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INDIA SET TO BE AMONG TOP FIVE SHIPBUILDING NATIONS BY 2047

Context

- With less than 1% share in global shipbuilding currently, **India** is on course to be among the **world's top five countries in this arena by 2047**.

About Shipbuilding

- It refers to the **construction, repair, and maintenance of vessels** used for **transportation, defense, and trade**.
 - ♦ Shipbuilding is carried out in specialised facilities called **shipyards**, which are equipped to handle large-scale projects and complex assembly processes.
- **Asia-Pacific was the largest region** in the ship building and repairing market, accounting for 49% or \$118.12 billion of the total in 2023.
 - ♦ It was followed by **Western Europe, North America and then the other regions**.

Status in India

- India has a long history of shipbuilding and The **Indus Valley civilisation**, which built early ships and traded internationally, is the source of **India's rich maritime history**.
 - ♦ Gujarat, Maharashtra and Bengal were known for building massive wooden ships for trade and combat.
- **Indian shipbuilders** created cutting-edge vessels that were in high demand in the Middle Ages.
- India established significant state-owned shipyards because of prioritising naval and defence shipbuilding after achieving independence.
- Currently, **India holds only 0.06%** of the global shipbuilding market, a stark contrast to the dominance of China, South Korea, and Japan, which collectively control 85% of the industry.

India's Maritime Sector

- It currently contributes **4% to India's GDP** and **just 1% of global tonnage**, the vision is to raise its share to **12% of national GDP**.
 - ♦ India has a clear goal of ranking among the **top 10 maritime nations by 2030 and among the top 5 by 2047 from the current position of 16th**.
- **Indian seafarers** already represent **12% of the global workforce**.

- ♦ India has a goal to expand this to around **25%**, making shipbuilding and repair central to this transformation.

- **The maritime sector** handles **95% of India's trade by volume**, underscoring its pivotal role in the economy
- **Cargo management** at Indian ports **rose by 4.45% in FY24**, reaching 819.22 million tonnes.

Factors Favouring India's growth of shipbuilding industry in India

- **Strategic location:** India's extensive coastline and proximity to major shipping routes provide a natural advantage for shipyards, helping reduce transportation costs and turnaround times.
- **Competitive labour costs:** India offers a competitive edge with lower labour costs compared to other shipbuilding nations, making it an attractive option for international clients.
- **Focus on niche segments:** Indian shipyards are specialising in categories like offshore support vessels, dredgers, and ferries, targeting specific market demands.
- **Government support:** Policy initiatives such as the Scheme for Financial Assistance to Shipyards in India (SFAS) and a focus on enhancing indigenous shipbuilding capabilities are driving growth in the shipbuilding sector.

Importance

- The shipbuilding sector now contributes **significantly to employment, exports, and national defence, and to India's economic and strategic development**.
- **Shipbuilding is a capital-intensive industry** requiring advanced technology, skilled labour and strong policy support.
 - ♦ It **creates jobs** in sectors such as electronics, steel, engineering, and maritime equipment.
- A robust local shipbuilding industry can improve **India's Blue Economy, a major focus area under the "Make in India" and "Atmanirbhar Bharat"** programs.
- It **improves the country's trade balance and reduces dependency on imports**.
- **Strategically, India's defence capability and marine security depend heavily on shipbuilding**.
 - ♦ India is investing in naval modernisation and building aircraft carriers, submarines, and warships to bolster its naval fleet considering the changing geopolitical environment in the Indo-Pacific region.

Challenges

- **Infrastructure Gaps:** Inadequate port infrastructure and outdated facilities at some ports, limiting capacity and efficiency.
- **Congestion:** High traffic volumes at major ports leading to delays, increased turnaround times, and reduced productivity.
- **Environmental Concerns:** Pollution and sustainability issues, including emissions from ships and port operations.
- **Logistics Bottlenecks:** Inefficient transport connectivity between ports, roads, and railways, impacting smooth cargo movement.
- **Global Competition:** Rising competition from other global maritime hubs, necessitates continuous investment and modernization.

Government Initiatives

- **Sagarmala Programme:** Focuses on leveraging India's coastline and of navigable waterways.
 - ♦ Supports port infrastructure, coastal development, and connectivity.
 - ♦ Financial aid for projects like coastal berths, rail/road connectivity, fish harbours, and cruise terminals.
- **Maritime India Vision 2030 (MIV 2030):** Aiming for India to become a top 10 shipbuilding nation by 2030 and create a world-class, efficient, and sustainable maritime ecosystem.
 - ♦ Includes 150+ initiatives across ten key maritime sectors.
- **Inland Waterways Development:** 26 new national waterways identified by the Inland Waterways Authority of India (IWA).
 - ♦ Provides alternative, sustainable transport, easing road/rail congestion.
- **Green Tug Transition Program (GTTP):** Aims to replace fuel-based harbour tugs with eco-friendly, sustainable fuel-powered tugs.
 - ♦ Transition to be completed by 2040 across major ports.
- **Sagarmanthan Dialogue:** An annual maritime strategic dialogue to position India as a global center for maritime conversations.
- **Maritime Development Fund:** 25,000 crore fund for long-term financing to modernize ports and shipping infrastructure, encouraging private investment.
- **Shipbuilding Financial Assistance Policy (SBFAP 2.0):** Aimed at providing direct financial subsidies to Indian shipyards to help Indian shipyards compete with global giants.

