planned three-year MoU would support experience sharing in training of personnel in survey and clearance, the development and implementation of the QM system, and piloting of a digital risk education project.⁴³

In addition, as part of the UK Foreign, Commonwealth and Development Office's (FCDO, formerly the Department for International Development (DFID)) global mine action programme (GMAP) II project in 2019, led by MAG, NPA has the responsibility to train four members of the VNMAC's Consultancy, Survey and Quality Management Centre

to become the first national QM team. The training was completed at the end of March 2020 and the VNMAC QM team personnel were certified as quality assurance (QA) officers, following a Geneva Centre for Humanitarian Demining (GICHD) capacity assessment in Q2 2020.⁴⁴ MAG believes that coordination and collaboration with VNMAC has been strengthened as a result of this project.⁴⁵

In **Quang Tri province**, the QTMAC plays a lead role in piloting and improving coordination of mine action operations. MAG and NPA continued to support QTMAC, through various capacity development initiatives for QTMAC staff, including for information management, QM, and prioritisation. In 2020, the key capacity development focus was on the development of a provincial QM capacity, including the recruitment and training of the two QM teams and the development of a QM SOP.⁴⁶

PTVN undertakes joint efforts to support and help enhance the management and coordination of QTMAC and VNMAC. In partnership with Golden West, PTVN hosts field mentoring visits of VNMAC and visits and trips of QTMAC and VNMAC to enable them to study operations, information management, and QM.⁴⁷

VNMAC, the Korea International Cooperation Agency (KOICA), and UNDP are collaborating on a US\$30 million project (of which US\$20 million was from KOICA and the remainder from the Government of Vietnam, mainly through in-kind contributions) for ERW survey and clearance (KV-MAP), and to support information management resources, risk education, and victim assistance in two central provinces (**Binh Dinh** and **Quang Binh**) for three years (2018–20). A no-cost extension to the project has been granted until 31 December 2021 and VNMAC and UNDP were working on elaborating a new five-year phase for the project. A Joint Project Management Unit (JPMU), with representatives from each of the three organisations, is responsible for project management, supported by a UNDP chief technical

adviser who joined in March 2018, and meets regularly. A Joint Project Coordination Committee (JPCC), comprising representatives from the MoD, VNMAC, UNDP, and KOICA, provides overall strategic guidance and oversight and meets twice a year.⁴⁸

Golden West is fully funding and providing EOD training that reflects the IMAS to the Provincial Military Command in **Quang Tri province**, building technical skills and developing the capacity for long term response to residual ERW across the province. In cooperation with the United States Department of Defense (DOD) and INDO-PACOM Combatant Command, Golden West is supporting or providing US military-to-military mine action training for VNMAC by the US Army, Pacific (USARPAC). Golden West is working with Provincial Officials and the Provincial Military Command (PMC) of Quang Tri to develop a high-quality EOD training and test range in Cam Lo District. Funded by multiple donors, including the DOD Humanitarian Demining Research and Development Organization, Golden West is assisting the PMC to construct training, detection testing, and demilitarization facilities in central Quang Tri Province that are safe and environmentally responsible.⁴⁹

Vietnam was serving as chair of ASEAN and of the ASEAN Regional Mine Action Center (ARMAC) in 2020,⁵⁰ and was a non-permanent member of the UN Security Council (UNSC) for 2020–2021. In 2020, the GICHD organised and conducted together with ARMAC a training course on QM, with the aim of increasing efficiency and effectiveness of mine action operations through better QM. The training was attended by five representatives from VNMAC and the QTMAC.⁵¹

There is a well-established process for granting work permits and visas to international mine action staff and for procurement of demining equipment, although the importation of equipment can be lengthy, depending on the nature of the items.⁵²

GENDER AND DIVERSITY

According to VNMAC, the goal of gender equality has been recognised in the Constitution of Vietnam since 1946, and is clearly stipulated in subsequent amendments and supplements to the Constitution. Most recently, the 2013 Constitution stipulated that “male and female citizens are equal in all aspects”. The policy is to ensure the rights and opportunities for gender equality and that gender discrimination is prohibited.⁵³

In 2006, the Law on Gender Equality was enacted to achieve the goal of eliminating gender discrimination. Other legislation related to gender policy includes Decision No. 2351/QĐ-TTg dated 24 December 2010 of the Prime Minister approving the National Strategy on gender equality for the period 2011–2020 with seven goals and 22 specific targets in areas of governance, economics, labour/employment, education and training, health care, culture, information, family, and state management capacity building on gender equality; and Decision No. 515/QĐ-TTg dated 31 March 2016 of the Prime Minister approving the project to implement measures to ensure gender equality for female civil servants in the 2016–2020 period.⁵⁴

