

# India's Anti Satellite Missile

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India in 2019 conducted an Anti-Satellite (ASAT) missile test, named **Mission Shakti**, becoming the **fourth country in the world** to demonstrate the capability to shoot down satellites in orbit. So far, only the United States, Russia and China have this prowess.

## More About the Anti Satellite Missile

- India had built the broad capabilities and building blocks to develop ASAT missiles for some time as part of its **Ballistic Missile Defence (BMD) programme**.
- The ASAT missile was a **modified exo-atmospheric interceptor missile** of the BMD.
- The satellite downed by the ASAT missile was Microsat-R, an imaging satellite.
- Anti-satellite weapons provide the capability to shoot down enemy satellites in orbit thereby disrupting critical communications and surveillance capabilities.
- ASAT missiles also act as a **space deterrent** in dissuading adversaries from targeting the country's satellite network.
- ASATs take many shapes, but the clearest examples follow **kinetic-kill models**, in which an object in space or on the ground is sent to collide with an orbiting satellite, destroying both object and target with the energy of the crash.
- The Indian position is that the ASAT test has provided 'credible deterrence' against threats to space-based assets from long- range missiles.
- Being a **three-stage missile**, it was fitted with **two solid-propellant rocket motor stages and the kill vehicle**. The combined weight of the first and the second

stages is 17.2 tons, with the third stage weighing 1.8 tons. The first two stages can carry 16.7 tons of fuel.

- The kill vehicle had an **advanced terminal guidance system** on board, including a non-gimballed imaging infrared seeker and an **inertial navigation system** that used ring-laser gyroscopes, which detected and tracked the Microsat-R satellite in Low Earth Orbit.
- A customized My Stamp on India's First Anti Satellite Missile (A-SAT) launch was released by the Department of Posts on the occasion of Engineers Day.