

India a Step Closer to Laser Weaponry

Initial Success: DRDO has successfully tested a laser system mounted on a truck and plans are now afoot to create a more powerful laser

By Shaurya Gurung

New Delhi: In a leap towards building laser weapons capability, India has made a breakthrough in its efforts to develop directed energy weapons, or DEWs, that can potentially end future wars before they begin.

It's not exactly what we saw in Star Wars films or Flash Gordon comics decades ago, but DEWs such as high powered lasers can destroy enemy missiles, aircraft and advanced weaponry based on electronic circuitry.

India's primary defence research organisation Defence Research and Development Organisation (DRDO) recently conducted a successful test of a laser system mounted on a truck, and plans are now afoot to create a more powerful laser with a longer range, people familiar with the development told ET.

Keeping Eye on Future Arms

Directed Energy Weapons destroy enemy missiles, aircraft & other weaponry based on e-circuitry

Their beams travel at the speed of light

Do not need a magazine recharge, but dependant on energy source

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HAS A LARGER OPERATIONAL RANGE

Beams are invisible thereby concealing the attacker

But, atmospheric conditions can adversely affect a laser beam

DRDO tested a 1KW laser weapon system mounted on a truck at Chitradurga in Karnataka towards August-end

Private companies such as Kalyani Group and Rolls-Royce are also looking to develop or build DEWs in the country.

DEWs are weapons that produce a beam of concentrated electromagnetic energy. There are mainly two types of DEWs: high powered lasers and microwaves. DEWs are anti-personnel as they can cause intolerable burning of an area in the body and blindness, and anti-material as it can be used to destroy

missiles, ships, UAVs and fry circuitry of equipment deployed in a battlefield.

While information is not available on whether India is developing microwave weapons, DRDO tested a 1KW laser weapon system mounted on a truck at Chitradurga in Karnataka towards August end.

“The laser beam hit a target located 250 metres away,” an official said. “It took 36 seconds for it to make a hole in the metal sheet.” The test was conducted in the presence of then defence minister Arun Jaitley, the person said.

The next step is to test a higher powered laser, 2KW, mounted on the truck against a metal sheet located at a distance of 1 km.

Two DRDO laboratories — Centre for High Energy Systems and Sciences (CHESS) and Laser Science & Technology Centre (LASTEC) — are currently working on developing the source for generating the laser, officials said. At present, the source of the laser, which is the “heart of the system”, is imported from Germany. Other challenges include developing a cooling mechanism for the system that heats up when the laser beam is fired, ensuring a focused beam towards a distant target and optoelectronics, or optronics, involving lenses to create that focus, they said.

“The weapon is not ready yet and it will take years for it to happen,” said an official.

DRDO did not officially respond to a questionnaire on the subject sent by ET to it as of press time Wednesday. Private companies too are looking to enter DEW space.

A senior official at Kalyani Group said Kalyani Centre for Technology and Innovation is in the “initial stages” of developing DEWs. “We are identifying two segments: ‘lethality’ to kill and ‘survivability’ aimed at destroying incoming missiles,” the person told ET. “We will initially be working on the latter and are setting up a lab in Pune.” Rolls-Royce’s global strategic marketing director Ben Story, in a conversation with ET had recently said that there are “conversations” happening between the company and India on DEWs.

A release by Press Information Bureau back in December 2013 had confirmed that DRDO’s CHESS and LASTEC were researching on DEWs and laser technology, respectively. A 2015 DRDO bulletin titled ‘Technology Focus’ stated that LASTEC with the help of a collaborator had developed a unit of 1kW ‘single mode fibre laser’ and work was on for developing 5kW and 9kW fibre laser sources.

LASTEC has also developed a 10kW Chemical Oxygen Iodine Laser (COIL) and is working on developing a 30-100 kW vehicle-mounted COIL system, sources said.