At VNMAC, 22% of employees are female, with women in more than 20% of management/supervisory/executive positions.⁵⁵ VNMAC said that women’s participation in survey and clearance activities is limited due to the nature of the work and due to the fact that the majority of participants are from the military forces. For other activities, projects have encouraged the participation of civil society agencies and organisations to help ensure a higher proportion of women. Local partners such as the Provincial Military Commission, the Department of Education and Training, and the Red Cross are required to take gender into account in their training events and activities, to ensure an increase in female participation.⁵⁶

MAG has a gender policy, which is also incorporated into other policies and procedures. It encourages diversity and inclusion within its recruitment, training, and promotion procedures, ensuring equal opportunities for all staff. As at March 2021, MAG employed 729 employees in Vietnam, of whom 27% were women. Women represent 26% of MAG’s total operational capacity in Vietnam and 34% of managerial/supervisory level positions. MAG’s community liaison teams are gender balanced and trained to involve all groups, including women and children.⁵⁷

NPA follows Vietnamese law governing equal opportunity and non-discrimination in employment. NPA continues to prioritise gender mainstreaming and work towards gender equality in the recruitment process and in the workplace. Women are actively encouraged to apply for roles and to pursue development opportunities once employed.⁵⁸ NPA employs a total of 366 staff in Vietnam, of whom 30% are female, including 26% of operational staff and 18% of management-level positions. When establishing the new operational structure, three women were promoted into the position of Provincial Programme Manager. While recruiting new staff for the increased operational capacity, NPA Vietnam continued a high rate of recruitment of women, with 27 of 94 (29%) new staff being female. NPA also continued to promote its all-female BAC team, the first of its kind in Vietnam, to highlight the important role of women in mine action to national and provincial partners.⁵⁹ NPA's non-technical survey teams are gender balanced to engage with affected populations regardless of gender or age. NPA has found this inclusive process effective for later technical survey within the CMRS process.⁶⁰

While annual gender and diversity mainstreaming training could not be conducted in 2020 due to restrictions around meeting and travelling as a result of COVID-19, NPA developed an in-person training package to deliver to all staff in 2021.

PTVN has gender policies in place and encourages diversity and inclusion within its recruitment, training, and procedures for promotion, ensuring equal opportunities for all staff. It has 180 staff in Vietnam, 35 (19%) of whom are women, including 8 women out of 23 (35%) in managerial/supervisory-level positions and 26 women out of 154 (17%) in operational positions. In its field clearance, EORE, and victim assistance operations PTVN prioritises women and children as beneficiaries.⁶¹

Gender and diversity were also a focus of capacity development activities with QTMAC, to share lessons learned and best practices with the provincial authority in Quang Tri. A Gender and Diversity Policy was drafted, which was due to be adopted by QTMAC in 2021, and gender and diversity training was further developed for delivery in 2021. NPA expect the results of these trainings will be shared with VNMAC, to further promote the role of women in mine action at a national level.⁶²

MAG's, NPA's, and PTVN's operations data are disaggregated by sex and age.⁶³

INFORMATION MANAGEMENT AND REPORTING

Decree 18 and Guiding Circular 195 make VNMAC responsible for information management, including the reporting, collection and provision of data on mines and ERW. VNMAC uses the IMSMA, however the full IMSMA database is not yet accessible to mine action operators. Operators receive a bi-annual report from VNMAC, containing summary data.⁶⁴ Linkages between VNMAC and the provinces are yet to be fully defined and different models are emerging (for example, QTMAC in Quang Tri province, DBCU in Quang Binh province, and Project Management Unit (PMU)/IMU in Binh Dinh province as part of KV-MAP).⁶⁵ VNMAC is in the process of determining how information management will be collected nationally and shared.⁶⁶

As at April 2021, VNMAC reported that it was making efforts to improve the collection of data and information management capacity nationwide. But continued international assistance (funded by the US) is still required in order for VNMAC to further develop its capacity.⁶⁷

The information management project, overseen by the PM-WRA Information Management Advisor to VNMAC, is now in the second year of the implementation phase of the national database process. The national database structure exists and the inputting of available data is ongoing. The VNMAC database unit is now fully functional and operational, and the focus is on standardisation of the reporting forms to ensure data is reported consistently and is subject to quality control (QC).⁶⁸

VNMAC reported that data collection forms are specified in the Appendices of Circular 195 and the National Standard TCVN 10299-10 (2014), and that since 2020, it had started to develop a set of standardised IMSMA data collection/reporting forms.⁶⁹ The goal for 2021 was to complete all requirements from Guiding Circular 195, including standardised reporting

for all forms and consolidation of all historical data into one national IMSMA database. However, this relies on the COVID-19 situation permitting the travel between provinces necessary to coordinate the implementation.⁷⁰

