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Report on MineBurner System Used and Trialled by Handicap International in Bosnia and Herzegovina in 2008

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Feature Article 2

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by

Handicap International

Introduction

Handicap International, along with many other organisations, is not accredited to store, transport, or use explosives in BiH. This presents a major problem when having to deal with explosive items that are found in BiH. HI was previously obliged to subcontract the destruction of mines and UXO to other, suitably accredited, operators. This proved to be an expensive exercise, typically costing from 300-600KM (roughly 150-300€) per demolition. Since the successful demonstration and trial of MineBurner in BiH between 3 and 4 October 2007, the HI decided to buy a MineBurner system.

In order for HI staff to be competent in the normal operating procedures and for suitable technicians to be able to trained to become MineBurner Maintenance Engineers, initial planning was for the EOD/Demining Technical Advisor (TA) from Handicap International HQ and the Demining Project Manager (DPM) BiH to attend the MineBurner "Train the Trainer" course in Hermanus, South Africa.

A MineBurner course was run from 3 to 7 December 2007 but due to Headquarters commitments the HQ TA was unable to attend the course. The DPM successfully completed the training course, thereby enabling training of demining staff to take place. After the successful demonstration of MineBurner in 2007 (see previous report) the BHMAC issued HI with temporary accreditation for MineBurner to be used for the destruction of mines and UXO found during HI mine clearance operations, with the proviso that HI submits a report documenting their use of MineBurner. MineBurner is now accredited (for those wish to purchase a MineBurner system) by BHMAC for use throughout BiH.

Aim

The aim of this report is to:

- Report on MineBurner training for HI staff.
- Show cost comparison between MineBurner and sub-contracted demolitions
- Document all operational uses of MineBurner during the reporting period.
- List observations and make recommendations.

Training

Once MineBurner was ordered and delivered, a MineBurner operator training course was conducted between 21 and 25 April 2008. The MineBurner course consisted of the following:

- MineBurner Components
- Normal MineBurner Operations
- MineBurner Abnormal Operations and Troubleshooting (including fault-finding)

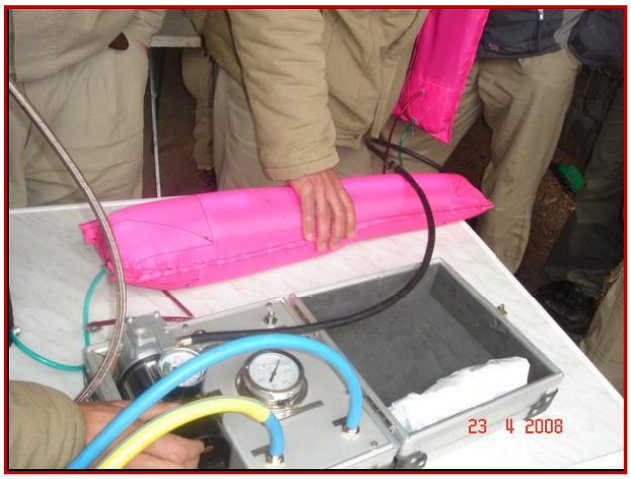
A total of 15 HI personnel from the demining teams attended the course.

Student practices wrapping bladder

Students carry out test burns

Cost Comparison

In the past, HI has used the services of 1Civil Protection, Livno and iProVita, Mostar for explosive demolitions. Costs ranged from between 300KM to 600KM (roughly 150-300€) per demolition. As well as these charges, Civil Protection charged a monthly fee of 500KM regardless if HI used their services or not. During this reporting period (May-December 2008) a total of 28 operational burns were carried out by HI demining staff using MineBurner.



Bladder filling

Civil Protection charged 500KM per demolition with a 500KM monthly fee for the duration of the contract period. 2ProVita charged 300KM per demolition, with an additional 50KM per charge if carried out on same call-out.

Burning test piece

Based on these charges, cost comparisons for mines/UXO destroyed by MineBurner are listed:

Serial	Date	Items	Cost Provita	Cost Civil protection	MineBurner costs	Remarks
01	21/06/08	1xTMM-1	300 KM	500 KM	Initial outlay: US$12000 Consumables: 7euros (gas and oxygen) Approximately 50 burns	
02	03/07/08	1xPMR-2A	300 KM	500 KM		
03	12/07/08	1 x TMA-5	300KM	500KM		Civil Protection 500KM Monthly fee for July
04	15/07/08	1xUTMAH-4 1xUNMAH-2	300KM+50KM	500KM+100KM		
05	17/07/08	1xUTMAH-4 1xPMA-2 1xPMR-2A	300KM+50KM+50KM	500KM+200KM		
06	28/07/08	1xPMA-2 1xUTMAH-4 2xUPMAH-2	300Km+50KM+50KM	500KM+200KM		
07	10/08/08	1xPMA-2	300KM	500KM		Civil Protection 500 KM Monthly fee for August
08	13/08/08	1xPMR-2A 1xUPMAH-2	300KM+50KM	500KM+100KM		
09	22/08/08	2xPMA-2	300KM +50KM	500KM+100KM		
10	26/08/08	1x82mmMortar	300KM	500KM		
11	11/09/08	2xPMR-2A 1x82mmMortar	300KM+50KM	500Km+200KM		Civil Protection 500KM Monthly fee for September
12	17/10/08	1xTMA-5	300KM	500KM		Civil Protection 500KM Monthly fee for October
13	22/10/08	6xPMA-2	300KM+250KM	500KM+500KM		
14	**Total Items 28**		**Total costs Provita: 4550KM (2275€)**	**Total CP Costs: 8400KM(4200€)**	**Total MineBurner costs: US$12007**	

Based on the costs of the four-month period, MineBurner would pay for itself in roughly 1 year at ProVita costs, or in six months based on Civil Protection costs.

MineBurner Operations 2008

The following table highlights burns conducted in BiH:

Serial	Date	Items	Remarks
01	21/06/08	1xTMM-1	Team Leader Record required
02	03/07/08	1xPMR-2A	Team Leader Record required
03	12/07/08	1 x TMA-5	Report Available
04	15/07/08	1xUTMAH-4 1xUNMAH-2	Report Available
05	17/07/08	1xUTMAH-4 1xPMA-2 1xPMR-2A	Report Available
06	28/07/08	1xPMA-2 1xUTMAH-4 2xUPMAH-2	Report Available
07	10/08/08	1xPMA-2	Report Available
08	13/08/08	1xPMR-2A 1xUPMAH-2	Report Available
09	22/08/08	2xPMA-2	Report Available
10	26/08/08	1x82mmMortar	Report Available
11	11/09/08	2xPMR-2A 1x82mmMortar	Report Available
12	17/10/08	1xTMA-5	Report Available
13	22/10/08	6xPMA-2	Report Available
14	**28 Items**		

TMM-1 21/06/08

PMKR –2A set up for burn

TMA-5 set up for burn

TMM –1 after MineBurner

MineBurner being set up for burn

MineBurner set up showing repeater station

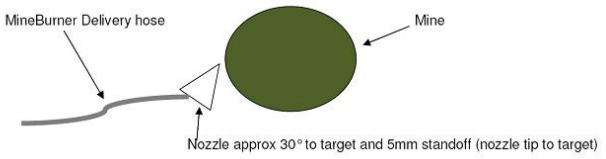
Observations and Recommendations

MineBurner had no problems when burning ex-Yugoslavia Anti-Tank and Anti-personnel mines. When attempting to burn an 82mm mortar it became apparent that user inexperience resulted in several attempts to burn before a successful burn was achieved. The mortar was unfused and the MineBurner nozzle was placed too far away from the explosive fill of the mortar. Remedial training was given and a subsequent burn on a second mortar was successful.

Several delivery hoses (5) were damaged during operations as well as five bladder assemblies. This was put down to operator error. If the bladders (LPG, Oxygen and Compressed Air) are not filled to the correct pressures, then "blowback" will occur Pressures should never deviate from the following: Oxygen-0.4 bar pressure. Compressed Air-6.5 bar pressure.

Incorrect storage of bladders when finished with could have contributed to incorrect filling of bladders and the resultant damage. Wrapping material and bladders should be purged of gasses and stored flat. This was not the case and in many instances bladders were left packed after a burn and then placed in the vehicles and not unrolled until just prior to the next burn. Operators were constantly reminded of the care that should be taken when dealing with MineBurner equipment.

When a mine is burned with MineBurner, the nozzle should be placed off-centre from the fuse to allow a large vent to be burnt (metal-cased mines especially). The following drawing shows an ideal placement of disposable nozzle:



PROM bounding-fragmentation mines were not encountered during the trial period and as such this report cannot comment on the effectiveness of MineBurner against PROMs.

Summary

MineBurner has proved to be an efficient and cost-effective alternative to conventional explosives when destroying of mines and UXO. Operator skills need to be brushed up on to avoid any further damage to the equipment. BHMAC should be approached for an extension of the trial in order for the system to be fully trialed against PROM bounding-fragmentation mines.

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