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Ukraine Responds to New Mine Action Demands

The Ukraine has been testing demining equipment as well as practicing new mine action methods in order to meet international guidelines. The following article discusses the different types of demining equipment that Ukrainian miners have tested and hope to use in the future.

by Lt. Col. Sergei Pashinsky, Director, UMAIC

Introduction

In addressing the landmine problem in the Ukraine, we must first examine the magnitude of the problem and secondly, categorise and distribute issues into relevant categories. With more than one million mines and pieces of UXO tested in Ukrainian soil and over 11 million munitions stockpiled, most of the Ukraine's problems relate to explosive remnants of war (ERW). Twenty to 24 domestic explosive ordnance disposal (EOD) teams travel daily to places where UXO is detected, and they neutralise on average 150 to 200 pieces of munitions. In 2001-2002, about 548,000 various explosive devices were found and destroyed. Fortunately, over the past 10 years, the international community has focused on alleviating the humanitarian impact of AP landmines.

In the Ukraine, we are taking steps to launch our own National Mine Action Program (NMAPP), and the interim infrastructure of our prospective NMAPP is actively being developed. In addition to the Ministry of Defense, the Emergency Ministry and the Special Police Bomb Disposal Division, which were traditionally involved in this issue, several EOD/demining and research and development (R&D) commercial companies have been established. The personnel of these companies has been trained according to the International Mine Action Standards (IMAS) and has experience using new mine action methodologies and technologies.

However, we would also like to see the international mine action community expedite the process of implementing a global EPR program.

Ukrainian deminers in south Lebanon used detectors and prads made in the Ukraine.

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References

2. IMSSA (1.2).
4. For further information on IMSSA set-up and training, see the following sources:

- General International Center for Humanitarian Demining (GICHD), IMSSA implementation and training: www.gichd.ch
- Swiss Federal Institute of Technology Zurich (ETHZ): IMSSA technical support, web- pages, forum: www.immsa.ethz.ch

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This IMSSA plot shows how ArcView's powerful spatial analysis tools help establish clearance priorities. Note how buffers show the impact of mined areas on civilian activi- ties, etc ETAC Switzerland
The work of EOD specialists is just as dangerous and nerve-racking as humanitarian demining. Sometimes people do not understand the phrases such as “nukes other than APLs” or try to make a distinction between “landmines and not landmines.” All explosive devices present equally serious threats to humans. Field EOD operators face the same danger on a daily basis; therefore, they need appropriate methodologies, effective projects, international standards, reliable equipment, etc.

International Experience

Ukrainian deminers and technicians learned their most important lessons during the UN mission in southern Lebanon at the United Nations Interim Force in Lebanon Mine Action Task Force (UNIFIL-MATF). During the mission, they were strictly bound to IMAS and practiced mine detection, using a variety of pneumatic equipment that met international standards. So far, the domestic demining operations have also adhered to national rules and standards. In the case of international demining operations, we had to pick detecting facilities as well as pneumatic and demining equipment on the basis of IMAS requirements. Using the design of various foreign and domestic equipment available, our experts have been testing and developing the new equipment for our Humanitarian Demining (HD) Training Center.

Mine Detection

To identify detectors suitable for the upcoming demining mission in southern Lebanon, we have been testing several different devices. In-soil and in-air testing was conducted in clay, sand, and stony layers, resembling Lebanese climatic conditions. In-air systems were conducted for the purpose of quantifying certain aspects of detector performance (sweep speed, calibration, drift, scan profile, sensitivity). The ergonomic factors, such as ease of use, weight, robustness and comfort were also tested. Unfortunately, the promising data obtained and some other unfavorable circumstances prevented us from completing this research and forced us to pick an “old-fashioned” Hitter Soviet army mine detector. Using the data we had, we were looking toward abolishing the helmets and designing a wide and long visor mounted on an absorbent headband. The PPE that Ukrainian deminers use is ideally reliable and flexible and has a light modular design. The helmet to shield additional rigid and soft ballistic components, depending on site requirements. It must provide protection against fragmentation mines and sufficient air circulation around covered portions of the body.

Mechanical Assistance

Until now, only the former Soviet Union’s mechanical applications were used in interior demining operations. In view of the recent requirements of HD, some laboratories that were well-known to Ukrainian deminers. In spite of its ergonomic deficiencies, the mine detector still performed adequately.

Protective Equipment

In choosing the personal protective equipment (PPE), we also decided to use domestic products. The support’s protective set (“Shell-300 m” flak jacket and flak shorts made from Kevlar) proved to be comfortable, provided protection for vital parts of the body, and was rather light and reasonable in cost. It provides frontal protection of the head, body, legs, and hand joint from a distance of two to four m. Working in this flexible protective equipment at temperatures in excess of 35 degrees Celsius, our deminers felt comfortable, except maybe for the exceedingly heavy helmet and 5-0 mm, three-layer visit.

Equipment We Want to Have

Detectors

In response to modern HD demands, we are currently seeking a portable, ergonomic and low-maintenance device or system for detecting and imaging landmines and UXO, which is capable of detecting and identifying shallow buried metallic and non-metallic munitions. Depending on the soil and other conditions, this unit should also be able to be used by the deminer in a standing, kneeling or prone position. At the same time, this device must be easy to use and reasonably priced. Currently, several domestic laboratories are trying developing pilot models, which attain adequate results, but the work is still under active discussion. Thus, we are planning to cooperate with foreign partners. For now, overseas devices have either been lacking some required characteristics or are too expensive. The ideal detector we would like to see would be:

- Lightweight (up to 1.2 kg) and well-balanced
- Easy to set up and simple to operate
- Have a range of length adjustment
- Have elbow protectors
- Be rugged and waterproof
- Be capable of use in shallow water
- Have sensitivity provided by several alternative sensors
- Have a choice of earphone (external speaker/headphones) and volume control
- Have a low battery indicator
- Have minimum cable connections
- Have a detailed multi-language guide

PPE

The principal criterion for protective equipment is its reliability in shedding the deminer while operating in a minefield. The flexibility, light weight and the comfort of the deminers are also integral parts of the criteria. Equipment that provides protection for only the front and sides of the body, legs and torso, but leaves the back exposed is not reduced heat stress, weight or for whatever reasons do not fully satisfy us. It is unacceptable to have the back exposed because in the case of a blast when a deminer is thrown and falls on a neighboring mine with an unshielded back, he has no chance of survival.

Ukrainian deminers still operate in helmets with short visors, covering the gap between face and visor with a protective collar. Now we are leaning toward abolishing the helmets and designing a wide and long visor mounted on an absorbent headband.

Conclusion

Launching our own national demining program in the Ukraine and taking part in demining projects abroad, we are looking forward to keeping on par with the international demining community. Strict adherence to IMAS and the implementation of the newest technologies and methodologies are of paramount importance to us. Along with the development of the domestic technologies and cooperation with international manufacturers, the Ukraine is interested in collaboration with foreign partners. We would like to inform you of our intention to restart the Ukrainian Mine Action Information Center (UMAIC) project Mine Action Technology Bulletin, which will highlight the tendencies and implementation policy for new technologies in Ukrainian domestic and foreign mine clearance operations. Each interested organization is encouraged to put in its comments, notes and reviews as well as any product advertisements. Terms and conditions of the proposed project will be given out upon request.

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38 Ukraine Responds to New Mine Action Demands 1 39