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Picking the Right Tool for the Right Task: Mine Clearance with the MineWolf Machine in Sudan

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to the IMATC to become humanitarian deminers and EOD technicians respectively, was funded by the British government’s Department for International Development and the U.K. Ministry of Defence. MAT has been contracted through the United Nations Development Programme by the Department for International Development to provide the Technical Advisors to supervise the Ugandans in their new role, ensuring that the International Mine Action Standards are maintained and the teams operate at their maximum capability.

Upon completion of the course and repatriation to Uganda, MAT was essential in helping to shape the strategic policy for the deployment of these newly trained forces. The Office of the Prime Minister and the mine-action Technical Advisor for the UNDP have agreed to acquire the necessary life support and operational funding for the teams to undergo refresher training and deploy to the field to conduct clearance operations. This has by no means been an easy feat, and with this new approach to operations, with the heavy emphasis on the local governmental and national capacity building, there is now a infrastructure to include mine action within its national regeneration plan and assign essential funding and personnel.

As present, MAT Chief Technical Advisor in Uganda Danny Danenberg is assisting in the development of the national mine-clearance programme and will then deploy on operations with the UNDP. It is a very deliberate balance that the MAT team has to manage, as there must be some close supervision to ensure standards are maintained while allowing the command element to develop. The government of Uganda’s mine-action aspiration is to free the country from the most severe humanitarian and economic effects of landmines and UXO by 2009. The prioritisation of mine-action tasks will be in accordance with the government’s newly published document, “National Policy for IDPs [Internally Displaced Persons].”

In order to implement this policy effectively, the staff needs a great deal of cultural sensitivity and empathy to ensure that the right capabilities are employed to maximum effect. Concurrently, MAT has secured additional funding from the UNDP to conduct another needs assessment, which will concentrate on the two northern districts of Lira and Soroti. With the desire for this NA to incorporate an even more diverse, there is a credible drive by all involved toward securing mine funding to make this possible so that valuable and critical information required for a focused and efficient mine-action plan can become a reality.

Mine Detection Dog Programme

At IMATC

With the development of Uganda’s mine-action capacity, MAT has started to build a mine-detection dog training facility on the grounds of the IMATC. The Government of Uganda, a German-owned commercial dog-training company that operates globally, means that the supply of high-calibre and well-trained MDDs will soon be well-established in eastern Africa to move and support the national mine-action programme/agencies in countries such as Uganda, Rwanda, Somalia, Sudan and South Sudan.

Damian Leitch, the MAT Technical Advisor and head of the MDD training facility, the Dak-Ridge Dog Centre, controls the day-to-day running of the centre and occasionally assists the instructors from the IMATC during the course. Leitch provides specific EOD knowledge from his experiences gained during his career in a British Army EOD team operating in countries such as Iraq, Afghanistan, Sierra Leone and Macedonia. Andreas Steinberg, the MDD TA employed by Securatec, is responsible for the actual dog and handler training beyond the standard required by the IMATC. Once the MDD teams are trained, MAT will deploy them to countries that have a need for MDDs, and with the help of NGOs/commercial organisations, will put the MDDs to work, utilising them in area reduction and quality assurance as part of a national mine-action programme.

The Future

MAT has provided programmes in Eritrea and the Democratic Republic of the Congo in the past and developed MDD capability in Kenya. MAT aims to consolidate these activities and to expand its “toolbox” of mine-clearance methods.

With the influx of mine-action activity in Sudan and as donors are re-educated to the plight of Africans who are facing the threat of landmines and UXO, a concerted effort to train new MDD companionshipe is needed so the people can return to their way of life without fear of death or injury. Without a multifaceted mine-action programme fully implemented at the U.N. or national level, Uganda will be unable to free itself from the shadow of landmines and UXO.

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In 2005, Norwegian People’s Aid decided to support its mine-action programme in Yei with a mechanical mine-clearance machine called the MineWolf. The MineWolf is a German machine that combines the advantages of both the tiller and flag systems. It is designed as a multi-purpose tool to provide maximum flexibility for the user, especially in the challenging environment of Sudan. As a result of a feasibility study in January 2005, it became clear that in order to support and move a 25-ton machine in South Sudan, a well-equipped and perfectly organized team must be formed to deliver cost-effective results. The main challenges would be transportation, hard ground conditions during the dry season and dense vegetation after the rainy period. Based on its experience in the Balkans, MineWolf Systems provided NPA with a tailor-made transport and support vehicle.

Getting There and Moving Around

To achieve operational flexibility and maximum deployment, the system needs its own transport and support assets. Taking into account the

Nigel Howard, BEng (hons)

Mines Awareness Trust

The Mines Awareness Trust (MAT) is a registered charity, which aims to promote awareness of landmines and UXO and to encourage the development and use of mine clearance technologies. It is a registered charity, which aims to promote awareness of landmines and UXO and to encourage the development and use of mine clearance technologies.

