

Prithvi-II missile

May 2, 2020

Context: India successfully conducted another night trial of its indigenously developed nuclear capable Prithvi-2 missile

- surface-to-surface missile
- strike range of 350 kilometres
- nuclear as well as conventional warheads
- It is 8.56 meter long and has 1m diameter. It can target mobile targets including unmanned aerial vehicles.
- Prithvi-2 is capable of carrying 500-1,000 kilograms of warheads and is powered by liquid propulsion twin engines. The state-of-the-art missile uses an advanced inertial guidance system with manoeuvring trajectory to hit its target,
- Already inducted into the armoury of the defence forces in 2003,
- “Prithvi” is the first missile to have been developed by the DRDO under the Integrated Guided Missile Development Programme (IGMDP).

Timeline of the indigenously developed missile systems in India.

- **Prithvi I:** It was one of the first missiles developed under Government of India’s IGMDP. Launched in February 1988, Prithvi I is a single-stage, liquid-fuelled missile. A surface-to-surface missile, it has a range of 150 km and a mounting capability of 1000 kg. It was inducted into the Indian Army in 1994.
- **Agni I:** A nuclear-capable ballistic missile, Agni 1 is the first of the five-missile Agni series launched in 1983 by the Defence Research and Development Organisation. It has a range of 700 km.
- **Akash:** Akash is a surface-to-air missile with an intercept range of 30 km. It has multi-target engagement

capability and is in operational service with the Indian Army and the Indian Air Force.

- **Nag:** Nag is a third-generation hit-to-kill anti-tank missile that was first tested in 1990. The two-stage solid propellant weapon uses the lock-on before launch system where the target is identified and designated before the weapon is launched.
- **Trishul:** Trishul is a short-range surface-to-air missile equipped with electronic measures against all known aircraft jammers. It has a range of 9 km and is used as anti-sea skimmer from ships against low-flying attacks.
- **Agni II:** An intermediate-range ballistic missile, the Agni-II was first test fired on April 11, 1999. The surface-to-surface missile has a range of 2000 to 2500 km and can carry conventional or nuclear warheads.
- **Prithvi III:** Prithvi III is the naval-version missile with a range of 350 km. A two-stage surface-to-surface missile, Prithvi III was first tested in 2000.
- **BrahMos:** BrahMos is a supersonic cruise missile that is first test-fired on June 12, 2001. It was developed as a joint venture between India and Russia and is the world's fastest anti-ship cruise missile in operation.
- **Prithvi Air Defence:** India's ballistic missile defence got a fillip with the development of PAD, which has been given the moniker Pradyumna. The system was tested with a maximum interception altitude of 80 km, and has been designed to neutralise missiles within a range of 300-2000 km up to a speed of Mach 5.0. The technology employed in the PAD was the precursor to the indigenously developed Advanced Air Defence (AAD) interceptor missile which was tested in 2007, as well as the Barak-2 which was developed in collaboration with Israel.
- **K-15 Sagarika:** The successful test of the Sagarika marks an inflection point in India's military history. It forms the crucial third leg of India's nuclear deterrent vis-à-vis its submarine-launched ballistic missile

(SLBM) capability. The K-15 Sagarika, which has a range of 750 km, was successfully tested in February 2008, and was subsequently integrated with India's nuclear-powered Arihant class submarine.

- **Dhanush:** Dhanush is a liquid propelled sea-based missile that was envisaged as a short-range version of the Prithvi II ballistic missile. It has a range of 350 km and is capable of carrying nuclear warheads. It was successfully test-fired from a naval warship in March 2011, and carries forward the legacy of the K-15 Sagarika.
- **Agni III:** Agni III is an intermediate-range ballistic missile developed as the successor to the Agni II. It is an improvement over its previous iteration, and has a range of 3,500-5,000 km, making it capable of engaging targets deep inside neighbouring countries. It was inducted into the armed forces in June 2011, enhancing its strike capability.
- **Agni IV:** Carrying forward the success of its predecessor, the Agni III was developed to strike targets within a similar range but with a significantly shorter flight time of 20 minutes. The Agni IV, which has a two-phase propulsion system is designed to carry a 1,000 kg payload.
- **Shaurya:** It was initially conceived as a surface-to-surface ballistic missile (SSM) variant of the K-15 Sagarika, that can be stored in underground silos for extended periods and launched using gas canisters as a trigger. The nuclear capability of the missile enhances India's second strike capability reduces the dependence on the K-15 ballistic missile which was built with significant Russian assistance
- **Nirbhay:** Nirbhay is a subsonic missile which is ancillary to the BrahMos range. It uses a terrain-following navigation system to reach up to 1,000 km. Nirbhay is capable of being launched from multiple platforms on land, sea, and air.

- **Prahaar:** Prahaar is a surface-to-surface missile with a range of 150 km that was successfully tested for the first time in July 2011. Stated to be a unique missile, the Prahaar boasts of high maneuverability, acceleration and accuracy. Primarily a battlefield support system for the Army, the missile can be fired from a road mobile launchers and is extremely mobile in battle situations owing to its lighter build.
- **Astra:** Astra is a beyond-visual-range (BVR) air-to-air missile (AAM) that was tested successfully in May 2011. In terms of size and weight, the Astra is the smallest missile developed by the DRDO. It was envisaged to intercept and destroy enemy aircraft at supersonic speeds in the head-on mode within a range of 80 km.
- **Agni:** Agni is India's first inter-continental ballistic missile (ICBM), with high road mobility, fast-reaction ability and a strike range of over 5,000 km.