- **The Cruise Bharat Mission:** It was launched in 2024, aims to develop 100 river cruise terminals, 10 sea cruise terminals, and five marinas, while doubling passenger numbers by 2029.
- **The Indian Ports Act, 2025,** replaced an old 1908 law, created a Maritime State Development Council for better national planning, gave more power to state maritime boards to manage smaller ports, and set up a way to resolve disputes at the state level.

Conclusion and Way Forward

- India's shipbuilding sector is at a turning point and has the potential to grow into a major force in the world's maritime economy.
- Proactive government initiatives like the Sagarmala Program, Make in India, and the Shipbuilding Financial Assistance Policy have impressively advanced commercial and defence shipbuilding.
- Productivity and operational efficiency have been further improved by robotic automation, AI-driven design optimisation and digital twin technologies.

Source: TH

INDIAN OCEAN REGION: OPPORTUNITIES AND CHALLENGES

Context

- **The 48th Annual Conference on Oceans Law & Policy (COLP48)** was held under the theme "Developing World Approaches to Ocean Governance: Perspectives from the Indian Ocean Rim".

About 48th Annual Conference on Oceans Law & Policy (COLP48)

- This is the **first time** in the nearly **five-decade history of COLP** that the conference is being hosted in the Indian subcontinent.
 - ♦ The conference is organised by the **Stockton Center for International Law, U.S. Naval War College and the Gujarat Maritime University**, with support from the **Ministry of Earth Sciences**.
- **Organizer:** Traditionally organized by the Center for Oceans Law & Policy at the University of Virginia School of Law (USA).
- **Objective:** To promote **dialogue on legal and policy issues** related to the UN Convention on the Law of the Sea (UNCLOS), maritime boundaries, freedom of navigation, and sustainable use of marine resources.

- **Participants:** Government officials, representatives from international organizations (like IMO, ISA, ITLOS), naval/maritime experts, energy and shipping industry leaders, and scholars.

India outlined the five priority areas for ocean governance from a developing world perspective:

- Ensuring livelihood and food security through sustainable fisheries and agriculture.
- Deepening regional cooperation rooted in South-South solidarity among Indian Ocean Rim nations.
- Integrating traditional knowledge and participatory governance with modern science.
- Promoting climate resilience and ecosystem-based approaches to safeguard biodiversity.
- Mobilising innovative finance and building capacity for ocean research, technology, and governance.

Indian Ocean Region

- The Indian Ocean covers approximately **one-fifth of the total ocean area of the world**.
- The Indian Ocean is bounded by Iran, Pakistan, India, and Bangladesh to the **north**; the Malay Peninsula, the Sunda Islands of Indonesia, and Australia to the **east**; the Southern Ocean to the **south**; and Africa and the Arabian Peninsula to the **west**.



Significance of the Indian Ocean Region (IOR)

- **Geostrategic Importance:** The Indian Ocean is the third largest ocean, linking the Middle East, Africa, South Asia, and Southeast Asia.
 - ♦ It is home to **crucial maritime chokepoints** — Strait of Hormuz, Bab-el-Mandeb, Malacca Strait, Lombok Strait — which together handle a bulk of global energy and trade flows.
 - ♦ The IOR acts as a **bridge between the East and the West**, making it a central theatre for power competition among India, China, the U.S., and other major players.

- **Economic Significance:** The region carries nearly 50% of global container traffic and 80% of seaborne oil trade.
 - ♦ It is a hub of blue economy activities: shipping, fisheries, seabed mining, and tourism.
- **Energy Security:** The IOR is the lifeline of global energy flows: oil and gas from West Asia transit to East Asia via its sea lanes.
 - ♦ Countries like India, China, Japan, and South Korea are energy-import dependent, making stability of the IOR vital.

Why has the focus on IOR been increased recently?

- **Rise of New Economies:** India and China's emergence has revived trade networks in IOR and the region is becoming a new economic growth centre.
- **Maritime Security Threats:** Piracy (especially near Somalia) threatened global shipping lanes and led to increased efforts to secure Sea Lines of Communication (SLOCs).
- **Indo-Pacific Construct:** The Indo-Pacific combines the Indian and Pacific Oceans into one strategic theatre and highlights the centrality of IOR in shaping new global maritime order.
 - ♦ This geographical reimagination enhances IOR's visibility in global diplomacy and security.
- **Implications for Global Order:** Control over the IOR can shape:
 - ♦ Trade flows (especially oil & gas),
 - ♦ Strategic maritime chokepoints (like the Strait of Hormuz, Malacca, Bab el-Mandeb),
 - ♦ Military posturing and base logistics.

Challenges in IOR

- **Expansion of Chinese Naval Power in IOR:** Increased naval vessel deployments in the region in terms of both number and duration.
- **Maritime Domain Awareness Activities:** Deployment of Chinese research and survey vessels to gather sensitive oceanographic and marine data under the guise of scientific research.
- **Piracy hotspots** near the Horn of Africa and in the Malacca Strait threaten shipping.
- **Terrorism, arms smuggling, and trafficking networks** exploit porous maritime borders.
- **Strategic Port Development Near India:** China is actively involved in developing ports and infrastructure in littoral states of the IOR, including those close to India's maritime boundaries.
 - ♦ The objective aligns with China's long-term goal of becoming a maritime power.

