



# Less-lethal Weapons

There is little agreement on what constitutes the class of weapons variously called ‘non-lethal’, ‘less-than-lethal’, or ‘less-lethal’. In the United Kingdom and the United States, for example, the military generally applies the term ‘non-lethal’ to what the law enforcement and criminal justice communities would call ‘less-lethal’ weapons. Some law enforcement organizations use ‘non-lethal’ to describe techniques that include the application of physical force (such as firm grips or punches). For them, ‘less-lethal’ weapons would include electroshock devices (such as the TASER) or flexible baton rounds, which include bean-bag projectiles and rubber bullets (LAPD, 2009, p. 7). The Small Arms Survey uses the term ‘less-lethal weapon’ (LLW) to describe these type of weapons—and to reflect the fact that a lack of training for or inappropriate use of such weapons can inflict serious or lethal injury to the target.<sup>1</sup>

When properly used, the various categories of LLWs are designed to deliver specific, intermediate *effects* to neutralize or temporarily incapacitate targets in medium-threat situations (see Box 1). Kinetic energy launchers and their projectiles deliver blunt or penetrating trauma impact to the target. Acoustic weapons use audible sound technology to deliver warning messages such as speeches, recordings, or warning tones. Electric-shock weapons use electro-muscular disruption to override the central nervous system and trigger an uncontrollable contraction of the muscle tissue. Directed-energy weapons employ lasers<sup>2</sup> and variable-width beams of energy to cause visual impairment and disorientation. Chemical riot control agents act peripherally to produce local sensory irritant effects on the eyes, mucous membranes, and skin.<sup>3</sup>

There has been an increase in the number of companies that manufacture and trade such equipment; today, approximately 450 companies in 52 countries manufacture LLW systems.<sup>4</sup> Despite generous funding for research and development from justice and defence ministries, many of the less-lethal weapons recently adopted by the military and law enforcement are ‘off-the-shelf’, commercially available products developed by the private sector. For instance, US companies such as Defense Technology Corporation, Combined Tactical Systems (which sells Combined Systems, Inc., products), and NonLethal Technologies, Inc., are major exporters of kinetic launchers and ammunition

### Box 1 Developments in LLW technology

Whereas first-generation less-lethal weapons were designed for close engagement (less than ten metres or roughly 30 feet), the latest LLWs provide greater range and attempt to deliver variable—or ‘rheostatic’—effects.

1. Kinetic energy projectiles are increasingly used for long-range, accurate direct-fire shots. According to FN Herstal, for instance, the FN 303 is accurate at 25 metres, and can be used at ranges up to 100 metres (FN Herstal, 2011). In the United Kingdom, the new 37 mm Attenuating Energy Projectile, used with the Heckler & Koch L104A1, is zeroed at 20 metres but is reportedly accurate beyond that range (Smith, 2011).
2. Acoustic weapons such as the ‘hailing devices’ manufactured and sold by the LRAD Corporation (specifically, the Long Range Acoustic Device) can produce tones of 150 decibels at one metre (about three feet) and can project sound across a distance of up to 3 km (about two miles) (LRAD Corporation, n.d.).
3. The Active Denial System is a directed-energy weapon that uses millimetre waves to heat up water and fat molecules in the subcutaneous layers of the skin. Raytheon Corp. has been marketing the product to military and law enforcement agencies under the name Silent Guardian since 2007. Directed-energy weapon prototypes are still too large to be operationally relevant for military<sup>5</sup> or law enforcement use. However, a compact system dubbed ‘Assault Intervention Device’ was introduced for testing in a US detention centre in 2010 (LASD, 2010).

(Mispo.org, 2010). Electro-shock weapons such as TASER International’s M26 and X26 have arguably influenced police use-of-force doctrine like no other weapon in the less-lethal category; according to a 2011 company press kit, more than 16,200 law enforcement agencies in about 100 countries have purchased at least 543,000 TASER devices since 1998 (TASER International, 2011).

LLWs are increasingly popular with law enforcement and the military, yet they have a number of structural, tactical and doctrinal limitations. Modern kinetic energy weapons, for instance, still suffer from deteriorating accuracy at longer distances. Amid a wealth of independent scientific assessments,<sup>6</sup> the absence of universal testing standards makes it difficult to quantify the launchers’ effectiveness. In addition, there is little consensus among police and military users regarding tactical and policy requirements for LLWs.

In the current state of affairs, the LLW market can facilitate the diversion and subsequent misuse of LLWs by governments with little or no accountability mechanisms. The growing use of LLWs by private security companies also adds to this risk. To counter this trend, some states classify these weapons as



British Troops fire the Royal Ordnance L67A1 Riot Gun during a riot control seminar in Kosovo, 2002. © Pierre Gobinet

firearms and subject them to the same licensing procedures and export control restrictions. In France, for instance, the COUGAR less-lethal projectile launchers manufactured by LACROIX-Alstetex are classified according to the national legislation as fourth-category firearms and can only be exported with an *autorisation d'exportation de matériels de guerre* (export authorization for war materiel) delivered by the French Ministry of Defence and the Customs administration (France, 2010). Generally speaking, however, governments and producers have focused more on developing these weapons than on controlling their proliferation or countering their misuse. ■

## Sourcing

This *Research Note* is based on Pierre Gobinet, 'Procurement and Policy: Police Use of Emerging Weapons Technology,' *Small Arms Survey 2011: States of Security*, Cambridge: Cambridge University Press, pp. 68–99.

## Notes

- 1 See, for example, Stern et al. (2005).
- 2 Laser stands for Light Amplification by Stimulated Emission of Radiation.
- 3 The most commonly known riot control agents are CS (2-chlorobenzalmalononitrile), OC (oleoresin capsicum), and PAVA (pelargonic acid vanillylamide), a synthetic version of OC. They should not be confused with incapacitating chemical agents, so-called 'calmatives', which depress or inhibit the function of the central nervous system.
- 4 Figures provided by Omega Foundation's Neil Corney during the 6<sup>th</sup> Non-Lethal Weapons Symposium in Ettlingen, Germany, 16 May 2011.

- 5 The Active Denial System was deployed by US troops in Afghanistan but never employed. It was bulky and demanded heavy logistical as well as power support.
- 6 See, for example, Papy and Pirlot (2007).

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