

INCLO
INTERNATIONAL NETWORK OF
CIVIL LIBERTIES ORGANIZATIONS

PHR
Physicians for
Human Rights

LETHAL IN DISGUISE 2

How Crowd-Control Weapons Impact
Health and Human Rights

New Frontiers



“A US MARINE CORPS TRUCK IS SEEN CARRYING A PALLETIZED VERSION OF THE ACTIVE DENIAL SYSTEM, MARCH 9TH, 2012, AT THE US MARINE CORPS BASE QUANTICO, VIRGINIA.” PAUL J. RICHARDS | AFP/GETTY IMAGES

Overview

The market for CCWs continues to expand and evolve. Every year, manufacturers make more CCWs and develop new ones, increasing the likelihood of people being injured or killed by them. It is not possible to adequately assess the risk of CCWs developed in secret until either manufacturers become more transparent in their testing processes or civilians become unwitting guinea pigs in the streets. In this report, we have attempted to note the technological developments shaping existing CCWs in the respective sections describing each weapon type. But in this section, we highlight novel, emerging technologies being used for crowd control and attempt to describe the potential risks of these newer weapons. Some of these weapons have been available for decades

for policing or military purposes but are now increasingly being used for crowd control. Other weapons are still in development.

Electronic control devices

Weapon profile

An electronic control device (ECD), also known as a conducted energy device or electric shock weapon, refers to any of several weapons that use painful electric currents to immobilise or deter aggressors.

Primitive ECDs - cattle prods - gained notoriety after their use in suppressing protests during the Civil Rights movement in the United States during the 1960s.²⁷⁷ In the recent past, ECDs are occasionally used for crowd control either during protests²⁷⁸ or during

²⁷⁷ Lisa Rogers, “Brutal tactics used against area protestors,” *The Gadsden Times*, April 24, 2003 <https://www.gadsdentimes.com/story/news/2003/04/25/brutal-tactics-used-against-area-protestors/32343966007/>.

²⁷⁸ Current Time, “Russian Police Try To End Navalny Rallies With Shock Batons, Beatings, Wide-Sc” <https://en.currenttime.tv/a/russian-police-try-to-end-navalny-rallies-with-tasers-beatings-and-massive-detentions/31079064.html>. See, also, <https://dailynewshungary.com>.

sporting events,²⁷⁹ but elsewhere their use is uncommon outside of carceral settings. ECDs are extensively used in prisons worldwide,²⁸⁰ both as instruments of individual control and to suppress mass dissent within the carceral system. Their increasing appearance on the streets represents a disconcerting shift in policing philosophy, wherein a technology of prisoner control is leveraged against civilians exercising their basic rights.

There are three main kinds of electric shock weapons (direct contact weapons, projectile electric shock weapons, and body-worn electric shock devices), although only direct contact and projectile electric shock weapons are discussed in this report.

Mechanism of action

ECDs function by passing a high-voltage, low-amperage current between two electrodes. These electrodes may be placed in handheld devices (known as “shock prods,” “stun guns,” or “shock shields”) that must be pressed against an individual to take effect, or they may use compressed air to fire

hooked barbs that serve as electrodes and can shock an individual from a distance (the TASER XREP).²⁸¹ They may also be capable of both modes of operation (TASER X26)²⁸² or be part of body-worn electric conduction devices (such as stun belts or cuffs).²⁸³ Newer, wireless, long-range ECDs consist of projectiles containing electrodes that are shot from firearms and use a remote power source.²⁸⁴

If the electrodes are in contact with the human body, the body completes the circuit and the current is passed through the individual, resulting in pain and possibly electrical injury. They are advertised as non-lethal because they generate pulses of very high open-circuit voltages (at times in excess of 50,000 volts) and very low average amperages (several milliamperes or less). However, in practice, closed-circuit voltages and actually measured amperages can differ significantly from the values advertised by manufacturers.²⁸⁵ Furthermore, some professional-grade ECDs can generate over ten times the electrical charge per pulse (typically measured in micro coulombs)

[com/police-shocked-a-demonstrator-in-budapest/](https://www.bleacherreport.com/police-shocked-a-demonstrator-in-budapest/).

279 Marc Roseblade, “Zenit St Petersburg Player Tasered by Police After Handing Shirt to Young Fan,” *Bleacher Report*, June 21, 2011, <https://bleacherreport.com/articles/743283-zenit-st-petersburg-player-tasered-by-police-after-handing-shirt-to-young-fan>.

