

# Killing becomes politically correct

US Army abandons lead for new 'eco-friendly' bullets

by Chris Jameson

**I**t is a modern mantra. Everything from shampoo to solar beer coolers seems to be 'eco-friendly' these days. One of the oddest and most paradoxical uses of the term has been coined by the US Army, which has decided to invest in new types of 'green' weaponry to reduce the high levels of environmental contamination caused by vast quantities of lead rounds shot across military training grounds and battlefields. In other words: kill, but keep an eye out for the environment while your about it.

Over the years, millions of pounds of lead have been dropped in theaters of war worldwide, poisoning aquifers and upsetting the delicate balance of surrounding ecosystems. According to a study published by the Environmental Working Group (EWG), in the US alone, estimates show that its over 3,200 open-air shooting ranges have released much greater quantities of lead into the environment than any of the country's largest industrial sectors.

Though historically exempt from environmental legislation, the United States armed forces decided in 1994 to implement a program to make the 5.56mm rounds used in the M-16 rifle – the standard issue weapon for all infantry soldiers in the army – 'green'. Researchers thus came up with the new M855A1 lead-free 'green bullet', made of a tungsten-based composite. Tungsten is a very hard, steel-gray transitional metal that, in its pure form, is widely used in electronic applications and in industry. Experts say the bullet's strength essentially lies in its high penetration capabil-

ities, due the considerable hardness of the alloy and its low specific weight. In addition to the functional advantages of the M855A1 bullet, there are environmental benefits too: since this new round was first introduced in 2010, nearly 2,000 metric tons of lead have been eliminated from the waste stream, and it is estimated that a further 3,683 metric tons of lead would have been ploughed into the environment between 2013 and 2018 if this bullet had not been devised.

Detractors, however, stress the project's multiple problems and the biggest sceptics further underline the much higher cost the purchase of these bullets entails for the army. Price-wise alone, the new bullets cost approximately \$0.08 (€0.06) each to manufacture, while traditional lead-based rounds are only \$0.005 (€0.003) apiece. Yet experts claim that in full production the additional price tag on the bullets will be offset by the significant savings in the cost of cleaning up contaminated theaters of war.

Lead, however, is not the only noxious part of a bullet. Closer scrutiny reveals a whole range of other chemical substances used to seal, weatherproof and paint the ammunition. Experts are currently studying these elements, and thus the prospect of a truly 'green' bullet is still quite some way down the road.

Preliminary field tests have confirmed some of the misgivings about the new bullets. In fact, army officials admitted that the M855A1 does not supply the so-called 'stopping power' required to halt an enemy combatant in their tracks before they can return fire. Even Dr. Martin Fackler, former director of the Wound Ballistics Laboratory of the Letterman Army Institute of Research and a former combat surgeon who served in the Vietnam War, intervened on this not insignificant stoppage aspect. According to Fackler, "Even if you take the guy's heart apart, he can still shoot back at you

for 15 seconds because he's still got enough oxygen in the blood in his brain to do so.”

In addition to eco-friendly bullets, in an era when the US army increasingly finds itself in situations where it is difficult to distinguish between civilians and combatants, there have also been moves towards the use of so-called non-lethal weapons. Besides a reduced environmental impact, these kinds of arms significantly curtail collateral casualties as well.

One obvious example is the Active Denial System (ADS), a non-lethal weapon used for crowd control and to stop vehicles. ADS functions on a principle similar to a microwave oven, by emitting a powerful, high-frequency electromagnetic radiation beam that excites water and fat molecules in the body, thus heating them up and causing intense (albeit temporary) pain. Informally known as the heat ray, this new weapon first made its appearance in Afghanistan in 2010 but, according to US army reports, it has never actually been deployed in combat.

Still in the embryonic stage, the Pulsed Energy Projectile (PEP) belongs to the same category of weapon and uses electromagnetic waves or lasers to fry a vehicle's wiring system from a distance. A mention here should also be made of the the Mobility Denial System, a goopy fluid that assumes the properties of wet ice when sprayed onto a surface and makes it impossible to walk, drive or even land a plane on it. Each of these so-called weapons, says David Karcher, head of the Non-Lethal Weapons Directorate in Quantico, Virginia,



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could be used to secure a perimeter, deny access to a building or simply make an airfield or another strategic site unusable.

Perhaps it's not entirely paradoxical that the most disparaging assessments of non-lethal weaponry come from the military establishment, which claims they are likely to erode the 'dissuasive power' of older weapons' lethal force.

In order to move on to the next generation of weaponry we will probably need to transcend the still deeply-rooted concepts of the '20th century soldier' and 'traditional war', according to which a weapon is for killing, and nothing more. **E**

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☒ Tons of bullets have fallen on theatres of war throughout the world in recent years, polluting aquifers and disrupting the surrounding environment.