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



- 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**
• A nuclear reactor on a submarine has an operational life of up to 30 years. • Hence, theoretically nuclear submarines have unlimited endurance. • They are also able to move much faster than conventional submarines.	• Nuclear submarines are expensive and require a significant amount of specialised experience to operate.
Conventional subs	
Pros of conventional subs	**Cons of conventional subs**
• The range of conventional submarines as well as their stealth is significantly higher. • 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 & sensor suites.	• Conventional diesel-electric submarines have lower endurance, need to surface every 48 hours to be recharged.

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
INS Kalvari	Tiger Shark	2017
INS Khanderi	Island Fort built by Chhatrapati Shivaji	2019
INS Karanj	Island located South of Mumbai	2021
INS Vela		2021
INS Vagir	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

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