India's Strategic Responses

- **Diplomatic and Security Leadership:** India positions itself as first responder in disasters.
 - ♦ India is a preferred security partner in HADR (Humanitarian Assistance and Disaster Relief), Maritime Domain Awareness (MDA), and development.
- **Launch of MAHASAGAR** (Mutual and Holistic Advancement for Security and Growth for All in the Region) reflects India's strategic rebranding in the IOR.
- India earlier resisted external major powers' presence, but now embraces **partnerships with like-minded countries**.
- **Naval Modernisation and Indigenous Development:** India is modernising naval capabilities:
 - ♦ Commissioning indigenous warships (e.g., INS Vikrant, INS Visakhapatnam).
 - ♦ Boosting maritime domain awareness and power projection.
 - ♦ This strengthens India's force posture and maritime deterrence in the IOR.
- **India's Response and Regional Diplomacy:** India is working with regional partners to raise awareness about the long-term implications of Chinese infrastructure projects.
 - ♦ Emphasize the risks to internal and regional security from China's military use of these assets.
- **India on Militarisation of the IOR:** India asserts that Militarisation of the Indian Ocean Region is not desirable and will adversely impact security in the Indian Ocean and the wider Indo-Pacific.
 - ♦ This reflects India's stance against military usage of Chinese-funded infrastructure in the IOR.

Conclusion

- For India, the IOR is not merely a neighbourhood but a strategic imperative central to its national security, economic growth, and global leadership ambitions.
- Initiatives such as Act East Policy, Indo-Pacific Vision, and Blue Economy strategy reinforce India's centrality in the IOR.

Source: PIB

NATIONAL POLICY ON SUSTAINABLE AVIATION FUEL (SAF)

Context

- India is **formulating a national policy on Sustainable Aviation Fuel (SAF)** alongside a

long-term roadmap through 2050, as part of its efforts to achieve **Net Zero emissions by 2070**.

About the Sustainable Aviation Fuel (SAF)

- It is a **bio-based alternative** to fossil-derived jet fuel that can be produced from non-edible oils, used cooking oil, algae, and agricultural waste.

Need For A National Policy on SAF

- **Global Compliance & Enabling International Certification:** ICAO's CORSIA becomes **mandatory for participating states from 2027**.
 - ♦ Airlines **operating international flights** between ICAO member states **need to be required to offset their carbon emissions** above a set baseline, ensuring compliance with global emissions reduction goals.
 - ♦ **India currently lacks an Life Cycle Assessment (LCA)** benchmark within the CORSIA framework, unlike **Brazil (sugarcane)** and the **US (corn)**.

Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)

- Launched by the **International Civil Aviation Organization (ICAO)** in 2016, to achieve carbon-neutral growth in international aviation from 2020 onwards.
- First global market-based mechanism to address international aviation emissions.

Implementation Phases

- **Pilot Phase (2021–2023):** Voluntary participation.
- **First Phase (2024–2026):** Still voluntary, but many states have joined.
- **Second Phase (2027–2035):** Mandatory for most ICAO member states (with exceptions for Least Developed Countries, Small Island Developing States, and Landlocked Developing Countries)

Potential and Opportunities

- India has proposed blending targets of **1% by 2027; 2% by 2028; and 5% by 2030** for SAF in Aviation Turbine Fuel (ATF), initially for international flights.
 - ♦ By 2030, achieving the **5% SAF blending target** would require about **6 billion litres of ethanol**, if no other feedstocks are considered.
- **Support Feedstock Cultivation & Supply Chain Development:** According to Deloitte's 2024 report '*Green Wings: India's Sustainable Aviation Fuel Revolution in the Making*':

- ♦ India could produce **8–10 million tonnes of SAF annually by FY40**.
- ♦ Investments required: **₹6–7 lakh crore (\$70–85 billion)**.
- ♦ Emission reduction potential: **20–25 million tonnes annually**.
- The **Indian Sugar & Bio-energy Manufacturers Association (ISMA)** is working on blending strategies.
 - ♦ It has partnered with **The Energy and Resources Institute (TERI)** to conduct a **Life Cycle Assessment (LCA)** of sugarcane-based SAF using syrup, molasses, and bagasse.

Challenges

- **Cost and Classification:** SAF costs nearly **3 times more than conventional jet fuel**, while **synthetic SAF (Power-to-Liquid)** can be **7 times costlier**.
- SAF is still classified under fossil fuels, and **reclassification under the bioenergy sector** would allow access to existing incentives, such as those under the **Gobardhan scheme**.
- **Technological Gaps:** SAF production requires advanced infrastructure and R&D.
- **Limited access to sustainable biomass** like molasses, bagasse, and used cooking oil.

Efforts & Initiatives Related to SAF in India

- **Institutional Framework:** The policy is being jointly steered by the **Ministry of Petroleum and Natural Gas (MoPNG)** and the **Ministry of Civil Aviation (MoCA)**.
 - ♦ **MoPNG:** Focus on production, feedstock development, and certification.
 - It has constituted a **Bio-Aviation Turbine Fuel Programme Committee** to promote SAF adoption.
 - ♦ **MoCA:** Responsible for implementation, airline obligations, airport readiness, and compliance with **global standards such as ASTM D7566 and CORSIA**.
- **Indian Oil Corporation** aims to start producing **35,000 tonnes of SAF per year** from used cooking oil, sourced from large hotels, restaurants, and food chains.
- India is collaborating with the US under the **Strategic Clean Energy Partnership (SCEP)**, which includes SAF-focused workshops on R&D, certification, and market development.
- **CSIR–Indian Institute of Petroleum (IIP)** has developed SAF using indigenous feedstocks such as **palm stearin, sapium oil, algae oil, karanja, and jatroph**a.

