Article36

Anti-vehicle mines, victim-activation and automated weapons

Discussion Paper by Article 36 to coincide with the renewed consideration of anti-vehicle mines in the Convention on Certain Conventional Weapons (CCW), 30 March 2012.[1]

A humanitarian and a moral problem

Anti-vehicle mines are victim-activated weapons that have, in some contexts, created severe humanitarian problems. The worst humanitarian problems have arisen where anti-vehicle mines have been used on and§ around road networks, resulting both in direct incidents and denial of access due to security concerns.[2] Beyond patterns of harm that have been generated on the ground, the victim-activated functioning of anti-vehicle mines means that they are prone to striking military and civilian vehicles without distinction and should therefore be of particular concern. A specific type of victim-activated weapon, anti-personnel mines, has already been subject to wide ranging prohibitions in the 1997 Mine Ban Treaty. Anti-vehicle mines should be considered in the context of the wider category of victim-activated weapons, with consideration given also to how controls for these systems might have implications elsewhere.

Previous themes of discussion within the CCW

The CCW has a long history of discussing anti-vehicle mines. Subsequent to agreement of Amended Protocol II, these discussions have been characterised by divergent views on key issues and after many years of work there was no consensus on:

- The nature and severity of the historical, or possible future, humanitarian impact from anti-vehicle mine use
- The military utility of different technical configurations of anti-vehicle mines (e.g. whether non-detectable mines are of significant military value over 'detectable' mines)
- The value of different proposed legal measures as a way of addressing the humanitarian impact.

Although some states were able to endorse a political declaration on 'anti-vehicle mines' under the framework of the CCW in 2006,[3] others continue to maintain that 'mines other than anti-personnel mines' (MOTAPM) is the preferable terminology under which to work.

Despite differing perspectives on these fundamental issues, past CCW consideration of how the rules governing anti-vehicle mines might be strengthened developed on a number of specific themes relating, in particular, to:

- 'Detectability' of the mines themselves
- The role of recording, marking and monitoring minefields as a way of limiting humanitarian impact

[1] Article 36 is a UK NGO concerned with the effective review of weapons (www.article36.org). For more information or feedback on this paper, please contact Richard Moyes (richard@article36.org).

[2] For analysis of the humanitarian problems, see for example *Anti-Vehicle Mines: Understanding the impact and managing the risk – A resource for security management*, 2005, by Landmine Action, and *Humanitarian Impact from Mines Other Than Anti-Personnel Mines*, 2004, Geneva International Centre for Humanitarian Demining.

[3] See CCW document CCW/CONF.III/WP.16

- Mechanisms for limiting the active life of anti-vehicle mines for certain uses
- The significance of 'sensitive fuzes' as an element of the threat posed to civilians

The proposals that would have provided the most significant increases in civilian protection in all of these areas met with opposition from a number of CCW delegations. Yet critical questions can be raised about the adequacy of those proposals anyway.

Responding to the problems

Victim activated weapons, whether landmines or more sophisticated automated systems, present elevated risks of striking civilians and combatants without distinction. The only ways to avoid this are:

1. To ensure that the activation mechanism of the weapon will not respond to the presence or proximity of civilians; or
2. To prevent civilian populations coming into contact with the weapons.

Solution 1: Discrimination mechanisms

Solution 1 is extremely challenging, if not impossible, and little significant CCW discussion has been focused on this theme. Away from anti-vehicle mines specifically, for individual persons there are no inherent characteristics that will distinguish a soldier from a civilian. For vehicles it likewise seems very difficult for technology to distinguish military from civilian. The weight required to trigger anti-vehicle mines is clearly a very poor proxy for military status. Elsewhere, although sensor-fuzed systems have entered into service that supposedly respond to very specific sets of signifiers relating to military vehicles, there has been little transparency regarding the risks they pose to civilian vehicles in their target areas. For example, for systems like Smart 155, BONUS and the Sensor Fused Weapon the extent to which civilian vehicles might present a heat signature likely to trigger detonation has not been made clear. If it is not possible to ensure that the weapons themselves cannot be activated by civilians then the exclusion of civilians from the vicinity of such weapons (Solution 2) is of paramount importance both at the time when they are initially deployed and subsequently.

