

Nirbhay Missile

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Manifest Pedagogy

An aspirant has to make a chart of ballistic missiles and cruise missiles with their ranges. Also, one has to underline the nuclear capability of the missiles. Questions from missiles has come in Prelims regularly.

In news

DRDO successfully test fired the underdevelopment long-range subsonic cruise missile Nirbhay

Placing it in the syllabus

Awareness in the field of space, indigenization of technology and developing new technology.

Static dimension

About the Nirbhay Missile

Current dimension

Recent test and its key highlights

Content

About Nirbhay missile

- It was developed by the Aeronautical Development Establishment (ADE), Bengaluru in. ADE is a lab under DRDO.
- The first test was conducted in 2013.
- It is India's first Long Range Subsonic Cruise Missile (nuclear capable) to be designed and developed

indigenously.

- It has mixed missile and aeronautical technologies that enable it to take off as a missile vertically and to cruise horizontally like an aircraft.
- It is a two-stage missile. In its first stage, it tilts horizontally. In the second stage, it will cruise horizontally like an aircraft with a turbo-jet engine at a subsonic speed of 0.7 Mach.
- The missile **can be launched from multiple platforms** and is capable of **carrying conventional and nuclear warheads**.
- It is a terrain-hugging missile that continues to encircle its target area for several minutes and then hits the bull's eye' on an opportune time. It's **hard to detect by the radars** of the enemy.
- Nirbhay has a **range of 800-1000 km** and can fly very low to the ground to avoid detection by enemy radar called **terrain hugging capability**.
- The missile is **guided by an inertial navigation system** developed by Research Center Imarat (RCI) and a **radio altimeter** for the height determination.
- The missile has a guidance, control and navigation system based on a **Ring Laser Gyroscope (RLG)**.
- It also has the **GPS system, an inertial navigation system (INS)** based on MEMS.
- The missile is similar in appearance to the U.S. Tomahawk and the Russian Club SS-N-27 with its cylindrical fuselage.

Key highlights the recent test

- It is the **sixth development flight trial** with an **objective to prove the repeatability of boost phase, cruise phase using waypoint navigation at very low altitudes**.
- It was test fired from the Integrated Test Range Chandipur.

- Nirbhay is capable of cruising at 0.7 Mach at an altitude as low as 100m
- After introducing, Nirbhay, similar to U.S. Tomahawk cruise missile, **will give Indian armed forces a long-range standoff capability to strike targets on land.**
- According to DRD, the **entire flight was fully tracked by a chain of electro-optical tracking systems**, radars and ground telemetry systems deployed all along the sea coast.
- The last successful trial of 'Nirbhay' cruise missile was conducted in November 2017.