280 Omega Research Foundation, “Compliance through Pain: Electric shock equipment in South African prisons,” *Institute for Security Studies*, Policy Brief 86, (June 2016): <https://omegaresearchfoundation.org/sites/default/files/uploads/Publications/Compliance%20through%20pain.pdf>

281 Circuits Today, “XREP - A Combination of Taser and Shotgun,” Circuits Today, July 6, 2011, <https://www.circuitstoday.com/xrep-%E2%80%93-a-combination-of-taser-and-shotgun>.

282 A note that at the time of the report, Taser discontinued TASER XREP and TASER X26. Giron, Lisa, “More power, more risk and a quiet exit for Taser’s best-selling product,” Reuters, September 27, 2017, <https://www.reuters.com/investigates/special-report/usa-taser-x26/#:~:text=After%20signs%20of%20the%20outsized,end%2C%20Taser%20abandoned%20the%20effort>.

283 Omega Research Foundation, “Visual Guide to Law Enforcement and Security Equipment,” *Omega Research Foundation*, 2021, https://omegaresearchfoundation.org/sites/default/files/uploads/uploads/Visual%20Guide%20Final_ENG_0.pdf.

284 See <https://www.police.hu/hu/hirek-es-informaciok/legfrissebb-hireink/zsaru-magazin/rendszerben-a-sokkolo> for guidance on Hungarian police training.

285 U.S. Department of Justice, “Study of Deaths Following Electro Muscular Disruption,” *NIJ Special Report* NCJ 233432, May 2011, <https://www.ojp.gov/pdffiles1/nij/233432.pdf>.

than their commercial counterparts.²⁸⁶ This electrical charge generated is sufficient to cause severe pain and involuntary muscle contractions.

Health effects

Electronic control devices are considered by law enforcement to cause significant pain but carry a limited risk of death, but this claim is controversial.²⁸⁷ Although the risk of death from electrocution from better-tested models of ECDs has been shown to be low,²⁸⁸ the use of ECDs are associated with potentially fatal injuries,²⁸⁹ and ECDs have been identified as contributing factors in over 100 in-custody deaths in the United States.²⁹⁰ ²⁹¹ Repeated shocks can result in more significant injuries, as can extended shock durations. Electrical

conduction devices that carry more powerful electrical charges can also produce more significant injuries. Cardiac arrhythmias, muscle damage, and electric burns (both on the skin and internally) may result from the electrical conduction itself. There are numerous case reports of injuries from ECDs, but few systematic reviews examining the scope and scale of these injuries. Fatal and debilitating injuries can also occur as a result of falls secondary to loss of neuro-muscular control while the current is active²⁹² or burns caused by arc ignition of flammable vapours.²⁹³ Barb-style electrodes are designed to penetrate skin and can result in serious traumatic injuries, such as skull penetration²⁹⁴ and enucleation of the eye.²⁹⁵ Wireless long-range ECDs are in effect KIPs, with experimental studies showing that

286 Lisa Girion, "The X26," *Reuters Investigates*, September 21, 2017, <https://www.reuters.com/investigates/special-report/usa-taser-x26/>.

287 Amnesty International, "USA: 'Less than lethal'? The use of stun weapons in US law enforcement," *Amnesty International*, December 16, 2008, <https://www.amnesty.org/en/documents/AMR51/010/2008/en/>.

288 Sebastian N. Kunz et al., "Functioning and Effectiveness of Electronic Control Devices Such as the TASER M- and X-Series: A Review of the Current Literature," *Journal of Forensic Sciences* 57, no. 6 (2012), 1591-1594 <https://onlinelibrary.wiley.com/doi/10.1111/j.1556-4029.2012.02167.x>.

289 Mathieu Pasquier et al., "Electronic Control Device Exposure: A Review of Morbidity and Mortality," *Annals of Emergency Medicine* 58, no. 2 (2011): 178-188 <https://linkinghub.elsevier.com/retrieve/pii/S0196064411001004>.

290 Reuters Staff, "Reuters finds 1,005 deaths in U.S. involving Tasers, largest accounting to date," *Reuters*, August 22, 2017, <https://www.reuters.com/article/us-axon-taser-toll-idUSKCN1B21AH>.

291 Jo Ciavaglia et al., "Lethal force? Tasers are meant to save lives, yet hundreds die after their use by police," *USA Today*, April 23, 2021, <https://www.usatoday.com/in-depth/news/investigations/2021/04/23/police-use-tasers-ends-hundreds-deaths-like-daunte-wright/7221153002/>.

292 Kroll et al., "Fatal traumatic brain injury with electrical weapon falls," *Journal of Forensic and Legal Medicine* 43 (2016): 12-19 <https://linkinghub.elsevier.com/retrieve/pii/S1752928X16300695>.

293 Kroll et al., "Fatal and non-fatal burn injuries with electrical weapons and explosive fumes," *Journal of Forensic and Legal Medicine* 50 (2017): 6-11 <https://www.sciencedirect.com/science/article/abs/pii/S1752928X17300768>.

