

- They have superior stealth features, such as; advanced silencing techniques, low radiated noise levels, and the ability to attack with precision-guided weapons on board.
- They can also launch crippling attacks on the surface and underwater enemy targets.
- **Purpose:** The Indian Navy intends to use these submarines for missions such as area surveillance, intelligence gathering, anti-submarine warfare, anti-surface warfare, and minelaying operations.
- **Speed:** They can travel at a maximum submerged speed of approximately 20 knots and have the ability to remain submerged for 21 days. It has a diving depth of more than 350m.

## INS Karanj

### About INS Karanj:

- **INS Karanj** is a part of Project-75I. It is the 3rd submarine of the first batch of 6 Scorpene-class submarines under the project, for the Indian Navy.
- **Designed by:** French naval defence and energy group.
- **Manufactured by:** Mazagon Dock Limited, an Indian shipyard in Mumbai.
- **Earlier Version:** The previous INS Karanj (a Russian-origin submarine) was commissioned in 1969 at Riga in the erstwhile USSR. It served the nation for 34 years up to 2003.

## Integrated Guided Missile Development Programme

- IGMDP was the brainchild of renowned scientist **Dr. APJ Abdul Kalam**.
- It was intended to **attain self-sufficiency** in the field of missile technology.
- After keeping in mind the requirements of various types of missiles by the defense forces, the program recognized the need to develop five missile systems.
- The IGMDP formally got the approval of Indian government on 26th July, 1983.
- The missiles developed under IGMDP are:
  - Short-range surface-to-surface ballistic missile – **Prithvi**
  - Intermediate-range surface-to-surface ballistic missile – **Agni**
  - Short-range low-level surface-to-air missile – **Trishul**
  - Medium-range surface-to-air missile – **Akash**
  - Third generation anti-tank missile – **Nag**

## HELINA

- HELINA is helicopter launched version of NAG ATGM(Anti-Tank Guided Missile), designed and developed indigenously for Indian Army under integrated guided missile development programme (IGMDP).
- It is manufactured by India's sole missile producer, state-owned Bharat Dynamics Limited.
- HELINA is one of the most advanced Anti-Tank Weapons in the world.
- It works on "fire and forget" principle and operates in Lock on Before Launch mode.
- It has operational range of 7-10km (after air-launched).
- It is equipped with highly advanced Imaging Infrared Radar (IIR) seeker along with integrated avionics.
- It also possesses advanced passive homing guidance system.
- It has been designed mainly to destroy modern main battle tanks and other heavily armoured targets.

## Nag missile

- It is a "**Fire and Forget**" **anti-tank** missile
- It is a **guided** missile
- Developed by DRDO under Integrated Guided Missile Development Program.
- The NAG ATGM has strike range of upto 4 KM with fire and forget capabilities.