Solution 2: Excluding civilians from the area

In past CCW discussions, the extent to which the exclusion of civilians is required has been treated differently in different situations. In these discussions efforts to achieve exclusion of civilians have focused on two primary considerations and two further considerations, which are in effect secondary because they limit access to threat areas at a later point in time.

Primary considerations for limiting civilian access to threat areas:

- Marking and monitoring areas to prevent civilian entry
- Limiting the active life of the weapons such that they will no longer be functional by the time the area of their deployment becomes more open to civilian use

Secondary considerations for limiting civilian access to threat areas after hostilities:

- Keeping records to facilitate timely clearance
- Detectability of anti-vehicle mines to facilitate timely clearance

In all of these areas, CCW parties have previously been unable to agree on the levels of protection that ought to be applied. Furthermore, translating the different considerations outlined above into practical solutions presents significant problems of implementation. Building on the past acceptability of anti-vehicle mines within many militaries (and a degree

of legality buttressed by Amended Protocol II), the CCW has tended to consider that civilian exclusion from threat areas did not have to be absolute and could be managed on a case-by-case weighing of 'military necessity' against civilian risk.[4]

Box. Practical problems for approaches to limit civilian exposure to affected areas

Marking and monitoring of areas is vulnerable to the exigencies of conflict and can deteriorate to the point of being ineffective. Furthermore, pressures on civilian populations can result in people ignoring warnings and so being exposed to the threat. In contexts where anti-vehicles have presented serious humanitarian problems in the past the breakdown of marking or monitoring has often been a significant factor.[5]

Limitations on active life only fully avoid the risk of the weapons striking civilians without distinction if civilians will be absent from the area during the period when the weapons are active. Whilst limitations on active life might reduce the risk of harm, it is unlikely that the absence of civilians from the area can be guaranteed. Verifying the reliability of such systems is also difficult without greater transparency than has been evident to date.

Record keeping regarding the deployment of anti-vehicle mines is also subject to the exigencies of conflict, both in the creation and the maintenance of the records.[6]

Detectability of anti-vehicle mines, in order achieve timely clearance, should go significantly beyond the standard adopted for anti-personnel mines in CCW Amended Protocol II. Finding an anti-vehicle mine on a 10km stretch of road is not the same challenge as finding an anti-personnel mine in a defined minefield area. Indeed, in many circumstances the best that has been achieved in response to anti-vehicle mines on roads has been a form of threat reduction.

Conclusion

Accepting that victim-activated weapons are permissible in contexts where the exclusion of the civilian population is not absolute presents significant problems. It allows for weapons to strike military and civilian objects without distinction, but makes the moral problems associated with that secondary to a 'proportionality' based assessment. If extended elsewhere, such an orientation would allow for the deployment of armed systems that move through an environment striking military and civilian vehicles at random – *so long as the overall deployment had been estimated as 'proportionate.'* Whilst currently certain states require a 'person in the loop' on attack decisions, the logical extension of the prevalent CCW orientation to anti-vehicle mines is that a person does not need to be in the loop after the initial deployment of the weapons, and the person does not need to be in the loop in relation to a specific attack.

In returning to the issue of anti-vehicle mines, the CCW should avoid a reworking of its old approaches. These approaches are insufficient to address the humanitarian problems that anti-vehicle mines have caused and may promote positions of principle that are very problematic for the control of victim-activated weapons in the future.

[4] For example, although there were proposals to limit the use of certain anti-vehicle mines to marked and/or monitored areas other mines were allowed for use outside of such areas – in environments that did not require an exclusion of civilian vehicles.

[5] GICHD 2004, *Humanitarian Impact from Mines Other Than Anti-Personnel Mines*, Geneva, p. 12, 18, 20.

[6] GICHD 2004, *Humanitarian Impact from Mines Other Than Anti-Personnel Mines*, Geneva, p. 20.