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The Sdok Kok Thom INTEGRATED DEMINING PROJECT

The Sdok Kok Thom Project in Thailand was an ideal project in order for the Japan Alliance for Humanitarian Demining (JAHDS) to create a mine clearance capability. The project site was compact, easily accessible and the vegetation varied from sparse to very dense, which made it possible to create a progressive training scheme of increasing complexity. This allowed the mine clearers to progress in steps towards the most difficult and challenging stages. One of the main points of the project was to incorporate a high degree of integrated demining, i.e., demining using the three major tools in the mine clearer's toolbox: manual clearers, machines and mine detection dogs. This was only possible due to the generosity and cooperation of the Thailand Mine Action Centre (TMAC) and specifically their Thai Military Humanitarian Mine Action Unit 1 (HMAU1), based not far from Sdok Kok Thom in Aranyaprathet, which allowed JAHDS to use some of their mechanical equipment and also their dog teams. The project was completed and the site was handed back to the Sa Keo province on January 23, 2004.

What is Integrated Demining?

Integrated mine clearance is not a new concept, but rather one that has developed over time with the combination of increasing experience and advancing technologies aiming to achieve the most cost-effective mine and UXO clearance possible given the available resources. Integrated mine clearance involves the application of a range of tools, technology and procedures in the most logical and cost-effective combination to clear suspected mined areas safely in the shortest possible time. Integrated demining is increasingly being used as more managers gain experience with the use of machines and dogs. Some of the more experienced non-governmental organizations (NGOs), including Norwegian People's Aid (NPA) and Menschen gegen Minen (MgM; People Against Landmines), use all three component tools. The potential for high cost-effectiveness is great, but the potential for waste and low efficiency is also great.

The advantages and disadvantages of the three components of demining operations are well-known. Manual mine clearance is slow and potentially dangerous, but it can be efficient. Mine detection dogs can speed up mine clearance, but are expensive and can be unreliable. Machines can also speed up the process of mine clearance, but can be a heavy initial investment and require considerable maintenance and logistic support. On the other hand, when used together as an integrated system, they can make mine clearance faster, safer and more cost-effective.

Methodology of Integration

The integration of the three different components at Sdok Kok Thom was the responsibility of Johan Van Zyl, who had considerable demining experience from his work in southern Africa and the Balkans. Before mine clearance could start, he had to assess the

most effective methods of clearance that could be deployed for the task. The first factor was the size of the project area with special attention to the type of soil, the gradient and the vegetation. This was established by a technical survey, which also enabled the manager to divide the area into manageable blocks according to natural features and boundaries, such as roads, footpaths and walls. The ground at Sdok Kok Thom was firm and relatively stone-free with no major slopes and a total area of about 407,000 sq m. The area was initially divided into nine blocks. One block, which was a silted-up lake, was liable to mudiness or even flooding, so work on it had to be completed by the end of the dry season.

The next factor was an assessment of the mine threat. There was a known Khmer Rouge camp in the area, but parts of the worksite were already well-trodden by the local people. The mines were mostly Chinese type 69 bounding fragmentation mines along with some UXO. These were in the middle and east of the site and were laid for protection in the direction that the Khmer Rouge expected the Vietnamese forces to attack. In some cases, the mines were still active—a tenth block was added to the contract following a mine incident involving a Thai border patrol soldier close to the original project area. Threat information came from the national Level 1 Survey reports, the TMAC database, the local military commanders, soldiers and ex-soldiers, police, local authorities and villagers, and was in general accurate enough for planning and training purposes. As the mines in the area were predominantly tripwire-activated mines, any tripwires that had not corroded had to be removed by mechanical operation or during the manual clearance process.

A further factor was the assessment of resources. The resources available were manual deminers from General Chartichai Choonhaven Foundation (GCCF), starting with 14 initially inexperienced staff recruited from local villages, but by the end of the proj-



ect increasing to a staff of 45 well-trained individuals. All deminers were trained in a special four-week civilian demining course organised and carried out by TMAC, which concentrated on the immediate clearance needs. All deminers were trained on the CEIA Mil-D1 mine detector, which gave excellent results, even in laterite soils. For machines, JAHDS was fortunate in being able to borrow U.S.-funded, TMAC-owned machines from HMAU1; a brush deminer (BDM 48), and later a Tempest 3 and a Pearson Survivable Demining Tractor and Tools (SDTT). JAHDS itself owned a Hitachi BM307 brushcutter. JAHDS was also allowed to use between two and three HMAU1 dog teams when they were not deployed elsewhere.

Although availability of dogs and machines fluctuated, overall the resources available made for an effective "toolbox" for the project. The BDM 48 and Hitachi were effective in clearing dense undergrowth, as well as preparing the ground with their rotating milling heads. The Tempest mini-flail was used for vegetation clearance in and around trees, thus minimizing the damage to the local environment. The SDTT was effective in preparing the ground before the manual operation started, which sped up the clearance process and made it safer for the manual operators. It not only removed vegetation, but the ground-contact magnet of the SDTT also

sped up the manual process by removing the majority of metal fragments from the area to be searched by the manual teams. This feature eliminated both a large percentage of false signals in the manual teams' detectors and a subsequent waste of detection time. When used in combination with a rake or plough, which loosened the ground up to 20 cm, and by repeating the process with multiple sweeps, clearance using magnets proved to be highly effective and removed an estimated 80 percent of metal debris from the soil. The dog teams were used to assist the manual deminers following vegetation clearance and for verification purposes. They identified a considerable number of the mines found.

From these assessments, it was possible to set up a clearance plan. Each individual block received individual attention and was allotted the clearance methods that were the most applicable. Teams were tasked, the equipment was distributed (depending on availability) and the projected completion dates were recorded. This allowed the generation of a flexible, safe and cost-effective operation. Because of the flexibility provided by the cooperation with TMAC and HMAU1, it was possible to retain all the clearance components (i.e., manual teams, dog teams and machines) in balance with each other, so no resources were wasted by being present but inactive. This balance was only achieved by

the thorough knowledge and experience of the capabilities of all components under a variety of working conditions.

Implications of the Sdok Kok Thom Project

In summary, the Sdok Kok Thom was a good project on which to carry out integrated mine action. Every mine action site is different, but the principles and methodology used at Sdok Kok Thom were general enough to be used in a wide spectrum of scenarios and will be used again in the next JAHDS project. JAHDS was lucky to have the support of TMAC and especially HMAU1, which allowed the use of a range of equipment not usually available to small NGOs. The civilian mine clearers of the GCCF proved to be very effective despite the fact that this was the first project in Thailand where civilians were used as deminers. Again, this project was fully supported by the all-military TMAC. The success of the Sdok Kok Thom Project may pave the way for more civilian mine clearance in Thailand. JAHDS also enjoyed the support of the governor of Sa Keo province and the Ministry of Culture. Through good teamwork, this integrated project was successfully concluded both quickly and safely—making it an excellent start for JAHDS' efforts in mine clearance.

** Photo by the author.*

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