- ♦ It has received provisional certification from the **Centre for Military Airworthiness & Certification (CEMILAC)** for use in military aircraft.

Conclusion and Way Forward

- India's SAF policy is not just an environmental necessity but a strategic opportunity to lead in sustainable aviation. With strong collaboration between government, industry, and research, India can advance toward its net-zero goals.
- There is a need to accelerate the release of a comprehensive National SAF Policy with clear mandates and regulatory guidelines.

Source: DTE

INDIA IS A STEADFAST PARTNER IN MAURITIUS' SOCIO-ECONOMIC GROWTH

In News

Mauritius Prime Minister Navinchandra Ramgoolam highlighted India as a trusted and longstanding partner in Mauritius's socio-economic development during the Mauritius-India Business Conclave.

Background

- India and Mauritius share close ties rooted in shared history, culture, and a large Indian-origin population (about 70%).
- Indians were first brought to Mauritius during French and British colonial rule as workers, with the first indentured laborers arriving in 1834—a date now commemorated as 'Aapravasi Diwas'.
- Mahatma Gandhi's 1901 visit to Mauritius emphasized education, political empowerment, and India connection, inspiring the nation whose National Day is celebrated on March 12, marking Gandhi's Dandi March.

Diplomatic Ties

- **India and Mauritius** have enjoyed strong diplomatic relations since 1948, even before Mauritius' independence.
- Their partnership is built on mutual trust, high-level political engagement, and cooperation in maritime security, development, and capacity-building.
- India has supported numerous development projects in Mauritius and fosters cultural ties through institutions like the Indian Cultural Centre, World Hindi Secretariat, and Mahatma Gandhi Institute, helping preserve and promote Indian heritage in Mauritius.

Commercial Relations

- India has emerged as one of Mauritius' leading trading partners, accounting for **11% of the island nation's total imports in 2024**, while Mauritius contributes significantly to India's foreign direct investment.
- Indian exports to Mauritius** have fluctuated over the years with USD 766 million in 2024.
 - Key Indian exports include pharmaceuticals, cotton, cereals, motor vehicles, and mineral fuels.
- India also supplies raw materials** such as yarn and fabrics to support Mauritius' textile and clothing industry.
- The main products** exported from Mauritius to India include medical devices, waste and scrap of cast iron, aluminium, alloy steel, and lead-acid accumulators.
- In FY 2023–24, Mauritius was India's second-largest source of FDI after Singapore, with equity inflows worth USD 7.97 billion.
- Indian companies have also invested over USD 200 million in Mauritius in the last five years.
- The **Comprehensive Economic Cooperation and Partnership Agreement (CECPA) signed in 2021**, India's first trade pact with an African nation, has boosted trade with increasing exports and imports under the agreement.

Development and cultural linkages

- India's developmental footprint in Mauritius** is visible across the island nation. Institutions such as the Mahatma Gandhi Institute, the World Hindi Secretariat, and the Indian Cultural Centre — the largest of its kind globally — serve as pillars of cultural and educational exchange.
- The **Indira Gandhi Centre for Indian Culture (IGCIC)**, established in 1987, continues to be India's largest cultural centre abroad, offering classes in Hindustani music, Kathak, Tabla, and Yoga to over 2,500 Mauritian students annually.
- Additionally, more than a hundred Mauritian socio-cultural organisations actively work to preserve and promote Indian heritage and traditions, underscoring the deep-rooted cultural ties.

Tourism and education

- Tourism and education are also strong connectors. Since 2004, Mauritius has allowed visa-free entry for Indian tourists, while Mauritian nationals receive gratis visas to India.
- In pre-pandemic years, around 80,000 Indian tourists visited Mauritius annually, and nearly 30,000 Mauritians travelled to India. These numbers are now steadily recovering.

- Presently, more than 2,300 Indian students are pursuing higher education in Mauritius, particularly in medicine, hotel management, and business studies.
- India and Mauritius continue to build on their historical, cultural, and economic bonds.

ITEC and other scholarships

- Mauritius is one of the largest beneficiaries of the Indian Technical and Economic Cooperation (ITEC) programme and receives about 500 training slots every year for various courses.

Source :Air

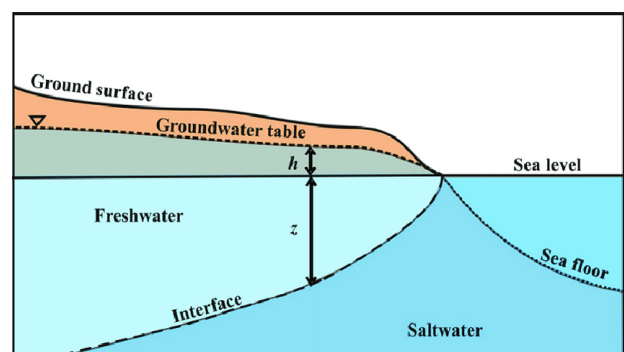
SIGNIFICANCE OF OFFSHORE AQUIFERS

Context

- Scientists have confirmed the existence of a massive offshore freshwater aquifer **beneath the Atlantic Ocean**, stretching from **New Jersey to Maine**, marking the first systematic global expedition to drill for undersea groundwater.

What are Offshore Aquifers?

