

7. Short News

Naval Anti-ship Missile–Short Range (NASM–SR)

Context – Defence Research and Development Organisation and the Indian Navy successfully conducted the maiden salvo launch of the Naval Anti-ship Missile Short Range (NASM–SR) off the coast of the Bay of Bengal near Odisha.

Key Points

1. Maiden Salvo Launch Capability – Two missiles were launched in quick succession from the same helicopter.
 1. It marks the first salvo launch of an advanced air-launched anti-ship missile system, enhancing strike effectiveness and target saturation capability.
2. Test Outcome – All objectives were successfully met and the waterline hit capability was validated using tracking by the Integrated Test Range with radar, electro-optical systems, and telemetry.
 1. Waterline hit capability refers to the ability of a missile to precisely strike a ship at the waterline to maximise structural damage and sinking potential.
3. Key Features of Naval Anti-ship Missile–Short Range (NASM–SR) –
 1. Propulsion System – Solid propulsion booster with a long-burn sustainer enabling sustained flight and effective targeting.
 2. Precision Navigation – Fibre-optic gyroscope-based Inertial Navigation System integrated with radio altimeter for accurate low-altitude navigation.
 1. Fibre-optic gyroscope-based Inertial Navigation System – It is a system that helps the missile know its position, direction, and speed on its own using light-based sensors.
 2. Radio Altimeter – It is an instrument that uses radio waves to measure the missile's height above the ground or sea surface, enabling precise low-altitude flight.
 3. Indigenous Avionics – Fully indigenous seeker and integrated avionics module for reliable target acquisition.
 4. Advanced Guidance – It is supported by a high-bandwidth two-way data link for mid-course updates and precision strike.
 5. Manoeuvrability – Jet-vane control enhances in-flight stability, agility, and terminal accuracy.
4. Production – Produced by Development-cum-Production Partners (DcPP) with support from Indian industries and start-ups.
5. Significance – Strengthens India's air-launched anti-ship strike capability and enhances maritime deterrence.

About Defence Research and Development Organisation (DRDO)

1. DRDO is India's premier defence research agency responsible for developing advanced defence technologies and weapon systems to strengthen national security and achieve self-reliance.
2. Establishment – It was founded in 1958 through the merger of the Technical Development Establishment and the Defence Science Organisation.
3. Ministry – Functions under the Ministry of Defence, Government of India.
4. Motto – “Balasya Mulam Vigyanam” (Strength lies in science).
5. Headquarters – New Delhi.

India's first Green Methanol Plant

Context – India will establish its first green methanol production plant at Deendayal Port Authority using the invasive species 'Prosopis Juli flora' as feedstock.

About Prosopis Juli flora

1. Introduction – It is native to Mexico and was introduced in India in the 1920s for afforestation.
 1. Large-scale planting of Prosopis Juli flora was done in Gujarat in 1961 to check desertification, especially in Kutch's Banni grasslands.

2. Local names – Gando banal (Gujarat), Velayati kesar/Velayati babul (North India), Velika than (Tamil Nadu).
3. Nature – Hardy, drought-resistant and fast-growing with deep roots and prolific seed dispersal.
4. Spread – Widely naturalised in arid and semi-arid regions and dominant in the Banni grasslands.
5. Ecological impact – It replaces native grasses, forms dense thickets, alters soil–water balance, and reduces biodiversity; it is among the world’s top invasive species.
 1. Invasive species – A non-native species that spreads rapidly and causes ecological, economic, or environmental harm.
6. Socio-economic impact – It reduces available grazing land and affects pastoral livelihoods, while simultaneously providing fuelwood, charcoal, and biomass that support local energy needs and income generation.

Key Points about the Green methanol plant

1. Green methanol – It is a low-carbon fuel produced from renewable biomass sources through gasification and catalytic conversion, using carbon derived from the natural biological cycle instead of fossil fuels.