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Nigel Howard, a former officer in the British Army where, after graduating with a BEng (Honours) in Civil Engineering, he specialised in bomb disposal, structural engineering and French, with an honours degree in civil and structural engineering and French.

In order to implement this policy effectively, he needs a great deal of cultural sensitivity and empathy to ensure that the right capabilities are employed to maximum effect. Concurrently, MAT has secured additional funding from the UNDP to conduct another needs assessment, which will concentrate on the two northern districts of Lira and Soroti. With the desire for this NA to incorporate an even more diverse, there is a credible drive by all involved toward securing mine funding to make this possible so that valuable and critical information required for a focused and efficient mine-action plan can become a reality.

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Getting There and Moving Around

To achieve operational flexibility and maximum deployment, the system needs its own transport and support assets. Taking into
account the poor road conditions en route to and within Sudan, the team faced off-road challenges. MineWolf chose an ex-military MAN—8x8 off-road truck equipped with a mobile workshop—to pull the 16-wheeled customized off-road trailer from the port at Mombasa, Kenya, through Kenya and Uganda into Sudan. In addition, a Magirus flat crane vehicle with bridging equipment and spare parts was supplied.

The first stage of the journey brought the team from Mombasa to the International Mine Action Training Center in Nairobi, Kenya, where a demonstration of the equipment was given to various donors and other mine-action agencies. On Oct. 7, 2005, the two trucks left Nairobi to drive to Koboko in northern Uganda.

**Getting Started**

Ten days after leaving Nairobi, the MineWolf convoy reached its final destination in Yei, South Sudan. Upon arrival, the camp was set up, and training of all team members for off-road conditions started. After that, specialized courses in rigging, field card reading, and tactical maneuvers were undertaken. The next nine weeks of operation were conducted with a mobile workshop to pull the 16-wheeled customized off-road trailer from Uganda into South Sudan. Within 17 working days, the team cleared 20,000 square meters (69 acres) and handed over the whole team back at NPA’s main entry point from Uganda, the 1.2-kilometer-long (3/4-mile) roadway was too short for bigger cargo or personnel aircraft. To maintain its important role in transporting the food supply into South Sudan, the roadway had to be extended by another half a kilometer (about a third of a mile) into the bush. Based on these first promising results, the NPA MineWolf Team was deployed by the U.N. World Food Programme to open the Yei-Juba Road, one of the most important transport lines from Uganda into South Sudan. With Juba becoming the new capital of South Sudan, it is of great importance that the road is opened for safe passage not only to distribute food but also to develop infrastructure and establish local trade. The danger area was located on the old demarcation line between government of Sudan and Sudan People’s Liberation Army forces and was heavily mined from both sides.

**Hard Ground, Heavy Vegetation And AT Mines**

Depending on ground conditions and the mine threat, NPA could choose to operate with MineWolf either as an open sifter or as a standard flail. The use of quick couplings facilitates replacement of the demining tool attachments in less than 30 minutes. Both tools are equipped with a proven depth control unit for quality control.

After the team tried both methods, it concluded that the sifter proved its sustainability and had a clear advantage over the flail, especially against heavy vegetation and hard ground. Furthermore, a sifter has the advantage of continuously penetrating the ground to the required depth since, in contrast to a flail, the rotor is a solid piece sucking the ground. Consequently, the deployment of a sifter allows ground-processing results unmatched by common flail systems, particularly with respect to vegetation and ground penetration.

The patented open-sifter design showed unpredicted results when used against both AP and AT mines. The basket-type segment structure allows the mine blast to expand through the sifter to avoid or reduce damage. Nevertheless, the sifter is designed in such a way that every 43.4 millimeters (1.7 inches), a chisel with a diameter of 44 millimeters hits the ground, ensuring that every piece of soil is processed. This guarantees that even the smallest AP mines like the M14 or the PMA2 will be hit.

In total, the machine cleared more than 280,000 square meters (90 acres) within the first nine weeks of operation. The sifter successfully witnessed several Type 72, M39, and TM57 AT mines and also reliably destroyed 21 AP mines, like the M14, and bounding fragmentation mines like Type 69. No intact mines have been found behind the machine. The clearance results of the MineWolf allows safe and fast manual quality control as well as mine detection dog follow-up.

In a recent issue of the Journal of Mine Action, A. Griffiths of the Geneva International Centre for Humanitarian Demining stated, “Demining should be about reducing the extent of the world’s mined areas in as short a term as possible. Machines are here to do just that.” MineWolf Systems is committed to putting this statement into practice.