- Offshore aquifers are underground bodies of porous rock or sediment saturated with freshwater, located beneath the sea floor.
- They **resemble land-based aquifers** but remain submerged under shallow coastal waters, extending up to **90 km** from the shoreline.
- A 2021 study in Environmental Research Letters** estimated that nearly **1 million cubic kilometres** of freshwater lie beneath the oceans, around **10%** of Earth's terrestrial groundwater reserves.
- Location:** Confirmed and studied locations include the coasts of;
 - United States (Northeast Atlantic, California)
 - Australia (Perth Basin, Sydney Basin)
 - China (Yellow Sea, recently discovered large reserves)
 - South Africa (Cape Peninsula)
 - Europe (North Sea, Mediterranean).



How Do They Get Freshwater?

- **Ice Age Hypothesis:** During glacial periods, when sea levels were lower, rainfall infiltrated exposed land, gradually filling aquifers that are now under the ocean.
- **Onshore Connection Hypothesis:** Some offshore aquifers remain linked to land aquifers and receive freshwater recharge through groundwater flow.
- **Cap Rock Protection:** A clay-rich compacted layer seals the aquifers, preventing freshwater from mixing with surrounding seawater.

Why Are Offshore Aquifers Significant?

- **Addressing Global Water Crisis:** According to the UN (2023), global freshwater demand will exceed supply by **40% by 2030**. Offshore aquifers could act as strategic reserves.
- **Climate Resilience:** Rising global warming, changing rainfall patterns, and over-extraction of land aquifers have worsened water scarcity. Offshore aquifers offer an alternative to stressed terrestrial sources.
- **Strategic Importance:** For countries facing droughts and urban demand, offshore aquifers can reduce dependence on costly desalination or water imports.

Challenges in Extraction

- **High Cost:** Offshore drilling is technologically complex and expensive. The US northeast exploration cost **\$25 million**.
- **Engineering Difficulties:** Designing wells under the seabed, ensuring transport of water onshore, and preventing seawater intrusion are major hurdles.
- **Environmental Risks:** Extraction could disturb marine ecosystems, alter pressure balances, or cause saltwater contamination.
 - ♦ If the water is ancient (from Ice Age recharge), it is a **non-renewable resource** and must be used cautiously.
- **Governance Issues:** Questions of ownership, coastal community rights, and international disputes over undersea water remain unresolved.

Way Ahead

- **Framing International Law:** The global community must urgently develop a **legal framework under UNCLOS** or other instruments to govern the equitable and sustainable use of offshore freshwater resources, preventing future conflicts.

- **Integrated Water Management:** Offshore aquifers should be viewed not as a primary source, but as a strategic part of a diversified water portfolio that includes conservation, wastewater recycling, and sustainable use of surface water.

Source: IE

GST REFORMS TO BOOST INDIA'S DRONE ECOSYSTEM

Context

- The slash in GST for drones by fixing it at a uniform **5 percent** in the **56th GST Council** meet is set to boost the country's rapidly growing drone ecosystem.
 - ♦ Earlier, the rates were **18 per cent** for drones with integrated cameras and **28 per cent** for drones classified for personal use.

Drone Ecosystem

- According to industry estimates, the global drone market is valued at **over \$30 billion in 2025** and is projected to reach **\$90–100 billion by 2030**, driven by rapid adoption of AI, automation, and 5G integration.
- India is incentivising indigenous drone and counter-drone technologies with **USD 230 million** support packages, to reduce import dependence and enhance procurement efficiency.

Leading Countries and their strengths

- **China:** China dominates the global market, with **DJI** controlling nearly **70%** of the civilian drone segment. Strong state support has expanded applications in precision farming, urban air mobility, and logistics.
- **United States:** The U.S. military is investing heavily in unmanned combat aerial vehicles (UCAVs) and loitering munitions.
 - ♦ **E-commerce drivers:** Firms like **Amazon Prime Air** are testing large-scale drone delivery networks for parcels.
- **Turkey** has emerged as a global leader in armed drones, with **Baykar's Bayraktar TB2 and TB3** being exported to over 30 countries.
- **The EU's** supportive framework on **Beyond Visual Line of Sight (BVLOS) operations** is enabling drones in energy, inspection, and logistics.

Opportunities in Drone Industry

- **Boost Global Competitiveness:** By leveraging its large domestic market and start-up base, India can position itself as a global hub for affordable drone technologies, similar to its role in IT services.

- **Industrial Applications:** Drones are being deployed for mapping, mining inspections, pipeline monitoring, and smart city projects, cutting both time and costs.
 - ♦ **The Aerostatic Drone** is developed for persistent surveillance and disaster management.
- **Healthcare Services:** Pilot projects in states like **Telangana and Meghalaya** have demonstrated successful last-mile drone deliveries of medicines and vaccines.
- **Logistics:** Drone delivery networks can **reduce urban congestion** and bring down last-mile delivery costs by up to **40%**.

Government Initiatives in Drone Sector

- **Drones Rules, 2021** provide the necessary regulatory framework for commercial use of drones.
 - ♦ These rules cover various aspects like type certification, registration and operation of drones, airspace restrictions, research, development and testing of drones, training and licensing, offences and penalties etc.
- **Drone Airspace Map published in 2021**, has opened nearly 90% of Indian airspace as a green zone for drones flying up to 400 feet.
- **Production-Linked Incentive (PLI) scheme** provides for an incentive of **Rs 120 crores**, spread over three financial years. The PLI rate is **20%** of the value addition over three financial years.
- **Drone certification scheme 2022**, making it easier to obtain type certificates by drone manufacturers.
- **Drone import policy 2022**, banning import of foreign drones and freeing up import of drone components.
- **Drone (Amendment) Rules, 2022** abolished the requirement of a drone pilot license.

