

# The Loitering Munitions of South Asia

## Cheap Precision in a Nuclear Rivalry

The economics of precision strike have been rewritten. What once demanded a multimillion dollar cruise missile or an entire strike package of manned aircraft, can now be approximated, with acceptable probability, by an autonomous platform costing a fraction of the price. Loitering munitions have transitioned from a niche capability into a defining feature of modern warfare and South Asia has now produced its own definitive proof of concept.

The proof arrived in May 2025 in the form of Operation Sindoor, an 88 hour conflict that saw India and Pakistan

trade drone and missile barrages with a scale and sophistication unprecedented in the region's post-nuclear history. Before examining that confrontation in detail, it is worth briefly noting the global template that both militaries had been studying with growing urgency.

### What Ukraine and the Middle East taught the world

Russia's deployment of the Geran-2, a domestically produced variant of Iran's Shahed-136, against Ukrainian infrastructure established the foundational doctrine: swarm cheap, force expensive responses, exhaust magazines. With interceptors costing hundreds of times the price of each incoming drone, Kyiv's air defence calculus was structurally compromised from the outset. The arithmetic was brutal and replicable.

The Middle East sharpened the lesson further. Latest under Operation True Promise IV, Iran's IRGC launched multi-wave Shahed-136 barrages targeting strategic installations across Qatar, Bahrain, Kuwait and the UAE simultaneously. The American response was revealing: Operation Epic Fury also saw the US deploy its own LUCAS, a low cost one way attack drone whose architecture openly mirrors the Shahed-136, in strikes against Iranian military infrastructure, with possible earlier combat use during operations in Venezuela. Both sides were now fielding derivatives of the same weapon concept against each other. For planners in New Delhi and Rawalpindi, the signal was unambiguous: saturate, exhaust and penetrate.

### History of loitering munitions and design philosophy

The delta wing loitering munition concept traces its origins to late Cold War research into expendable autonomous strike drones. In the 1980s, Germany explored the idea through the Dornier DAR programme, which studied compact unmanned aircraft designed for long endurance missions and low cost mass production. The triangular delta wing configuration was central to the concept, offering aerodynamic stability across a wide range of angles of attack while remaining structurally simple to manufacture. However, the end of the Cold War led to the programme's cancellation before operational deployment. Elements of the R&D were later transferred to Israel, where they contributed to the development of the IAI Harpy. Introduced in the late 1980s, the Harpy established the modern operational template for loitering munitions. Equipped with an anti-radiation seeker, it could patrol contested airspace for extended periods before

