

# More Countries See Lasers As Weapon Against Drones

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The U.S. Army shot down a number of hostile drones in the Middle East this year using a weapon long dismissed as more science fiction than reality—the laser.

After decades of costly, problematic development, more countries say they have harnessed the technology for military use.

The role of lasers is likely to be narrow for the foreseeable future because of their large energy needs, limited range and problems with bad weather. But militaries say the new weapons could prove an effective way to shoot down drones, a key task as they look for cheaper ways to counter a proliferation of unmanned aerial vehicles in combat.

Laser weapons shoot highly concentrated beams of light that deliver intense heat to their target. The beams, which travel at the speed of light, cut through metal to destroy engines, fuel tanks, electronics and other key parts of a target or can be used

to “dazzle,” or blind, their sensors and cameras.

“The old adage that lasers were five years from being amazing and always will be, that is changing,” said Doug Bush, the U.S. Army’s assistant secretary for acquisitions, logistics and technology. “Lasers for counter drone [warfare] may have met their moment.”

The U.S. has successfully deployed lasers in the Middle East to shoot down UAVs, Bush said. The U.S. Army declined to detail the operations.

Military lasers have gained ground in recent years because of advances in the technology, and a growing need to find more cost-effective weapons amid the increasing threat from drones.

The U.S. and its allies typically shoot down low-cost drones with missiles that can cost hundreds of thousands of dollars each. Lasers are cheaper to operate—energy is the main cost—and don’t run out of ammunition provided there is a power supply

For example, the U.K. government says the cost of operating its DragonFire laser is less than \$13 a shot. Britain announced the weapon to much fanfare this year, lauding its ability to hit a target the size of a coin from a kilometer away.

Militaries also are exploring other new options to counter drones, including high-power microwave devices that can disrupt or even fry the electronics of aerial threats.

The path to laser weapons has been long and costly. Militaries have been experimenting with using lasers since U.S. physicists created them in the early 1960s.

During the past two decades, the U.S. Navy tried a host of different systems without putting any into regular combat.

One challenge was generating the huge amount of energy needed to produce a powerful beam over long distances, said Subrata Ghoshroy, an expert on laser technology who in 1997 presented a critical report to a congressional committee.



A U.S. Marine Corps vehicle took part in a high-energy-laser exercise in Arizona in April.

Any blemish on lenses that the laser passed through also would distort the beam, he said.

Since then, laser technology has improved, making it more viable for militaries.

One significant advancement has been the use of fiber lasers, first developed by the telecommunications industry, said Paul Gray, a business-development executive at QinetiQ, a British company that helped develop the DragonFire weapon.

Fiber lasers amplify and focus light from hundreds of strands into a single beam. Earlier systems often relied on hazardous chemicals or gases to generate lasers.

Systems are also getting more compact.

Despite recent breakthroughs, lasers still have many of the same limitations, Ghoshroy and other experts say.

The Defense Department still spends about \$1 billion annually on developing lasers

and other directed-energy weapons, the Government Accountability Office said. U.S. forces also are working on other systems, including a laser that can deliver more than 300 kilowatts of energy.

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Scan this code for a video on how a laser weapon zaps drones.