Process of Methanol Production from Biomass –

1. Biomass is converted into synthesis gas (syngas) through gasification; the syngas mainly contains hydrogen, carbon monoxide, and carbon dioxide.
2. This syngas is then chemically processed (catalytic conversion) to produce methanol.
3. Gasification is a partial oxidation process, positioned between complete combustion (full burning) and pyrolysis (heating without oxygen).
4. After initial ignition, the process becomes self-sustaining, as the heat generated maintains further reactions with minimal external fuel input.
2. Production and Application – The plant will initially produce about five tonnes of methanol per day as a demonstration project.
 1. The fuel produced will be used as a marine fuel replacing conventional bunker oil in ocean going ships.
3. Energy requirement limitation – The plant currently depends on grid electricity for operations.
4. Feedstock – The plant uses Prosopis Juli flora and can also utilise agricultural residues such as bagasse and cotton stalk for methanol production.
5. Environmental Benefits – Green methanol can reduce carbon dioxide (CO₂) emissions by up to 95 per cent and nitrogen oxide emissions by up to 80 per cent while eliminating sulphur oxides and particulate matter.
6. Global Framework – The project aligns with the decarbonisation targets under the International Maritime Organisation (IMO) Greenhouse Gas (GHG) Strategy aimed at net zero emissions from shipping by around 2050.
7. Global Market Push – The adoption of green fuels is being accelerated by regulatory penalties imposed by the European Union on ships not complying with green fuel norms.
8. Economic Challenge – Conventional methanol from fossil fuels remains significantly cheaper while green methanol and e-methanol are expensive due to high production costs.
 1. E-methanol – A specific type of green methanol made using captured CO₂ and green hydrogen (via renewable electricity).
9. Policy Support in India – India has amended its shipbuilding financial assistance policy to provide a 30 per cent subsidy for vessels powered by green fuels including methanol, ammonia and hydrogen.

About Deendayal Port Authority

1. Location – Located at Kandla in Kutch district of Gujarat on the Gulf of Kutch along the Arabian Sea.
2. Origin – Established in 1950’s to offset the loss of Karachi Port after Partition.

3. Classification – Deendayal Port Authority is a Major Port administered by the Union Government under the Major Port Authorities Act, 2021.
4. Cargo Handling – One of India's largest major ports by cargo volume, handling about 132 million metric tonnes (MMT) in 2023–24.

SEBI Operationalises PaRRVA to Boost Transparency

Context – The Securities and Exchange Board of India has launched PaRRVA to ensure verified performance data of market intermediaries.

About PaRRVA

1. Full Form – Past Risk and Return Verification Agency
2. Purpose – Ensures verified performance data of market intermediaries to improve transparency and investor trust.
3. Operational Timeline – Pilot launched in Dec 2025; full operations begin May 4, 2026.
4. Implementing Entities – CARE Ratings Limited (agency) and National Stock Exchange of India (data centre).
5. Function – Verifies past performance (risk & returns) of regulated entities like investment advisers, research analysts, and algo traders.
6. Key Benefit – Enables investors to access authentic risk-return data, reducing misleading performance claims.

Ru-Soam Cane Bridges

Context – UNESCO has partnered with the Sikkim government to document Ru-Soam (cane bridges) in the Khangchendzonga Biosphere Reserve.

About the Ru-Soam Cane Bridges

1. Indigenous Engineering – Ru-Soam are traditional cane bridges built by the Lepcha community of Sikkim using bamboo, cane, and wood.
2. Eco-friendly Design – Constructed entirely from locally available natural materials, ensuring sustainability and minimal environmental impact.
3. Structural Resilience – Designed to withstand harsh terrain, floods, and climatic stress, showing high durability.
4. Cultural Significance – Reflect deep spiritual and ecological connection between the Lepcha people and nature.
5. Climate Adaptation Value – Offer insights for disaster-resilient and climate-adaptive infrastructure in fragile ecosystems.
6. Global Recognition – Being documented by UNESCO for integrating indigenous knowledge into modern science.

Vikram VT-21 Infantry Combat Vehicle

Context – India is developing advanced Vikram VT-21 infantry combat vehicles to enhance capability for modern, network-centric warfare.

About the Vikram VT-21

1. Vikram VT-21 is an Advanced Armoured Platform to modernise India's infantry combat capability.
2. Developed By – DRDO
3. Replacement Need – Designed to replace the ageing BMP-2 Infantry Combat Vehicle fleet (in service since 1980s).
4. Dual Variants – Comes in wheeled (faster, urban mobility) and tracked (better off-road, rough terrain performance) versions.
5. Enhanced Protection – Equipped with STANAG Level 4–5 armour, providing resistance against heavy gunfire, blasts, and shrapnel.
6. Advanced Firepower – Features 30 mm crewless turret, 7.62 mm machine gun, and capability to launch Nag Anti-Tank Guided Missiles (ATGM).



7. High Mobility – Strong power-to-weight ratio, automatic transmission, amphibious capability (crosses rivers using hydro jets).
8. Modular Design – Can be adapted for multiple roles, troop transport, reconnaissance, combat support.
9. Network-Centric Capability – Integrated sensors, surveillance, and communication systems for real-time battlefield awareness.
10. Indigenisation Push – Around 65% indigenous content, targeted to increase to 90%, boosting self-reliance in defence.
11. Strategic Importance – Critical for operations in high-threat zones (China & Pakistan borders) and future network-centric warfare scenarios.