Challenges to the Drone Industry

- **Import Dependence:** Despite policy support, India continues to **depend heavily on imported drone components** such as motors, sensors, and batteries, with China dominating the global supply chain.
- **Regulatory and Compliance Issues:** While the **Drone Rules, 2021**, simplified licensing, compliance processes for type certification, and safety approvals remain time-consuming, creating hurdles for start-ups.
- **Security Concerns:** Drone incursions along the border areas highlight the risk of misuse by non-state actors. Civilian drones without proper

regulation pose risks of smuggling, spying, and sabotage.

- **Affordability Gaps:** Farmers and small businesses lack awareness of drone benefits. Even with subsidies, the upfront cost of agricultural drones remains high for small landholders.

Way Ahead

- Investments should be directed towards **local manufacturing of critical components** such as batteries, motors, and sensors to reduce import dependence.
- **Advanced detection and neutralisation systems** must be deployed at sensitive installations and borders to mitigate security risks.
- **Green Transition:** Adoption of eco-friendly propulsion systems like hydrogen and solar is essential for sustainability.

Source: AIR

NEWS IN SHORT

NATIONAL FELLOWSHIP FOR SCHEDULED TRIBES (NFST)

Context

- **Research scholars from Scheduled Tribe communities** across the country have reported months-long delays and irregularities in the disbursement of funds under the **National Fellowship for Scheduled Tribes (NFST)**.

About National Fellowship for Scheduled Tribes (NFST).

- It is a scholarship programme administered by the **Union Ministry of Tribal Affairs**.
- It is a **Central Sector Scheme** and it offers **750 scholarships each year** for ST candidates (**only in Psychiatric Social Work/ M.Phil. in Clinical Psychology), Integrated M.Phil.+ Ph.D. and Ph. D. Courses**, which are to be paid in quarterly installments for a **maximum period of five years**.
 - ♦ The applications are invited online on the **National Fellowship Portal**.
- **The objective of the scheme** is to encourage the Scheduled Tribe (ST) students to acquire higher education by providing financial assistance in the form of fellowships.
- **The candidate must be registered for regular and full time M.Phil./Ph.D courses** in recognized University/ Institute/ Colleges by UGC.

Source: TH

ISRO INKS AGREEMENT WITH HAL FOR TRANSFER OF SSLV TECHNOLOGY

Context

- The Indian Space Research Organisation signed a formal agreement with Hindustan Aeronautics Ltd. for the transfer of technology for production of small satellite launch vehicles (SSLV).

Key Highlights of agreement

- It marks a significant step in industry participation in the space sector.
- It is the 100th transfer of technology agreement facilitated by the space sector promoter INSPACe.
- ISRO will complete the entire technology transfer process within 24 months from the date of signing the agreement.
 - ♦ During this period, the ISRO will provide training and technical support to the HAL for acquiring the know-how of the SSLV.
- The agreement would allow the HAL to independently build the SSLV for both domestic and international markets.

Small Satellite Launch Vehicles (SSLV)

- The SSLV is a three-stage all-solid vehicle designed to launch satellites weighing up to 500 kg into Lower Earth Orbit (LEO).
- SSLV was developed by ISRO as a quick turnaround, on-demand launch vehicle that is amenable to industrial production and is targeted to cater to the global small satellite launch vehicle market.

Source: TH

AI-BASED MENTAL HEALTH PROGRAM 'NEVER ALONE' LAUNCHED AT AIIMS DELHI

Context

- All India Institute of Medical Sciences, New Delhi, today launched an AI-based mental health and wellness program called "Never Alone" to tackle student suicides and improve mental health awareness.

About 'Never Alone' program

- It was launched on World Suicide Prevention Day (10 September).
- It offers 24/7 virtual and offline consultations with mental health experts through a web-based app accessible via WhatsApp.

- ♦ The program aims to minimise stigma surrounding suicide and increase awareness among students.

Objectives and Need

- The app provides personalised and secure mental health screening for just 70 paise per student per day for institutions with 5 thousand students.
- ♦ As per the data of the National Crime Records Bureau (NCRB), in 2022, over 1.7 lakh people died by suicide in India, with young adults aged 18-30 years accounting for 35 percent of all suicides.

World Suicide Prevention Day (WSPD)

- It was established in 2003 by the International Association for Suicide Prevention in partnership with the World Health Organization.
- Each year, on 10 September, WSPD focuses global attention on suicide prevention, uniting communities, organizations, and governments with the shared belief that suicides are preventable.

Source: AIR

MELIOIDOSIS

Context

- Andhra Pradesh has reported its first confirmed case of melioidosis in Turakapalem village, linked to 23 unexplained deaths since July.

About Melioidosis

- **Cause:** Bacterial infection caused by *Burkholderia pseudomallei*.
- **Transmission & Reservoir:**
 - ♦ The bacteria live in soil and water, and can persist for years in contaminated environments.
 - ♦ Person-to-person transmission is very rare; animal-to-human or insect-to-human are not documented.
- **Vulnerability:**
 - ♦ Usually non-lethal in healthy individuals.
 - ♦ Severe in patients with diabetes, chronic kidney/liver disease, alcohol dependence, or cancer.
 - ♦ Higher risk of exposure in military personnel, adventure travellers, eco-tourists, and workers in construction, rice farming, fishing, and forestry.
- **Geographic prevalence:**
 - ♦ Endemic in Southeast Asia and Northern Australia.