NPA is working with VNMAC at the national level to establish IMUs to collect and collate information from across Vietnam and give transparent access to available data. Throughout 2019-20, VNMAC's IMU worked to input historical data stored on other databases, including available data from the provinces. However, it is unclear what data the provinces are holding that have not yet been delivered to VNMAC.⁷¹

In **Quang Tri province**, the QTMAC database unit has been running well and is able to autonomously collect, collate, analyse, and task operators based on information shared by all mine action stakeholders in the province (domestic and international, civilian and military). Access to the Quang Tri IMSMA database is free and accessible to all mine action stakeholders (online website) while ensuring data protection.⁷² The database provides a basis for planning and tasking, as well as victim data. Data hosted at QTMAC's DBU are believed to be accurate, up to date, and reliable, have been the catalyst for greater coordination across all stakeholders within the province.⁷³

Development of information management is an aim of the KV-MAP project, the goal of which is to improve available information for the UXO/mine action sector to support informed policy making and task prioritisation.⁷⁴ Database Centers for Mine Action in **Quang Binh** and **Binh Dinh** provinces manage the data from the KV-MAP project which is then fed into the VNMAC database. The aim is for the KV-MAP DBU to report to the provincial DBU in Quang Binh, to be established at the provincial Department of Foreign Affairs.⁷⁵

In October 2019, MAG initiated a partnership with NPA and PTVN, which includes support to the **Quang Binh** provincial Department of Foreign Affairs to establish a central database in the province, based on the Quang Tri database unit model.⁷⁶ NPA is responsible for the capacity development to the Quang Binh DBCU, which is also supported by VNMAC.⁷⁷ In 2020, eight staff (five civilians, one individual seconded from the Provincial Department of Foreign Affairs, and two seconded from the Provincial Military Command) were recruited, trained, and accredited to IMSMA Level 1 and also trained in GIS and ArcGIS online. This was the first occasion of VNMAC issuing certification for a training on IMSMA Administration.

In addition, the DBCU has been fully equipped with required equipment and software; a provincial IMSMA database, with field reporting templates based on VNMAC's forms, has been established, field operators and DBCU staff have been trained; and more than 9,000 historical reports from MAG have been collected and are currently undergoing quality checks and migration.⁷⁸ The reporting system and tasking from the Quang Binh DBCU was planned to become effective from Q2 2021.⁷⁹

NPA was hoping to support the creation of the **Thua Thien Hue** Department of Foreign Affairs database unit in 2021.⁸⁰

PLANNING AND TASKING

Decision 504, approved by the Prime Minister in April 2010, set out a National Mine Action Plan for 2010–25. The plan, which covers mines, CMR, and other ERW, aimed to “mobilize domestic and international resources in making efforts to minimize and finally create impact-free environment for social economic development.” It called for clearance of 8,000km² of ERW between 2016 and 2025.⁸¹

A five-year plan (2021–25) has been developed to implement the final period of the current National Mine Action plan. The plan also seeks to develop and implement the technical survey of “zoning areas” confirmed as contaminated by mines and ERW, as the basis for strategic planning.⁸² As at April 2021, international operators expected that VNMAC would share the new five-year plan with sector stakeholders through the LWG forum for review and comments.⁸³ Annual work plans will then be developed, based on the five-year plan.⁸⁴

Vietnam does not yet have a strategy specifically targeting CMR and plans to address all ERW comprehensively. VNMAC would benefit from elaborating a national mine action strategy and annual work plans for CMR, with clear targets for survey and clearance.

As at April 2021, there was no national prioritisation system for CMR clearance, although VNMAC said that priority is given to heavily contaminated areas.⁸⁵

In **Quang Tri province**, there is a prioritisation process in place and an effective system for task allocation.⁸⁶ The prioritisation processes and accompanying forms were piloted in 2018 and were rolled out in May 2019, with QTMAC now managing the province-wide clearance task prioritisation process.⁸⁷ In March 2020, the QTMAC issued a letter to inform operators on the application of the prioritisation guidelines.⁸⁸ The criteria are established based on consultation and agreement between QTMAC and operators. The QTMAC tasks all mine action operators in the province and annual work plans are approved by provincial authorities, in cooperation and dialogue with operators.⁸⁹ Information from experience in developing and implementing the prioritisation plan in Quang Tri province has been shared with VNMAC.⁹⁰

In **Quang Binh province**, there is not yet any survey or clearance tasking by national or provincial authorities.⁹¹ From the adoption of the prioritisation process in Quang Tri, MAG has been applying the same procedures and process in Quang Binh in agreement with provincial authorities. This to ensure consistent approach across provinces and to foster standardisation.⁹² In Quang Binh, MAG produces its own task dossiers to the same standard as those in Quang Tri. These were expected to evolve in 2021 now that the Quang Binh DBCU has been established.⁹³