294 Isabelle Le Blanc-Louvry et al., "A brain penetration after Taser injury: Controversies regarding Taser gun safety," *Forensic Science International* 221, no. 1-3 (2012): e7-e11, <https://www.sciencedirect.com/science/article/abs/pii/S0379073812001521>.

295 Leon Rafailov et al., "Impaled Orbital TASER Probe Injury Requiring Primary Enucleation," *Ophthalmic Plastic and Reconstructive Surgery* 33, no. 3S (2017): S176-177, <https://www.sciencedirect.com/science/article/abs/pii/S0379073812001521>.

malfunctioning wireless ECDs can penetrate the human body.²⁹⁶

So-called “shock shields” or “e-shields”—polycarbonate shields embedded with metal conductors designed to deliver electric shocks—have been carried by riot police in India²⁹⁷ and in the United States.²⁹⁸ Shock shields are commonly used by prison guards in the United States²⁹⁹ and South Africa.³⁰⁰ They have been implicated in at least one death—a corrections officer who suffered cardiac arrest after being subjected to compulsory training shocks from an e-shield.³⁰¹ The amount of electrical charge permitted in these weapons is not public information and therefore challenging to measure.

As ECDs proliferate throughout the world, their risk is amplified. The lack of manufacturing transparency and regulation limits the ability of health workers and advocates to understand the quality and range of these weapons. A large number of the experimental and retrospective scientific studies found in this review were funded by and describe

TASER-branded products (produced by Axon Enterprise, Inc). The conclusions drawn by these studies cannot be applied to weapons produced by other manufacturers, which may use different electrical parameters, pulse durations, and delivery systems.³⁰² Of note, as ECDs were marketed and their use increased in the 1990s, research on and use of kinetic impact projectiles is thought to have concurrently dropped. But as more research on the dangers of ECDs has emerged, the manufacture, research into, and use of kinetic impact projectiles have once again risen.

Directed energy weapons

Active Denial System (ADS)

The previous version of this report described the Active Denial System (ADS), a “heat ray” developed by the United States Department of Defense. This vehicle-mounted device would direct millimetre-wave energy towards a crowd, heating the epidermis and generating radiation burns on the surface of the body of those it hit. To date no operational uses of this weapon have been recorded, in

296 Scott R. Lucas, et al., “Assessment of the TASER XREP Blunt Impact and Penetration Injury Potential Using Cadaveric Testing,” *Journal of Forensic Sciences* 58, no. s1 (2013): S60-S68, <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1556-4029.2012.02298.x>.

297 Express News Service, “Delhi: Shield that emits shock new part of force’s anti-riot gear,” *The Indian Express*, December 28, 2019, <https://indianexpress.com/article/cities/delhi/shield-that-emits-shock-new-part-of-rapid-action-forces-anti-riot-gear-6188184/>.

298 WREG Web, “Here’s the story behind those electrified ‘e-shields’ authorities were carrying during Memphis protests,” *Fox40 News*, September 26, 2020, <https://fox40.com/news/national-and-world-news/heres-the-story-behind-those-electrified-e-shields-authorities-were-carrying-during-memphis-protests/>.

299 Association of the Bar of the City of New York Committee on Corrections, “Report of Subcommittee on Conditions of Confinement on the Use of Stun Shields by the New York City Department of Correction,” *New York City Bar Association*, 2001, <https://www.nycbar.org/pdf/report/stun%20shield%20report.pdf>.

300 David Bruce, “The use of less-lethal weapons in South African prisons and crowd management,” *Institute for Security Studies Monograph 201*, November 2019, https://media.africaportal.org/documents/The_use_of_less_lethal_weapons_in_SA_prisons.pdf.

301 Anne-Marie Cusac, “Stunning Technology,” *The Progressive Magazine*, July 1, 1996 <https://progressive.org/magazine/stunning-technology-cusac/>.

302 Christos Baliatsas et al., “Human Health Risks of Conducted Electrical Weapon Exposure: A Systematic Review,” *JAMA Network Open*, 2021, vol. 4, no. 2, e2037209, doi:10.1001/jamanetworkopen.2020.37209.

spite of requests by US military police to use it against protesters,³⁰³ and requests by US Customs and Border Patrol to use it against migrants.³⁰⁴ There are several reasons for the reluctance to deploy the Active Denial System. These include safety concerns, ethical and human rights considerations, as well as practical concerns—such as the weapon's weight and long warm-up time.³⁰⁵

