

## New Scorpene class submarines

### Why in news?

The Defence Acquisition Council (DAC) has cleared proposals to buy 3 additional Scorpene submarines and 26 Rafale Marine fighter jets for the Navy.

### What is the naval strength of India?

- Indian Navy has 16 conventional submarines
  1. 7 of the Sindhughosh class (Russian Kilo class)
  2. 4 of the Shishumar class (modified German Type 209)
  3. 5 of the Kalvari class (French Scorpene class)
- It also has 2 nuclear submarine, [INS Arihant](#) and INS Arighat.
- **Project 75** - Earlier in 2005, India signed Project 75 to construct 6 Scorpene class submarines over 30 years with technology transfer from France.
- So far, 5 submarines have been commissioned and the last one, INS Vagsheer is under trials.
- **Project 75I** - It is a follow-up to Project 75 and improves upon the design and technology of its predecessor.
- It aims to procure diesel-electric attack submarines with fuel cells and Air-Independent Propulsion System (AIP) for the Indian Navy.

### What are the new submarines?

- The DAC granted Acceptance of Necessity (AoN) for procurement
- The 3 additional *Scorpene submarines* will be procured under Buy (Indian) category.
- These will be built by the Mazagon Dock Shipbuilders Limited (MDL) in Mumbai.
- It is built based on the technology transfer from the *French defence firm*, Naval Group.

### What is the need for the three additional submarines?

- Currently, the Navy has 16 conventional submarines in service.
- However, to carry out its full spectrum of operations the Navy needs at least 18 such submarines.
- Moreover, at any given time, around 30% of the submarines are under refit, thus further bringing down the strength of operational submarines.
- **Bolster our fleet** - Procurement of the three additional submarines will help in maintaining required force level and operational readiness of the Navy
- **Delay** - The delayed deliveries of submarines under Project 75 made DAC to decide on buying them.
- **Lack of maintenance** - The ageing fleet of India's Russian-made platforms, Moscow's inability to perform maintenance work.
- **Defence indigenisation** - It will help the MDL in further enhancing its capability and

expertise in submarine construction.

- The procurement of submarines, with higher indigenous content will also create significant employment opportunities in the domestic sector.

### What are the capabilities of the Scorpene submarines?

- The Scorpene submarines are conventional attack submarines.
- They are capable of launching a large array of torpedoes and missiles.
- They are also equipped with a range of surveillance and intelligence-gathering mechanisms.
- The diesel electric propulsion system enables them to alternate between using diesel and electric.
  1. Diesel - for functioning on the surface
  2. Electric - for functioning underwater

Scorpene Submarine	
Length: Around 220 feet	
Height: Approximately 40 feet	
Top speeds:	
Surfaced - 11 knots (20 km/h)	
Submerged - 20 knots (37 km/h)	
Endurance - Approx. 50 days	
System - Diesel electric propulsion systems	

- The 3 submarines will be fitted with [air-independent propulsion](#) (AIP) systems to allow them to remain submerged for longer.
- Also, Indian navy will retrofit all of its Scorpene class submarines with air independent propulsion or AIP systems, beginning in 2024.

### How do they compare with nuclear submarines?

Nuclear Subs	
Pros of nuclear subs	Cons of nuclear subs
<ul style="list-style-type: none"><li>• A nuclear reactor on a submarine has an operational life of up to 30 years.</li><li>• Hence, theoretically nuclear submarines have unlimited endurance.</li><li>• They are also able to move much faster than conventional submarines.</li></ul>	<ul style="list-style-type: none"><li>• Nuclear submarines are expensive and require a significant amount of specialised experience to operate.</li></ul>
Conventional subs	
Pros of conventional subs	Cons of conventional subs

<ul style="list-style-type: none"> <li>• The range of conventional submarines as well as their stealth is significantly higher.</li> <li>• They have improved stealth features such as advanced acoustic absorption techniques, low radiated noise levels, long-range guided torpedoes, tube-launched anti-ship missiles, sonars &amp; sensor suites.</li> </ul>	<ul style="list-style-type: none"> <li>• Conventional diesel-electric submarines have lower endurance, need to surface every 48 hours to be recharged.</li> </ul>
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*Currently, India has 2 nuclear-powered submarines (SSBMs) of the Arihant class in service.*

### Quick Facts

**DAC** - Defence Acquisition Council is the apex decision-making body for the acquisition of military equipment for India's armed forces.

### Projects-75 (Kalvari class)

Name	Meaning	Commissioned Year
<a href="#">INS Kalvari</a>	Tiger Shark	2017
<a href="#">INS Khanderi</a>	Island Fort built by Chhatrapati Shivaji	2019
<a href="#">INS Karanj</a>	Island located South of Mumbai	2021
<a href="#">INS Vela</a>		2021
<a href="#">INS Vagir</a>	Sand Fish	2023
INS Vagsheer	Sand Fish	Launched in 2022 (under trails)

### References

1. [IE - New Scorpene class submarines for the Navy](#)
2. [Hindustan Times - Scorpene submarines to boost navy's undersea capabilities](#)