In **Thua Thien Hue province**, tasking for NGO operators is decided by provincial authorities in accordance to the provincial socio-economic development plan.⁹⁴

LAND RELEASE SYSTEM

STANDARDS AND LAND RELEASE EFFICIENCY

Vietnam has both National Technical Regulations (QCVNs), which are legally binding and similar in content to SOPs, and National Mine Action Standards (TCVNs), which despite being standards are considered optional by VNMAC.⁹⁵

In a positive development, VNMAC made significant progress in 2020 to review and update the QCVNs to help bring them into line with IMAS.⁹⁶ The former QCVNs and existing TCVNs were drafted more with the MoD in mind, used terminology inconsistently, and chapters contradicted themselves.⁹⁷ INGOs welcomed the inclusiveness of the revision process,⁹⁸ which involved the establishment of four working groups, co-chaired by VNMAC, and extensive consultation with operators and international organisations, including GICHD.⁹⁹ As at May 2021, the revision process for the QCVNs had been completed and was awaiting final approval from the Prime

Minister's office. Revision of the TCVNs was also underway in the first half of 2021, in anticipation of the expected official approval and release of the QCVNs, which are required to be adopted first.

As part of the revision process, VNMAC also updated its SOP on QM Systems (QMS), as part of KV-MAP. In addition, a single, field-orientated QM SOP has been prepared by the QTMAC, with support from NGOs, for use in Quang Tri province. The latter was undergoing final revision by the mine action sector as of writing and was expected to be adopted and fully implemented by QTMAC by the middle of 2021.¹⁰⁰

As at April 2021, VNMAC reported that the relevant authorities were in the process of developing legal documents (Circulars) related to the revised QCVNs, TCVNs, and SOPs.¹⁰¹

OPERATORS AND OPERATIONAL TOOLS

Most clearance in Vietnam is conducted by the Army Engineering Corps and military-owned commercial companies. Outside the central provinces, the current strength and deployment of military-related demining is unknown.

According to VNMAC, the Thua Thien Hue Provincial Military Command conducted survey of explosive ordnance in 2020, and the Engineering Command of the Army conducted both survey and clearance. At the peak of the KV-MAP project, VNMAC reported that 85 survey and clearance teams (totalling 2,125 soldiers) were deployed. Survey and clearance by the Engineering Commands in 2020 increased compared to the previous year. VNMAC expected a further increase in survey and clearance capacity for socio-economic projects in 2021.¹⁰²

Since 2006, Golden West has been providing technical support and training to Vietnamese humanitarian mine action organisations. Beginning in 2016, Golden West began a programme training Provincial Military Commands in Ha Tinh, Quang Binh and Quang Tri provinces to conduct EOD operations to an IMAS standard. The programs in Ha Tinh and Quang Binh resulted in training and certification of 77 IMAS Level 1 and Level 2 technicians. Since 2017, Golden West training has focused on Quang Tri province and training for both the PMC and PeaceTrees Vietnam. In Quang Tri, Golden West has trained 37 EOD technicians to comply with IMAS EOD Levels 1, 2, and 3 and are training a specialised Provincial Military Command team to operate a mobile cutting system for safe demilitarisation and disposal of large bombs and projectiles. Golden West also leverages its partnerships in Quang Tri to provide valuable field mentoring and training to VNMAC EOD personnel being formally trained by USARPAC's humanitarian mine action program.¹⁰³

Vietnamese officials have previously reported that it had 250 mine clearance and BAC teams nationally. Vietnam reportedly has more than 70 military-owned companies undertaking clearance related to infrastructure and commercial and development projects.¹⁰⁴

International operators active in 2020 included: MAG, working in Quang Binh and Quang Tri provinces; NPA, working in Quang Tri, Quang Binh (operational from September 2020), and Thua Thien Hue provinces; and PTVN, who have been working in Quang Tri province since 1995.¹⁰⁵ DDG ceased its survey and clearance operations in Vietnam (Quang Nam province) in January 2020, due to lack of funding.¹⁰⁶