Other directed energy weapons

The laser “dazzler,” also known as the “blinding laser” or “blinding dazzler,” uses intense, directed radiation to temporarily disorient individuals with (purportedly temporary) blindness from very bright laser lights. Dazzlers have been quietly deployed by the United States military in Iraq as a less-lethal option to “deter non-combatants” in conflict settings.³⁰⁶ These devices—largely class 3B green lasers—were used as signalling or deterrent devices at checkpoints,³⁰⁷ similar to acoustic weapons such as the LRAD. They are designed to be flashed at vehicles or individuals to draw attention, warn off, or disorient/distract. Although no data are

available on injuries to Iraqi civilians, the introduction of high-powered laser dazzlers was associated with a spike in accidental exposures to soldiers, including 45 injuries and one case of permanent blinding.³⁰⁸

Newer devices under development blur the lines between directed energy weapons, distraction devices, and acoustic weapons. The US Department of Defense continues to invest in research and development of “laser-induced plasma effect” (LIPE) weapons. LIPE weapons use high-energy pulsed laser beams to produce and manipulate a cloud of plasma. Prototypes allow for effects including superheating a surface, creating a series of loud explosions, or transmitting spoken instructions over long distances.³⁰⁹

Remotely-operated vehicles (drones)

Weapon profile

Remotely-operated vehicles (ROVs) have been increasingly used over the six years since our previous report, both to provide

303 Dina Temple-Raston, “Military Confirms It Sought Information on Using ‘Heat Ray’ Against D.C. Protesters,” *NPR*, September 16, 2020 <https://www.npr.org/2020/09/16/913748800/military-police-leaders-weighed-deploying-heat-ray-against-d-c-protesters>.

304 Sebastien Roblin, “Border Patrol Officials Proposed Using Pain-Inducing Heat Ray On Migrants. Here’s Why The U.S. Hasn’t Used It – Yet,” *Forbes*, August 27, 2020 <https://www.forbes.com/sites/sebastienroblin/2020/08/27/customs-and-border-patrol-proposed-using-pain-inducing-active-denial-heat-ray-on-border-migrants/?sh=2ffbdf1b7457>.

305 Tim Elfrink, “Safety and ethics worries sidelined a ‘heat ray’ for years. The feds asked about using it on protesters,” *The Washington Post*, September 17, 2020 <https://www.washingtonpost.com/nation/2020/09/17/heat-ray-protesters-trump-dc/>.

306 Jeff Hecht, “PHOTONIC FRONTIERS: NONLETHAL LASERS: Nonlethal lasers deter attacks and warn away noncombatants,” *Laser Focus World*, 01 April 2013, <https://www.laserfocusworld.com/lasers-sources/article/16556977/photonic-frontiers-nonlethal-lasers-nonlethal-lasers-deter-attacks-and-warn-away-noncombatants>.

307 Joint Non-Lethal Weapons Program, “Non-Lethal Optical Distracters Fact Sheet,” May 2016, https://jnlwp.defense.gov/Portals/50/Documents/Press_Room/Fact_Sheets/NL_Optical_Distracters_Fact_Sheet_May_2016.pdf.

308 Jennifer H. Svan Heath Druzin, “Military sees rise in eye injuries from lasers,” *Stars and Stripes*, June 14, 2009, <https://www.stripes.com/news/military-sees-rise-in-eye-injuries-from-lasers-1.92467>.

309 David Hambling, “The Secret History of Plasma Weapons,” *Popular Mechanics*, November 14, 2018, <https://www.popularmechanics.com/military/research/a25091957/plasma-weapon-history/>.



IMAGE LEFT: A POLICE OFFICER USES A TASER STUN GUN ON AN ANTI-GOVERNMENT PROTESTOR JUST OUTSIDE THE MEDIA CENTER FOR JOURNALISTS COVERING EVENTS RELATED TO WORLD YOUTH DAY, ON THE COPACABANA BEACHFRONT, IN RIO DE JANEIRO, BRAZIL, FRIDAY, JULY 26, 2013. VICTOR R. CAIVANO | AP PHOTO. IMAGE RIGHT: AN ISRAELI DRONE DROPS GAS CANISTERS ON PALESTINIAN PROTESTERS DURING A DEMONSTRATION AT THE DCO CHECKPOINT NEAR RAMALLAH, WEST BANK, PALESTINE. 30 JANUARY, 2020. PHOTO: OREN ZIV

surveillance and to carry and fire CCWs.³¹⁰ The use of ROVs to deploy surveillance technologies against protests and protesters³¹¹ has increased sharply in recent years to the point that in many countries, it is now a routine element of law enforcement's response to demonstrations.³¹² This raises concerns about ROVs being used to create a chilling effect on civil activism and infringe on the right to privacy of protesters and bystanders.³¹³ There was a consensus among the interviewed INCLO-affiliated civil liberties experts that the use of drone technology is *the* most concerning CCW development in the past five years. One expert noted that

drones are “regularly used in large cities for surveillance. We can’t confirm, but we speculate they are used for facial recognition because people are detained several days later after a rally.” Another noted, “They are always watching.”

