

# N-sub completes patrol, country's N-triad operational

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**New Delhi:** India's long-awaited nuclear triad, or the capability to fire nuclear weapons from land, air and sea, is now finally operational almost five decades after it was first conceived for credible strategic deterrence and 20 years after the Pokhran-II tests.

Prime Minister Narendra Modi on Monday announced the country's first indigenous nuclear submarine, INS Arihant, had just successfully completed its "first deterrence patrol", which signifies the underwater predator has undertaken its maiden long-range mission with "live" nuclear-tipped missiles.

"In an era such as this, a

## **N-STRIKE CAPABILITY FROM LAND, AIR & SEA**

- With Arihant completing patrol, India has achieved N-strike capability from sea
- Army's Agni missiles and IAF's fighters are already capable of carrying nukes

 The success of INS Arihant gives a fitting response to those who indulge in nuclear blackmail  
— PM Narendra Modi

credible nuclear deterrence is the need of the hour. The success of INS Arihant gives a fitting response to those who indulge in nuclear blackmail," the PM tweeted in a fairly unambiguous message to arch-rival Pakistan.

▶ **2nd sub likely by '20, P 11**



# INS Arighat, 2nd N-sub, to become operational by '20

## THE LONG HUNT FOR A NUCLEAR SUBMARINE

### INDIA'S NUCLEAR TRIAD

#### LAND VECTOR | Operational since mid-2000s

**Prithvi-II (350-km), Agni-I (700-km), Agni-II (2,000-km) & Agni-III (3,000-km)** inducted  
**Agni-V (over 5,000-km)** in the process of induction.  
**Agni-IV Prime (4,000-km)** being developed

#### AIR VECTOR | Operational since mid-2000s

**Sukhoi-30MKI, Mirage-2000 & Jaguar** fighters modified to deliver nuclear bombs

#### SEA VECTOR | Now operational

- > **6,000-tonne INS Arihant (codenamed S-2)**, armed with four 750-km range K-15 nuclear missiles, is now operational
- > **6,000-tonne INS Arighat (S-3)** launched in 2017. Will be operational by 2020
- > **7,000-tonne S-4 & S-4\*** subs, each armed with six longer-range nuclear missiles, under construction. Will be launched by 2020-2022
- > **13,500-tonne S-5 submarines**, each armed with 12 longer-range nuclear missiles, at planning stage
- > **K-4 missiles (3,500-km range)** undergoing trials. K-5 & K-6 missiles (5,000-6,000-km range) being developed



### THE INS ARIHANT STORY

**1970s:** India begins hunt for N-Subs

**Late-1990s:** Construction of 3 SSBNs (nuclear-powered subs with nuclear-tipped missiles) begins under the secret Advanced Technology Vessel (ATV). DRDO, BARC etc involved, with technical help from Russia

**July 26, 2009:** INS Arihant launched into water at ship-building centre at Vizag

**August 10, 2013:** INS Arihant's 83 MW nuclear reactor goes "critical"

**Dec 2014:** INS Arihant heads for extensive sea-trials, which include test-firing of K-15 missiles

**Aug 2016:** INS Arihant commissioned

**Oct 2018:** INS Arihant completes first deterrence patrol. Overall ATV project cost pegged at ₹ 90,000 crore

### N-SUB CLUB:

- > US has 72 nuclear submarines, Russia over 40, UK & France have around 8-12 each
- > China has around 10 nuclear subs, including 5 advanced JIN-class SSBNs with 7,400-km range JL-2 missiles

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The over a month-long patrol by INS Arihant (which means annihilator of enemies), armed with the 750-km range K-15 missiles, incidentally, comes at a time when a Chinese submarine is once again prowling around in the IOR. China has deployed at least eight submarines, alternating between nuclear and conventional diesel-electric boats, in the IOR under the guise of anti-piracy patrols since 2013.

While INS Arihant's missiles are dwarfed by the well over 5,000-km range submarine-launched ballistic missiles (SLBMs) present with the US, Russia and China, PM Modi had Pakistan in mind when he said the nuclear submarine is a counter to nuclear blackmail. India for long has had the land-based Agni missiles, with the over 5,000-km Agni-V ICBM now in the process of being inducted,

and fighter jets jury-rigged to deliver nukes. But INS Arihant gives it much more nuclear teeth. The triad's underwater leg in the shape of nuclear-powered submarines armed with ballistic missiles, called SSBNs in naval parlance, is considered to be the most secure, survivable and potent platform for retaliatory strikes.

This is especially required for a country like India with a declared "no first-use" nucle-

ar policy. SSBNs can remain undetected in deep seas for months. INS Arighat, the second SSBN under-construction at the ship-building centre at Vizag, was "launched" last year and is slated to become operational by 2020. It will be followed by the launch of two 7,000-tonne submarines code-named S-4 and S-4\*, which will be armed with six missiles each, by 2020-2022.

Full story on [www.toi.in](http://www.toi.in)