In 2020, MAG deployed 40 clearance teams, totalling 400 deminers (excluding team leaders, deputy team leaders, and medics), and seven mechanical assets; this was a slight increase in clearance capacity compared to the previous year. MAG also deployed seven non-technical survey teams in 2020, totalling 14 community liaison officers, as well as one technical survey team of 10 deminers (excluding team leader, deputy team leader, and medic).¹⁰⁷ Clearance teams are supported by manual vegetation-cutting teams to prepare the ground. MAG has found those teams greatly increase the efficiency of the clearance teams, as personnel can focus on clearance without diversion to the clearing away of vegetation. MAG has a total of 14 clearance support teams, totalling 70 employees. In addition MAG deploys two multi-task teams conducting emergency EOD spot tasks (one in each province), totalling 10 deminers (excluding two team leaders).¹⁰⁸ In 2019, MAG received permission from the Vietnam People's Army Department of Operations for the

deployment of drones to support its operations in designated areas in Trieu Phong and Hai Lang districts, Quang Tri province. The permission is renewed every three months with the Department of Operations.¹⁰⁹ As at March 2021, the use of drones in operations planning and prioritisation was still under trial.¹¹⁰

In 2020, NPA continued operations in Quang Tri and Thua Thien Hue provinces. It also commenced non-technical survey operations in Quang Binh province in September, following lengthy delays due to COVID-19 and extended discussions with provincial authorities regarding operational areas and appointment of military liaison officers.¹¹¹ In 2020, NPA had 10 non-technical survey teams (totalling 11 personnel); 12 technical survey teams (totalling 48 personnel); 14 clearance teams (totalling 140 personnel), and one mechanical asset.¹¹²

Additionally, NPA recruited and trained a further four technical survey teams (total of 20 personnel) during November and December 2020, for deployment in January 2021.¹¹³ NPA's operations in Quang Tri province were restructured in May 2020, in order to better support the goals identified in the provincial mine action strategy and allow for a better balance between CMRS and follow-on clearance. Non-technical survey and technical survey capacity was decreased while clearance capacity was increased. In addition, NPA maintained two EOD teams. To support this operational restructure, NPA recruited 25 new BAC team members.¹¹⁴ NPA also increased non-technical survey, BAC, and EOD capacity in Thua Thien Hue province, deployed in June 2020. NPA started CMRS operations in Quang Binh province in 2020, with non-technical survey commencing in September and technical survey teams recruited and training in November and December, for deployment from January 2021.¹¹⁵ The operational data feedback loop and sharing of knowledge between MAG and NPA as part of their partnership in Quang Tri continues and will also be replicated in Quang Binh province.¹¹⁶

PTVN operates in Quang Tri province and from June 2020, extended its programme into Quang Binh province. PTVN undertakes EOD, clearance, and integrated risk education, but does not conduct CMRS.¹¹⁷ In 2020, PTVN deployed 6 BAC teams (totalling 54 technicians/deminers) and 2 EOD teams (totalling 10 technicians).¹¹⁸ All of PTVN's technicians are certified for IMAS EOD Level 1, and under a capacity development partnership with Golden West, by the end of 2019 PTVN had 11 technicians certified in IMAS EOD Level 3 (plus 3 under mentoring) and 31 technicians certified in IMAS EOD Level 2. PTVN's capacity includes 2 pairs of surveyors, who mostly focus on site assessments and re-visiting CHAs for the purpose of planning and evaluation.¹¹⁹

As mentioned, PTVN started up in Quang Binh province from June 2020, together with MAG and NPA, with 4 PTVN multi-task teams totalling 32 technicians. PTVN's technicians will mostly be responsible for EOD spot tasks resulting from the Quang Binh hotline and from NPA's survey, along with joint efforts with MAG to conduct clearance of CHAs generated.¹²⁰ After a lengthy approval process, PTVN's field operations began in Quang Binh province in early 2021.¹²¹

KV-MAP (between VNMAC, KOICA, and UNDP), which was initiated in February 2018, calls for ERW survey and clearance in the two provinces in 2018–20 to be carried out by provincial military teams targeting survey of 200km² and clearance of about 80km².¹²² In 2018, operations in Quang

Binh and Binh Dinh focused on survey, with 21 survey teams deployed.¹²³ Clearance and technical survey began in 2019. Technical survey operations were completed in April 2020 and the project then focused more on clearance. Total capacity in 2020 comprised of 74 teams: 21 survey teams and 53 clearance teams deployed for ERW clearance (including CMR).¹²⁴

VNMAC reported that there was a demining accident on 12 November 2020, in Thanh Thuy commune, Vi Xuyen district, Ha Giang province, during the search and gathering of human remains from the war. The explosion of an unidentified item of explosive ordnance resulted in the death of one soldier and an injury to another, requiring amputation.¹²⁵

LAND RELEASE OUTPUTS AND PROGRESS TOWARDS COMPLETION

LAND RELEASE OUTPUTS IN 2020

In 2020, a total of approximately 48km² of cluster munition-contaminated area was cleared in Vietnam: 38km² cleared by INGOs¹²⁶ and an estimated 10km² of CMR contamination cleared as part of the KV-MAP project, which cleared 61.5km² of land in total, but not all of it was cluster munition-contaminated area, therefore Mine Action Review has made a conservative estimate of the extent of CMR clearance.¹²⁷

A total of at least 15,279 submunitions were reported to have been destroyed during survey, clearance, and EOD spot tasks in 2020: 11,836 submunitions destroyed by INGOs and 3,443 submunitions destroyed by provincial military teams coordinated by VNMAC under the KV-MAP ERW project.