The increased use of ROVs with the capacity or express design to be used as dispersal mechanisms raises many concerns, including potential violation of privacy rights and the possible indiscriminate use of CCWs fired from ROVs. An additional, less obvious concern is the potential reduction in the number of police physically present in crowd-

310 Omega Research Foundation, “Tear Gassing by Remote Control: The development and promotion of remotely operated means of delivering or dispersing riot control agents,” *Omega Research Foundation*, December 2015, <https://omegaresearchfoundation.org/sites/default/files/uploads/Publications/Tear%20Gassing%20By%20Remote%20Control%20Report.pdf>.

311 INCLO, “Spying on Dissent”, June 2019, accessible at: <https://www.inclo.net/pdf/spying-on-dissent-report.pdf>.

312 From interviews with civil liberties experts, October 2021 to March 2022.

313 General Comment No 37 below n 353 at para 10.

The first confirmed operational use of UAVs during demonstrations was by Israeli security forces, who have used them to drop tear gas grenades on protesters in the Gaza Strip, the West Bank, and Jerusalem.

control situations, with officers replaced by ROVs.³¹⁴ The judicious use of force is heavily dependent upon police judgement in these complex and dynamic settings. The removal of vital scene-specific context through the use of ROVs may lead to greater use of unnecessary or disproportionate force, likely with no feedback on the consequences of this use of force.³¹⁵

Mechanism of action

ROVS include unmanned aerial vehicles (UAVs, or “drones”). Since the mid-2010s, UAVs have possessed operational capabilities with clear application to crowd control, such as the capacity to fire CCWs,³¹⁶ OC spray,³¹⁷ and tasers.³¹⁸ There are also land-based, remotely operated vehicles that have not been

used in crowd-control settings. Israel has demonstrated their capability to drop “skunk water” from UAVs,³¹⁹ while South Africa has also pioneered the development of weapons for use on UAVs, including grenade delivery systems³²⁰ and pepper-ball guns.³²¹

Although the deployment of CCW drones has only been confirmed in Israel and the Occupied Palestinian Territories at the date of this report, there has been an increase in countries procuring these types of ROVs. In 2015, police in the Indian city of Lucknow announced they had acquired five pepper-spraying drones for crowd-control purposes.³²² In 2021, media reported that the Rapid Action Force, a wing of India’s Central Reserve Police Force specialised in crowd control, would deploy a suite of surveillance drones and at least one drone

314 Jay Stanley, “Five Reasons Armed Domestic Drones Are a Terrible Idea,” *ACLU*, August 27, 2015, <https://www.aclu.org/blog/privacy-technology/surveillance-technologies/five-reasons-armed-domestic-drones-are-terrible>.

315 Christian Enemark, “Armed Drones and Ethical Policing: Risk, Perception, and the Tele-Present Officer,” *Criminal Justice Ethics* 40, no. 2 (2021): 124-144 <https://www.tandfonline.com/doi/full/10.1080/0731129X.2021.1943844>.

316 See <https://www.youtube.com/watch?v=GafJexL9SjA&t=226s>.

317 BBC, “India: City police to use pepper-spray drones,” *BBC*, April 7, 2015, <https://www.bbc.com/news/blogs-news-from-elsewhere-32202466>.

318 Sam Biddle, “Startup Pitched Tasing Migrants From Drones, Video Reveals,” *The Intercept*, December 13, 2021, <https://theintercept.com/2021/12/13/brinc-startup-taser-drones-migrants/>.

319 See <https://twitter.com/MoDIIsrael/status/996735837541777408>.

320 “Skunk Riot Copter,” Desert Wolf, <https://ezone.idexuae.ae/storage/brochures/sdZtdPs512ER9vkcK7cfTicjPzwUSKcjaLh4dHkH.pdf>.

321 Guy Martin, “Desert Wolf adding grenades to Skunk riot control UAV,” *defenceWeb*, October 7, 2015, <https://www.defencewe.co.za/aerospace/aerospace-aerospace/desert-wolf-adding-grenades-to-skunk-riot-control-uav/>.