- ♦ Prevalent but under-diagnosed and underreported in India. First indigenous Indian case detected in Mumbai (1991).
- **Seasonality:** 75–85% of cases occur during the rainy season.
- **Symptoms:**
 - ♦ Range from flu-like fever and headache to severe pneumonia, persistent cough, chest pain, skin sores, or organ abscesses.
 - ♦ Resemble tuberculosis and misdiagnosis is common.
- **Prevention & Management:**
 - ♦ Safe water, protective gear, and hygiene practices.
 - ♦ At present, there is no vaccine available for melioidosis.

Source: DTE

STABLECOINS

Context

- Stablecoins have grown rapidly, with their market capitalization more than doubling in the past 18 months to nearly **\$280 billion**.

What are stablecoins?

- Stablecoins are **cryptocurrencies designed to maintain price stability** by pegging their value to underlying assets such as:
 - ♦ Fiat currencies (e.g., USD, Euro),
 - ♦ Commodities (e.g., gold),
 - ♦ Other cryptocurrencies, or
 - ♦ Algorithm-based systems.
- Stablecoins are **different from CBDCs, or Central Bank Digital Currencies**, which are digital currencies officially issued and controlled by a government's central bank.
 - ♦ Meanwhile, stablecoins can be privately issued and can also be pegged to foreign currencies.

Global Scenario in stablecoins

- **The U.S.** passed the **Genius Act**, which mandates that stablecoins be **fully backed by liquid assets** (like cash or Treasury bills) and requires regular disclosures.
- **Japan & Singapore** have introduced targeted regulations for stablecoins.
- **China** has long prioritized the development of its **sovereign digital yuan**, however it is now also examining the rising use of **yuan-backed stablecoins**.

Source: TH

AUTISM RISK DUE TO PARACETAMOL

In News

The US Health Secretary is planning to announce a possible link between **autism and prenatal exposure to Tylenol (acetaminophen/paracetamol)**, a widely used over-the-counter pain and fever medication.

Medical guidelines from leading bodies recommend paracetamol as the first-line treatment for pain and fever during pregnancy

- untreated maternal fever and pain pose serious risks to fetal development—including heart and neural tube defects, preterm birth, and miscarriage—as well as health complications for the mother.
- Experts advise pregnant women to use paracetamol judiciously, at the lowest effective dose and for the shortest duration, under medical guidance.

Autism

- It is also referred to as autism spectrum disorder constitutes a diverse group of conditions related to development of the brain.
- It is a range of conditions marked by difficulties in social interaction, communication, and atypical behaviors such as sensitivity to sensations and resistance to change.

Causes

- Scientific evidence shows that autism is likely caused by a combination of genetic and environmental factors.
- Vaccines, including the MMR vaccine, do not cause autism.
- Studies suggesting a link were flawed and biased. Research also confirms that vaccine ingredients like thiomersal and aluminium do not increase autism risk.

Effect

- Autism can affect education, employment, and family life, and early signs may appear in childhood but are often diagnosed later.
- Co-occurring conditions like epilepsy, anxiety, ADHD, and sleep issues are common.

Assessment and care

- Autistic individuals benefit from early, evidence-based interventions to improve communication, social skills, and overall quality of life.
- Care must be tailored to individual needs and include coordinated support across health, education, and social sectors.

- Despite having the same health rights, autistic people often face stigma, discrimination, and unmet healthcare needs, partly due to limited provider awareness.
 - ♦ Accessible and inclusive services are essential to ensure their well-being.

Source :IE

ADI SANSKRITI

In News

The Ministry of Tribal Affairs launched the **Beta version of Adi Sanskriti** at the National Conference on Adi Karmayogi Abhiyan in New Delhi.

Adi Sanskriti

- **It is** a digital learning platform aimed at preserving tribal art forms, promoting heritage, enabling livelihoods, and connecting tribal communities globally.
- It is envisioned as the world's first Digital University for preserving and promoting tribal culture and traditional knowledge.
- It includes **three key components**: **Adi Vishwavidyalaya** – A Digital Tribal Art Academy offering 45 courses on tribal dance, painting, crafts, music, and folklore.
 - ♦ **Adi Sampada** – A socio-cultural repository with over 5,000 curated documents on tribal art, dance, textiles, artefacts, and livelihoods.
 - ♦ **Adi Haat** – An evolving online marketplace (currently linked with TRIFED) to support tribal artisans through direct consumer access and sustainable livelihoods.

Relevance

- Adi Sanskriti is a key initiative for cultural preservation and tribal empowerment under Viksit Bharat @2047.
- Its long-term goal is to evolve into a Tribal Digital University offering certifications, research, and transformative learning.
- By combining cultural preservation, education, and economic empowerment, Adi Sanskriti aims to celebrate and uplift India's tribal communities in the digital era.

Source :PIB

ASPERGILLUS SECTION NIGRI AND BLACK ASPERGILLI SPECIES

In News

Researchers from the MACS-Agharkar Research Institute in Pune, an autonomous institute of the

Department of Science & Technology have identified two novel species of **Aspergillus section Nigri** (commonly known as black aspergillus), **Aspergillus dhakephalkarii** and **Aspergillus patriciawiltshireae**

The genus Aspergillus

- It includes diverse fungi with significant medical, industrial, and ecological roles.
 - ♦ studies on Aspergillus section Nigri are limited, requiring further exploration.
- **Black Aspergilli** are industrially important fungi, especially in citric acid production and agriculture.

