November 2006

Protection of Soft Vehicles Against ERW

Thomas Hvidtfeldt
Scanfiber Composites A/S

Follow this and additional works at: http://commons.lib.jmu.edu/cisr-journal

Part of the Defense and Security Studies Commons, Emergency and Disaster Management Commons, Other Public Affairs, Public Policy and Public Administration Commons, and the Peace and Conflict Studies Commons

Recommended Citation

This Article is brought to you for free and open access by the Center for International Stabilization and Recovery at JMU Scholarly Commons. It has been accepted for inclusion in Journal of Conventional Weapons Destruction by an authorized editor of JMU Scholarly Commons. For more information, please contact dc_admin@jmu.edu.
Taking into account that 15 years have passed since the warehouse explosion, clearance of this ammunition is a complicated—yet extremely important—task.

In addition to planned clearance projects such as those mentioned, ANAMA also provides rapid response to mine/UXO-related emergencies. When one Agrafa scrap-metal workshop set up by local explosives approximately 200 metres (219 yards) from a residential area, the workshop itself was totally destroyed and, according to official information by local authorities, three people were killed and 23 injured.

Additionally, the explosion damaged houses as far as three kilometres (two miles) from the workshop. Immediately following the explosion, ANAMA established a team of UXO operators to carry out emergency marking and clearance operations in the incident area. Operations lasted for one month and as a result, 175,000 square metres (42 acres) of land were cleared and more than 5,007 items of UXO (among them 1,261 pieces containing white phosphorus) were removed from the area and destroyed. ANAMA has continued to react quickly to any mine- and UXO-related emergencies.

Conclusion

As the Japanese might say, “Tada yori hajini wa nai!” (“We have to pay much more for something we got for free of charge”).

It is important to figure out how to solve the existing problem of UXO and abandoned ammunition and how to protect ourselves from ERW in the future. Human beings created the problem—dropping the bombs and abandoning the ammunition “for free” on Azerbaijan—and now they must correct it at great cost by cleaning up the country and making it safe again.

See Endnotes, page 109
their energy for much longer and can inflict injury quite far away from the explosion. Due to this extended range, most types of fragmenting AP mines have the option of tripwire detonation, which enables the mine to go off when a person or vehicle trips a wire up to 10 meters (33 feet) away. A person is at risk in two different areas while travelling in an SUV. If the vehicle detonates an AD device that works primarily through blast, the distance from the expected impact point (below a surface) to the person in the vehicle is normally high enough to create a safe distance. However, if the device creates fragments, it is not likely that the blast will offer almost no protection against the high-velocity steel fragments. The standard car-body steel is 0.8 millimeter (0.03 inch) thick and will not prevent fragments from entering the cabin.

To express it another way, when we are talking about various AP devices, the main concern for passengers in a vehicle is fragmentation rather than the shock or blast effect from the explosion.

For that reason, in an area with a high risk of setting off fragmenting AP ammunition, fully armed armoured SUVs are recommended. However, apart from being very costly, excessively heavy and hard to obtain in sufficient numbers, fully armoured SUVs tend to give the wrong impression of the humanitarian workers—namely that they are not willing to take the same risks that the inhabitants must take on a daily basis.

As an alternative to fully armoured vehicles, there are a number of retrofit solutions on the market today that can provide a good level of protection for passengers travelling in soft-skinned vehicles. Although retrofit devices do not provide the same level of protection as factory-armoured SUVs, some can work well against a large number of ERW threats for about 50 percent of the price of a fully armoured vehicle. Consequently, a much higher number of vehicles—and thus passengers—can be protected for the same money. In addition, the retrofit solutions to protect soft vehicles, like ballistic blankets and floor-level protection, are easier to install and can be installed in the field.

Built-in Ballistic Blankets

Most retrofit solutions to protect SUVs are based on aramid fabric, such as Twen® or Kevlar®, which is the ballistic material used in most body armour. By using flexible armour, it is possible to design solutions that fit into the curved interior and floor of the SUV.

In terms of level of protection, flexible solutions are available on the interior and floor of the vehicle generally represent a lower level of protection than those found on the sides of a factory-armoured SUV. Ballistic blankets are available from several sources and are a system of tailor-cut and overlapping blankets that cover as much of the interior of the vehicle as possible up to the windows.

Ballistic blankets offer a good level of protection against fragments coming from below or from the lower sides. They are installed below the carpet and inside the side panels and doors and require a complete stripping of the vehicle. After reinstallation, the interior of the vehicle looks the same as before, with no visible signs of it being protected.

The protection level of the blankets is normally specified according to a North Atlantic Treaty Organization standard STANAG [Standardisation Agreement] 2920 and the standard level by most non-governmental organizations is a level referred to as 600 m/sec. It is not possible to connect this level directly to any specific mine or grenade as the actual conditions have an enormous influence on the real threat. However, a level of 600 m/sec can be directly compared to other means of protection; for instance, standard body armour (without vest-insert plates) represents a level of protection of 450 m/sec and contains only the extremities of the body. It is impossible to accurately count the number of unexploded mines and it is also uncertain how much UXO remains. However, it is believed the total number of items of UXO, no matter the type, greatly exceed the total number of mines. UXO and explosive remnants of war such as landmines and ordnance (all grouped together under the term explosive remnants of war) continue to appear in huge numbers in provinces of conflict. Some countries, like Laos and Vietnam, are more affected by UXO than mines.

Nowadays the international community is paying more serious attention to the risks posed by the UXO problem. This is reaffirmed by the adoption of Protocol V to the Convention on Certain Conventional Weapons. The adoption of Protocol V on 28 November 2005 was possible thanks to governments acknowledging the seriousness of the post-conflict problems posed by UXO as well as the necessity to minimize the risk and impact of UXO. Tajikistan ratified Protocol V on 20 December 2005, and the Protocol entered into force for all parties on 12 November 2006. In accordance with the Protocol, the term ERW encompasses UXO and abandoned explosive ordnance in conflict areas. This Protocol obliges the conflict parties, as well as States Parties, to be responsible with regard to all UXO under their control. Tajikistan also has a landmine problem and has not signed the international Convention against landmines. Recently Tajikistan signed Protocol V of the Convention on Certain Conventional Weapons, which includes a commitment to clear the nation’s ERW.

The author highlights some of the different sources of ERW in Tajikistan as well as the progress being made by authorities to clear and destroy ERW.

Impact of ERW in Tajikistan

In addition to the landmine problem, items of UXO also pose a great challenge in Tajikistan. It is presumed that most ERW remnants in the country date to the civil war (1992–1997). The UXO in Tajikistan that remains on the ground is the result of being fired from military planes and helicopters, as well as shelling. A large number of Tajik citizens have consequently died or been seriously injured.

It is necessary to note that items of UXO also appear in the country for reasons such as erosion, including armed violence, and attempted revolts. In Tajikistan, as in many other countries, mandatory military service requires continued and regular military training for the Armed Forces. It has been the case in Tajikistan that during training, some shells have been fired and accidentally landed outside the military training zone. These shells remain unexploded in areas where access to the public remains open, putting the local population at risk.

In Tajikistan, despite the ERW problem, civilians go about their daily business, and continue to find themselves in dangerous areas, at times receiving injuries. For example, in February 2006, two teenagers—brothers N. Yotor, 15, and sister M. Yotora, 16, from Boimans village in Hisor district—were injured by UXO explosion while cutting wood. N. Yotor’s leg was seriously injured and his sister received injuries to her stomach. Due to the lack of financial means, the family was unable to provide necessary medical care for the teenagers, which has greatly hampered their recovery. An investigation into the cause of this explosion revealed...