322 The Guardian, ‘Pepper-spraying drones could be used on unruly crowds by Indian police’, 8 April 2015, available here: <https://www.theguardian.com/world/2015/apr/08/pepper-spraying-drones-could-be-used-on-unruly-crowds-by-indian-police>.

capable of deploying tear gas during farmers' protests in New Delhi.³²³ In the United States, local law enforcement agencies have expressed interest in equipping drones with CCWs. In 2011, Texas media reported that a county sheriff's department outside the city of Houston had acquired a \$300,000 ShadowHawk drone that, according to the manufacturer, includes capabilities to fire lethal and "less-lethal" weapons. In 2015, the state of North Dakota passed a bill permitting law enforcement drones to be equipped with "less than lethal" weapons (though the bill prohibits law-enforcement drones being equipped with lethal weaponry).³²⁴

The first confirmed operational use of UAVs during demonstrations was by Israeli security forces, who have used them to drop tear gas grenades on protesters in the Gaza Strip,³²⁵ the West Bank,³²⁶ and Jerusalem.³²⁷ Within the Occupied Palestinian Territories, at least three types of drones deployed CCWs during sustained protests and conflict at the Gaza border in 2018. These include the Cyclone, which carries a set of light-weight aluminium cartridges that burn up after release; another

model that sprays gas directly from the craft, like an aerosol; and a third that drops "rubber bursting grenades with metal tops that disperse gas as they fall."³²⁸

The latest development for remotely operated crowd control technologies is a remote-operated shooter that was installed at a checkpoint in the West Bank city of Hebron/Al-Khalil in September 2022.³²⁹ The system placed in Hebron/Al-Khalil was apparently created by "Smart Shooter", an Israeli company that designs fire control systems that follow and lock in on targets using image processing based on artificial intelligence.³³⁰ Although the Israeli army has said that it plans to only use sponge bullets in the pilot phase, this technology is capable of firing different kinds of projectiles, including stun grenades and chemical irritants.

Health concerns

Health concerns related to drone-deployed CCWs are directly linked to the type of weapon deployed and its impacts (as described

323 India Today TV, 'Farmer's tractor rally on Republic Day: RAF deploys anti-riot drone', 21 January 2021, available here: <https://www.indiatoday.in/india/story/farmer-s-tractor-rally-on-republic-day-raf-deploys-anti-riot-drone-1761481-2021-01-21>.

324 The Daily Beast, 'First state legalises taser drones for cops, thanks to a lobbyist', 26 August 2015, available here: <https://www.thedailybeast.com/first-state-legalizes-taser-drones-for-cops-thanks-to-a-lobbyist>.

325 Daniel Hilton, "Drones over Gaza: How Israel tested its latest technology on protesters," *Middle East Eye*, May 18, 2018, <https://www.middleeasteye.net/news/drones-over-gaza-how-israel-tested-its-latest-technology-protesters>.

326 Josh Breiner, "Israel Using Drones to Tear Gas Palestinian Demonstrators in West Bank," *Haaretz*, April 28, 2021, <https://www.haaretz.com/israel-news/.premium-israeli-police-using-drones-to-drop-tear-gas-on-palestinian-demonstrators-1.9752997>.

327 Josh Breiner et al., "Israel Police Use Drone to Fire Tear Gas Grenades in Temple Mount Clashes," *Haaretz*, 22 April 2022, <https://www.haaretz.com/israel-news/2022-04-22/ty-article/.premium/israel-police-use-drone-to-fire-tear-gas-grenades-in-temple-mount-clashes/00000180-655f-d5ca-a986-7f7fa1ad0000>.

328 The Middle East Eye, 'Drones over Gaza: How Israel tested its latest technology on protesters', 18 May 2018, available here: <https://www.middleeasteye.net/news/drones-over-gaza-how-israel-tested-its-latest-technology-protesters>.

329 Hagar Shefaz, "Israeli Army Installs Remote-control Crowd Dispersal System at Hebron Flashpoint," *Haaretz*, September 23, 2022, <https://www.haaretz.com/israel-news/2022-09-24/ty-article/.premium/israeli-army-installs-remote-control-crowd-dispersal-system-at-hebron-flashpoint/00000183-70c4-d4b1-a197-ffc4b24f0000>.