VNMAC said that the amount of ERW-contaminated area (i.e. not only CMR) released in 2020 was an increase on the previous year. This was due to the implementation of multiple projects, including for local socio-economic development; based on official development assistance (ODA), such as KV-MAP; and through operations by INGOs in the central provinces.¹²⁸

SURVEY IN 2020

According to VNMAC, a total of 120.63km² of land was surveyed in 2020 and confirmed to be contaminated with remnants of bombs, mines, and explosive ordnance, mostly UXO. The amount of area confirmed to be contaminated with CMR was not disaggregated.¹²⁹

In Quang Tri, ranked as one of Vietnam's most heavily contaminated provinces, NPA continued to work in a partnership with MAG, under which NPA conducted CMRS and MAG cleared the resulting CHAs. NPA aimed to complete survey of Quang Tri by April 2021.¹³⁰ As at May 2021, the planned completion date had been pushed back. This was due to restructuring to put more focus on clearance and also because the Quang Tri province went through an administrative restructuring in 2020 which resulted in INGOs having access to more areas than previously, resulting in more survey that needs to be completed. Based on its current capacity, NPA expected it would complete non-technical survey around the end of 2022 and technical survey around the end of 2024, in the 690 villages currently accessible. This is an estimate only and the timeframe will change depending on the amount of direct evidence identified during survey.¹³¹

Table 1: Technical survey of cluster munition-contaminated area in 2020¹³²

Operator	Province	Area surveyed (m ²)	Area confirmed (m ²)	CMR destroyed	Other UXO destroyed
MAG	Quang Binh	12,257,500	19,265,669	459	12
NPA	Quang Tri	37,637,500	65,763,098	2,476	1,910
Totals		49,895,000	85,028,767	2,935	1,922

NPA confirmed more than 65.6km² as containing CMR in 2020, a decrease on the 150.3km² confirmed as CHA the previous year.¹³³

MAG confirmed almost 19.27km² as containing CMR in 2020, an increase on the 6.52km² surveyed the previous year.¹³⁴

CLEARANCE IN 2020

VNMAC reported clearing 61.5km² of land contaminated by all explosive ordnance (not only CMR-contaminated area) in 2020, with the destruction of 3,443 submunitions, 86,971 other items of ERW, 77 anti-personnel mines, and 2 anti-vehicle mines. This is believed to result almost entirely from clearance by the provincial military teams coordinated by VNMAC as part of the KV-MAP ERW project. It is not known what proportion of the total area cleared was cluster munition-contaminated area, as the amount of area cleared of CMR was not disaggregated from area cleared of other ERW and mines.¹³⁵ Mine Action Review

has therefore estimated CMR clearance under the KV-MAP ERW project in 2020 conservatively at 10km².¹³⁶

The data reported by VNMAC are believed to exclude Provincial Military Command operations conducted outside of the KV-MAP project. However, these military operations relate mainly to emergency EOD spot tasks, rather than to area clearance.

In addition, INGOs reported clearing a total of more than 38.5km² of cluster munition-contaminated area in 2020, with destruction of 8,402 submunitions (see Table 2) and a further 499 submunitions during EOD spot tasks. INGO clearance output in 2020 was consistent with the CMR contaminated area cleared in 2019.

Table 2: CMR clearance in 2020¹³⁷

Operator	Province	Area cleared (m ²)	Submunitions destroyed	Other UXO destroyed
MAG	Quang Binh	7,410,186	2,508	538
MAG	Quang Tri	23,519,427	4,272	3,648
NPA	Quang Tri	3,870,408	1,212	1,038
PTVN	Quang Tri	3,466,647	198	854
Provincial Military Command coordinated by VNMAC as part of KV-MAP	Binh Dinh and Quang Binh	Est. 10,000,000	3,443	86,971
Provincial Military Command (excluding KV-MAP)	N/K	N/K	N/K	N/K
NPA	Thua Thien Hue	230,350	212	167
Totals		48,497,018	11,845	93,216

N/K = not known

A further 499 submunitions were found and destroyed during EOD spot tasks in 2020: 301 by MAG, 157 by NPA, and 41 by PTVN.¹³⁸

MAG's clearance of more than 30.9km² in 2020, was a decrease on the more than 33km² cleared the previous year, and was due to the adverse impacts of the COVID-19 pandemic and the heavy storms in central Vietnam in 2020.¹³⁹ In Quang Tri, MAG conducts clearance in partnership with NPA, which defines CHAs through technical survey. In Quang Binh, MAG clears CHAs defined through EPP Mapping.