Latest study

- The research team combined detailed morphological characterization with molecular phylogenetic analyses, using ITS and CaM (genes for identification), BenA and RPB2 (genes for phylogeny).
- Two new species identified, **Aspergillus dhakephalkarii** and **Aspergillus patriciawiltshireae**, show distinct growth and morphological traits, with A. dhakephalkarii producing smooth, ellipsoidal conidia and A. patriciawiltshireae having echinulate conidia and abundant sclerotia.
- Phylogenetically, A. **dhakephalkarii** is closely related to A. **saccharolyticus**, while A. **patriciawiltshireae** is related to species in the Japonici series.
- They also reported the first geographic record of **two black aspergilli** A. **aculeatinus** and A. **brunneoviolaceus**, from soil samples collected from the Western Ghats.

Source :PIB

ADFALCIVAX

Context

- **The Indian Council of Medical Research (ICMR)** has granted **non-exclusive rights** for its **multi-stage malaria vaccine, AdFalciVax**, to five pharmaceutical companies.

About

- AdFalciVax is India's **first indigenous multi-stage malaria recombinant vaccine** developed by the **Regional Medical Research Centre (RMRC)**, under the ICMR.
- The vaccine is designed to prevent **Plasmodium falciparum infection** in individuals and reduce community transmission.
 - ♦ **Plasmodium falciparum** is the **deadliest malaria parasite**, difficult to control and responsible for widespread devastation.

- **How does it work?** AdFalcivax targets the **parasite before it enters the bloodstream**, stopping the infection at the transmission stage.
 - ♦ The vaccine uses **Lactococcus lactis**, a genetically engineered food-grade bacterial host, as its core technology.

Source: BS

PALLAS'S CAT

Context

- A wildlife survey conducted in **Arunachal Pradesh** has brought out **first-ever photographic evidence of the elusive Pallas's cat in the state**.

About

- **Name:** Pallas's cat (*Otocolobus manul*).
- It is one of the **most elusive and rarely photographed wild cats**, and remains one of the least studied feline species.



- **Appearance:** Its coat is usually gray or light tan, but it can change color with the seasons to better blend into the local landscape.
- **Distribution:** Its documentation in Arunachal Pradesh extends the known distribution of the species in the eastern Himalaya, adding to earlier confirmed records from Sikkim, Bhutan, and eastern Nepal.
 - ♦ They are found in Turkmenistan, Iran, Kyrgyzstan, Kazakhstan, Bhutan, Nepal, India, Pakistan, Afghanistan, China, Mongolia, and Russia.
- **It is nocturnal, and an ambush predator**, meaning it waits at the exits of rodent burrows until its prey appears.
- **IUCN Status: Least Concern.**

Source: TOI

ASSAM GOVERNMENT APPROVES SOP TO EXPEL ILLEGAL MIGRANTS UNDER 1950 EXPULSION ACT

Context

- The Assam Cabinet approved an SOP to implement the **Immigrants (Expulsion from Assam) Act, 1950**, in a move to expedite the

process of detection and push-back of illegal migrants.

About

- Under the SOP, the **District Commissioner (DC)** will be empowered to issue an **expulsion Order to any person who, in the view of the DC, is a foreigner**.
- Through this Act, the **DC will serve a 10-day notice to the suspect**, and if he or she cannot prove his/her citizenship within this period, the DC will immediately issue an order to evacuate the person.
- In the case of illegal migrants detected within 24 hours of illegal entry into the State, **no notice will be required**.

The Immigrants (Expulsion from Assam) Act, 1950

- It was enacted by the Indian Parliament in the wake of **Partition**, when large numbers of people **crossed into Assam from East Pakistan (now Bangladesh)**.
- The Act empowers the **Central Government to order the removal of individuals** whose presence in Assam is deemed "detrimental to the interests of the general public or any Scheduled Tribe."
- Despite its existence, the Act has rarely been implemented in the past.
 - ♦ Successive governments instead relied on the **Foreigners Act, 1946, and the extensive network of Foreigners' Tribunals in Assam**.
- The new SOP marks the **first structured attempt to operationalise the 1950 law** in the state's modern context.

Section 6A of the Citizenship Act

- **Section 6A of the Citizenship Act, 1955**, confers citizenship to immigrants who entered Assam after January 1, 1966 but before March 24, 1971.
 - ♦ The provision was inserted into the Act in furtherance of a Memorandum of Settlement called the "**Assam Accord**".
- **Under Section 6A, foreigners** who had entered Assam before January 1, 1966, and been "**ordinarily resident**" in the State, would have all the rights and obligations of Indian citizens.

Source: AIR

SARISKA TIGER RESERVE

Context

- The Ministry of Environment, Forest and Climate Change (MoEFCC) has decided to invite public objections before finalising Rajasthan's proposal

to alter the boundaries of the Critical Tiger Habitat (CTH) in Sariska Tiger Reserve.

More about the news

- The plan, prepared by a state-appointed panel, sought to retreat CTH boundaries in multiple stretches, potentially placing around 50 mines outside the one-kilometre no-mining zone.

About the Sariska Tiger Reserve (Sariska National Park)

- Located in Alwar district, Rajasthan.

- One of the largest and most renowned tiger reserves in Northern India.
- **Historical timeline:**
 - ♦ **Pre-Independence:** Hunting ground of the princely state of Alwar.
 - ♦ **1955:** Notified as a Wildlife Reserve.
 - ♦ **1978:** Declared the **11th Tiger Reserve** in India.
 - ♦ **1982:** Sariska Wildlife Sanctuary redesignated as **Sariska National Park**.

Source: IE