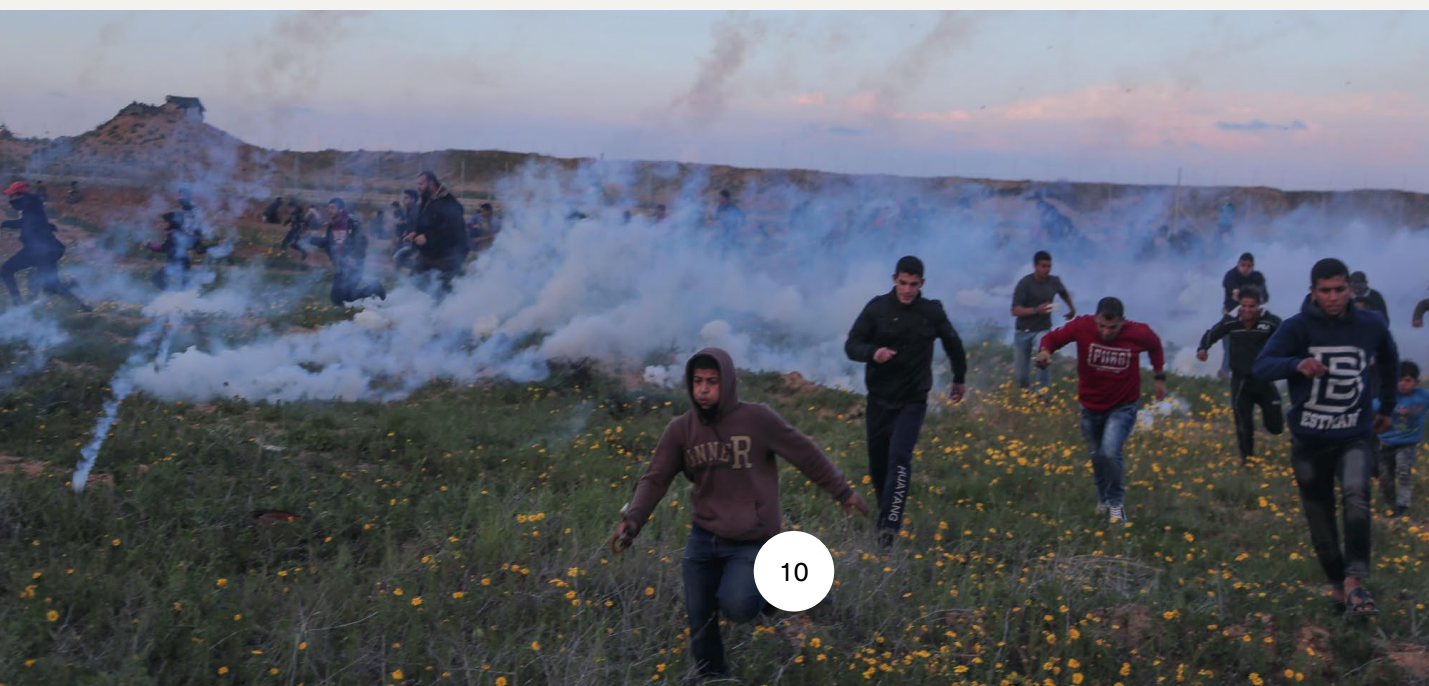
330 Smart Shooter website at <https://www.smart-shooter.com/>.

above). The utilisation of drones for weapon deployment may carry additional risks secondary to the lack of in-person monitoring, the height from which weapons are deployed, and changes in force or targeting from these weapons. There are concerns about the increased force of chemical irritant canisters that fall from great heights. Moreover, they may fall on protesters with no warning. These weapons may be far more indiscriminate in their deployment as visual feedback loops around the demonstration site will be limited. De-escalation could be rendered impossible if there are no officers with whom protesters can seek to communicate, and there could be challenges in allowing for the safe dispersal of demonstrators if airborne drones outmanoeuvre demonstrators. These concerns make the growing sale and early use of drone technology deeply concerning both from a health and human rights perspective.

Beyond any weaponry they may carry, drones themselves are increasingly causing injuries. They can cause injuries because of their function and mechanism: they can operate too close to the ground or hit objects and

fall. Additionally, their rotating blades, sharp edges, metallic and plastic parts, and rapid and unpredictable movements can injure both users and others in the vicinity. News and social media reports describe numerous injuries from drones: children, bystanders, and others have all been struck, leaving some with head trauma and others with permanent disability. A 2021 review of emergency department visits in the United States between 2015 and 2020 identified more than 3,700 drone-related injuries. The most common injury diagnoses were lacerations (72%), followed by contusion/abrasion (10%), strain/sprain (5%), and internal injury (5%). The most frequently injured body parts were upper extremities (mostly fingers [56%]), head (24%), lower extremities (14%), and trunk (6%). Hearing injuries have been reported as well. The US National Electronic Injury Surveillance System recommends avoiding injuries by taking care where the drone is flown and not flying a drone over a crowd, among other precautions.