NPA's clearance of more than 4.1km² in 2020, was nearly double the amount cleared the previous year, due to an increase in clearance capacity from two BAC teams in 2019 to eight in 2020.¹⁴⁰

PTVN's clearance output in 2020 was very similar to the previous year.¹⁴¹

Vietnam has not set a target date for the completion of CMR clearance. In its national mine action plan for 2010 to 2025 it called for the clearance of 8,000km² of ERW from 2016 to 2025¹⁴² but did not specify how much of this should be CMR. The lack of a baseline of CMR contamination and a lack of information at a national level about ongoing survey and clearance across the country makes it difficult to understand both Vietnam's annual progress in reducing CMR contamination and how this contributes to the completion of CMR clearance. However, it is a positive development that VNMAC is beginning to support the expansion of CMRS – from in Quang Tri and Thua Thien Hue provinces, into new provinces, such as the US-funded consortium project in Quang Binh.¹⁴³

The adoption of Decree 18 and Guiding Circular 195 is enabling VNMAC to put in place systems and practices to coordinate and strengthen mine action in Vietnam, bringing national standards relating to survey and clearance operations in line with IMAS, and establishing a national information management database.

VNMAC reported that the COVID-19 pandemic has impacted survey and clearance efforts. Challenges posed by the pandemic include the organisation and deployment of the field personnel according to the regulations of the Government and each locality in implementing the activity/project; the organisation of COVID-19 prevention sanitation, and the work of ensuring personnel, equipment, and logistics for performing tasks.¹⁴⁴

MAG reported that the COVID-19 pandemic disrupted its operations in 2020. Survey and clearance teams were put on stand-down and office staff worked from home from 1 to 15 April 2020 to ensure their safety and to follow the Government's Directive to apply stricter social-distancing measures. The second wave of COVID-19 in late July 2020 and third wave in October also affected MAG's work through the restrictions on gatherings.¹⁴⁵

NPA reported that COVID-19 did not have a major impact on operations in 2020, with a total of 37 working days on stand down in Thua Thien Hue province; 26 in Quang Tri province; and 0 working days in Quang Binh province. But the outbreak in August did result in a delay to the first planned deployment of NPA's new non-technical survey teams, as experienced team leaders were unable to travel from Quang Tri province to support this initial deployment.¹⁴⁶ Additionally, in Thua Thien Hue province NPA was unable to respond to calls to the district hotline in A Luoi while on stand down. However, the hotline was still staffed through this period, and all reported items were recorded and referred to the provincial military for follow-up. When operations resumed, NPA followed up on all reported items and ensured these were destroyed. Furthermore, some capacity development activities had to be postponed due to government restrictions on meetings and travel as a result of the pandemic. However, as these restrictions were not in place for long, all activities were able to be rescheduled to a later date, so this did not have any significant impact on the capacity of our partners. While it is of course not ideal that operational outputs were impacted, by following national and provincial guidance and WHO-recommended preventative measures, NPA helped to ensure that no staff in Vietnam contracted the COVID-19 virus in 2020.¹⁴⁷

PTVN also felt the impact of the COVID-19 pandemic in 2020, with social distancing requirements causing field operations to slow and with operations being suspended completely during lockdowns.¹⁴⁸

From September to October 2020, a series of unusually close and intense storms and other weather systems hit central Vietnam. This included tropical storm Molave, the worst to hit Vietnam in more than 20 years. Floodwaters exceeded historic levels in Quang Tri, Quang Binh, and Thua Thien Hue provinces, and many areas were also severely impacted by landslides.¹⁴⁹ MAG reported that subsequent flooding and mudslides resulted in an operational stand-down for the majority of October and that rains throughout November–December 2020 led to further loss of operational hours.¹⁵⁰

PLANNING FOR RESIDUAL RISK AFTER COMPLETION

Golden West continues to partner with the GICHD in a Management of Residual Explosive Remnants of War project to study the ERW ageing; develop standards for the collection, cutting, and dissection of ERW; and to draw up and pilot a long-term risk management model.¹⁵³

The GICHD has been supporting VNMAC, NPA, and UNDP in the review of the current legislative and normative framework, with a focus on residual risk management. In 2021, the support will expand to conduct training course on residual risk management, site safety, and long-term risk management (LTRM) tools and protocols.¹⁵⁴

As part of the project on residual risk, GICHD has worked with VNMAC, UNDP, and NPA on several areas, with activities having started in December 2020 and expected to last throughout 2021 and 2022. Activities under the project include:

- Review of the QCVNs, TCVNs, and SOPs with a focus on risk management, site safety, and QM.
- Support in drafting Vietnam's explosive ordnance risk education (EORE) standard and strategy.
- Assessment of VNMAC's current legal, normative, procedural, and structural capacities with respect to dealing with the residual threat, and provision of recommendations for future desired capacity.
- Site safety training for 50 VNMAC staff and related offices.
- A Risk Management Regional Forum to share, develop, and steer good practice in risk management for the sector in the region, which is expected to take place on the ARMAC platform.
- A Regional Workshop on Liability, All Reasonable Effort, and Risk Management which will also include outreach and familiarisation of the existing and upcoming IMAS technical notes on mine action (TNMAs) and will also promote exchange of good practices and share common challenges across countries.

NPA operational teams were unable to work for 15 days due to unsafe road and working conditions caused by the storms. However, NPA was able to provide emergency assistance to local communities, with funding from the Norwegian Ministry of Foreign Affairs, and in response to provincial requests for support.¹⁵¹ PTVN also provided emergency assistance to local communities through private funding in the immediate aftermath of the floods. PTVN further reported that the impact of the flooding and landslides continued to be felt by the organisation, with severely damaged roads making access to clearance sites in the two mountainous districts of Huong Hoa and Dakrong in Quang Tri Province extremely challenging for demining teams.¹⁵²

- An online Risk Management Training E-Publication portal. This resource will be available for online guided learning, face-to-face events, and workshops, and self-access to the material. The e-learning publication will cover ISO 31000:2018 on Risk Management, IMAS 07.14 on Risk Management in Mine Action, Risk Management related to ammunition management (IATGs), and associated educational materials/studies.
- A pilot LTRM project to supplement the existing LTRM protocols and tools, with the goal of helping equip VNMAC to address EO residual contamination through the development of a national plan and policy instruments for the implementation of a nationally owned, sustained and sustainable residual risk management of explosive ordnance.¹⁵⁵

Golden West believes that the Provincial Military Commands provide a long-term capacity to respond to residual ERW regardless of external funding or support. Golden West is building a Vietnamese capacity to continue EOD operations in a safe and effective manner as long as the threat to the public exists.¹⁵⁶

The Foundation has worked with VNMAC to improve their technical EOD skills and to support formal training by the United States DOD by providing continuity and field mentoring to inculcate trained skills into everyday operations. With US funding, Golden West has provided equipment and training to BOMICEN (Technology Centre for Bomb and Mine Disposal Engineering Command), an advisory agency under the Vietnamese Ministry of Defence and Engineering Command.¹⁵⁷

Golden West is also training PTVN EOD teams, funded by PTVN, to help develop their training capability, ensuring long-term success. PTVN instructors regularly work with Golden West and VNMAC, enhancing training skills and building a lasting capability.¹⁵⁸

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- 126 Emails from Kimberley McCosker, NPA, 8 April 2021; Helene Kuperman, MAG, 31 March 2021; and Pham Hoàng Hà, PTVN, 11 May 2021.
- 127 Email from Tim Horner on behalf of Mr. Phuc, VNMAC, 6 April 2021
- 128 Ibid.
- 129 Ibid.
- 130 Email from Jan Erik Støa, NPA, 6 April 2020.
- 131 Email from Kimberley McCosker, NPA, 13 May 2021.
- 132 Emails from Kimberley McCosker, NPA, 8 April 2021; and Helene Kuperman, MAG, 31 March and 9 June 2021.
- 133 Email from Kimberley McCosker, NPA, 8 April 2021.
- 134 Emails from Helene Kuperman, MAG, 23 June 2020, 31 March 2021 and 9 June 2021.
- 135 Email from Tim Horner on behalf of Mr. Phuc, VNMAC, 6 April 2021.
- 136 Estimate by Mine Action Review based on the number of submunitions reported destroyed by VNMAC and comparison with cleared area per submunition found by INGOs in 2020.
- 137 Emails from Tim Horner on behalf of Mr. Phuc, VNMAC, 6 April 2021; Kimberley McCosker, NPA, 8 April 2021; Helene Kuperman, MAG, 31 March 2021; and Pham Hoàng Hà, PTVN, 11 May 2021.
- 138 Ibid.
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- 141 Email from Pham Hoàng Hà, PTVN, 11 May 2021.
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- 144 Email from Tim Horner on behalf of Mr. Phuc, VNMAC, 6 April 2021.
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- 153 Emails from Mark Lasley, Golden West Humanitarian Foundation, 16 June 2021; and Rob White, Adviser, Strategic Management and Residual Contamination, GICHD, 25 April 2018.
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- 156 Email from Mark Lasley, Golden West Humanitarian Foundation, 16 June 2021.
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