IMAGE BELOW: ISRAELI TROOPS FIRE TEAR-GAS AT PALESTINIAN PROTESTERS DURING CLASHES AFTER PROTESTS NEAR THE BORDER WITH ISRAEL IN THE EAST OF JABALIYA IN THE NORTHERN GAZA STRIP, 14 MAY 2018. 51 PALESTINIANS PROTESTERS WERE KILLED AND MORE THAN 2000 OTHERS WERE INJURED DURING THE CLASHES ALONG THE BORDER BETWEEN ISRAEL AND GAZA STRIP. NIDAL ALWAHEIDI | PACIFIC PRESS/LIGHTROCKET VIA GETTY IMAGES



Case study

The first use of drone-deployed CCWs

Gaza and Israel

Many CCWs used by the police within Israel have previously been tried by the military against the Palestinian population in the Occupied Territories. This was the case with sponge bullets and skunk water, and so it was with the use of tear gas fired from drones. The police “imported” this weapon in 2022 for use inside Israel after it had been used in the Occupied Territories since 2018.

The first widespread use of this weapon was in 2018 during the weekly Gaza border protests. Along with firing live ammunition that led to the killing of about 200 Palestinian protesters and the injury of thousands, drones were used to fire tear gas canisters indiscriminately at the protesters, with no distinction made between peaceful protesters, including children and elderly, and violent ones.³³¹ One foreign correspondent reported seeing a drone dropping tear gas about 500 metres beyond the Gaza border, above a communal tent occupied by women and children who were not engaged in protest.³³² The UN Commission of Inquiry into

the 2018 protests in Gaza found that a drone had dropped tear gas onto a field hospital that was clearly marked with medical insignia.³³³

Following its use against protesters in the Occupied Palestinian Territories, the Israeli police used drone-deployed tear gas for the first time against Israeli citizens in 2022. In January 2022, thousands gathered in the Negev region in southern Israel to protest the dispossession of Palestinian Bedouin citizens of Israel.³³⁴ The Israeli police dispersed this demonstration brutally with sponge bullets, stun grenades, and tear gas launched from drones. In April and May 2022, the police used this weapon against Palestinian worshipers in the El-Aqsa mosque in Jerusalem in response to riots inside the mountain compound. The photos showed crowds of worshipers, including women, children, and the elderly,

331 The Times of Israel, ‘Israel deploys drones to drop tear gas on Gaza protesters,’ 31 March 2018, available here: <https://www.timesofisrael.com/israel-deploys-drones-to-drop-tear-gas-on-gaza-protesters/>.

332 The Middle East Eye, ‘Drones over Gaza: How Israel tested its latest technology on protesters’, 18 May 2018, available here: <https://www.middleeasteye.net/news/drones-over-gaza-how-israel-tested-its-latest-technology-protesters>.

333 UN Human Rights Council, Report of the detailed findings of the independent international Commission of inquiry on the protests in the Occupied Palestinian Territory (A/HRC/40/CRP.2) p 167, 18 March 2019. available here: https://www.ohchr.org/EN/HRBodies/HRC/RegularSessions/Session40/Documents/A_HRC_40_74_CRP2.pdf; Al Jazeera, ‘Israeli forces open fire on Palestinians; hundreds wounded’, 9 July 2021, available here: <https://www.aljazeera.com/news/2021/7/9/israel-forces-open-fire-on-palestinians-hundreds-wounded>.

334 Haaretz ‘Bedouin Protest in Jerusalem Demands End of ‘Neglect’ in Israel’s South’ 30 January 2022. available at: <https://www.haaretz.com/israel-news/2022-01-30/ty-article/.premium/bedouin-protest-in-jerusalem-demands-end-of-neglect-in-israels-south/0000017f-e172-df7c-a5ff-e37ac2ae0000>.



PALESTINIANS CLASH WITH ISRAELI FORCES FROM ACROSS THE BORDER FOLLOWING A DEMONSTRATION, EAST OF RAFAH IN THE SOUTHERN GAZA STRIP, ON SEPTEMBER 6, 2019. ABED RAHIM KHATIB | SIPA USA VIA AP IMAGES

fleeing in all directions while multiple tear gas capsules were falling onto them from a drone.

The tear gas-carrying drone includes a camera and can carry multiple capsules and fire them all together or individually. Israeli security forces purchase the system from two Israeli companies: the gas capsules from ISPra by E.I LTD and the system that fires the capsules from SPEC RYS LTD.

This is a new weapon whose risks are still unclear. It is clear, however, that this

is a weapon that is inherently inaccurate, and it is doubtful whether it can be used proportionately. Another concern is that the capsules may fall directly onto protesters' heads or into their eyes. Especially when several capsules are used at the same time, the chance of harming peaceful protesters is very high. Finally, the aerial deployment of tear gas risks sowing confusion and chaos among crowds rather than fostering an orderly dispersal.³³⁵

335 The Middle East Eye, 'Drones over Gaza: How Israel tested its latest technology on protesters', (18 May 2018), accessible here: <https://www.middleeasteye.net/news/drones-over-gaza-how-israel-tested-its-latest-technology-protesters>.