KERALA STATE CIVIL SERVICE ACADEMY

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DISQUALIFICATION UPON CONVICTION

Mining baron and the sitting MLA from Gangavati Gali Janardhana Reddy has been disqualified as a member of the Karnataka Legislative Assembly following his conviction in the Obulapuram Mining Company (OMC) illegal mining case.

Decoding the context: Notification issued by the Karnataka Legislative Assembly stated that Reddy's conviction triggered his immediate disqualification as an MLA under Article 191(1)(e) of the Constitution and Section 8 of the Representation of the People Act, 1951.

Learning Corner:

Constitutional Provision: Article 191(1)(e)

- A person shall be disqualified for being chosen as, and for being, a member of the State Legislature if he is disqualified by or under any law made by Parliament.
- This clause enables the Representation of the People Act, 1951 to lay down disqualifications.

Representation of the People Act (RPA), 1951 ➤ Section 8(1), 8(2), 8(3): Grounds for Disqualification

- Section 8(1): Immediate disqualification for specific offences (e.g., promoting enmity, bribery, corruption, terrorism) regardless of sentence duration.
- Section 8(2): Disqualification for offences like hoarding, food adulteration, or Dowry Prohibition Act violations, if sentenced to at least six months.
- Section 8(3): Disqualification for any other offence with a sentence of two years or more, effective from the date of conviction and continuing for six years post-release.

Lily Thomas v. Union of India (2013)

- Supreme Court struck down Section 8(4) of the RPA, 1951.
- Earlier, Section 8(4) allowed sitting MPs/MLAs 3 months to appeal without disqualification.
- After the 2013 judgment, disqualification takes effect immediately upon conviction, regardless of appeal.

Significance

- Curbing Criminalization: With 43% of MPs in the 17th Lok Sabha (2019) facing criminal cases (ADR), immediate disqualification deters tainted politicians.
- Electoral Integrity: Ensures lawmakers adhere to ethical standards, aligning with the RPA's objective to prevent those who "break the law from making the law".
- Public Trust: Strengthens democratic accountability.

MAHARANA PRATAP

The Prime Minister, Shri Narendra Modi, paid rich tributes to the valiant warrior, Maharana Pratap on the occasion of his Jayanti.

Decoding the context: Pratap Singh I, popularly known as Maharana Pratap, was king of the Kingdom of Mewar, in north-western India in the present-day state of Rajasthan.

Learning Corner:

- Maharana Pratap, born Pratap Singh I (May 9, 1540 – January 19, 1597), was the 13th ruler of the Kingdom of Mewar in present-day Rajasthan, reigning from 1572 to 1597.
- A Rajput warrior of the Sisodia dynasty, he is celebrated for his resistance against Mughal Emperor Akbar's expansionism.

Early Life and Ascension

- Born in Kumbhalgarh Fort to Maharana Udai Singh II and Jaiwanta Bai.
- In 1567, during the Mughal siege of Chittorgarh, Udai Singh II evacuated the capital, relocating to Gogunda.
- Upon Udai Singh's death in 1572, a succession dispute arose. Udai Singh favored Jagmal, his son with Rani Dheer Bai Bhatiyani, but senior nobles, prioritizing Pratap as the eldest, crowned him Maharana on March 1, 1572, in Gogunda. Jagmal, seeking revenge, joined Akbar's forces and was granted jaguar of Jahazpur.

Resistance Against the Mughals

- Context: Akbar sought to control Mewar to secure a stable route to Gujarat's ports. While most Rajput rulers submitted, Pratap refused vassalage.

- Battle of Haldighati (June 18, 1576):
    - Fought between Maharana Pratap and Mughal forces led by Man Singh I of Amber.
    - Location: Haldighati pass in the Aravalli Hills, Rajasthan.
    - Outcome: Inconclusive military victory for the Mughals, but symbolic victory for Maharana Pratap, who escaped and continued guerrilla resistance.

Post-Haldighati Resistance

- Guerrilla Warfare: Post-Haldighati, Pratap retreated to the Aravalli hills, supported by Bhil tribals. He perfected guerrilla tactics, harassing Mughal outposts.
- He established a new capital at Chavand, where he reorganized his administration and continued his resistance.
- Battle of Dewair (1582): Pratap's decisive victory over the Mughals, reclaiming much of Mewar and reinforcing his resistance.

OPERATION SINDOOR

With the rising tensions between India and Pakistan following the Pahalgam terror attack, 'Operation Sindoor' is viewed as a major strike at deterring the terrorist infrastructure operating in Pakistan.

Decoding the context: India has executed multiple military operations in the past to achieve various objectives.

Learning Corner:

Operation Sindoor:

- India launched 'Operation Sindoor' on May 7th, hitting nine terror locations in Pakistan and Pakistan-occupied Kashmir (PoK).
- This marked the most expansive and widespread retaliation by India in recent years, since the Balakot airstrikes in 2019 and the surgical strikes following the Uri attack in 2016.

Operation Bandar:

- Codename for the Balakot airstrike conducted on February 26, 2019, in response to the Pulwama terror attack.
- Indian Air Force targeted a Jaish-e-Mohammed training camp in Balakot, Pakistan, marking the first airstrike across the IB border since 1971.

Operation Vijay:

- Launched in May 1999 to evict Pakistani intruders from the Kargil sector in Jammu and Kashmir.
- The operation culminated in India's victory, with the complete withdrawal of Pakistani forces by July 26, 1999.

Operation Safed Sagar:

- It was the codename for the Indian Air Force's role in the 1999 Kargil War. It involved a series of airstrikes to flush out Pakistani troops from Indian positions in the Kargil sector along the Line of Control.
- This was the first large-scale use of air power in the region since the 1971 Indo-Pakistani War.

Operation Cactus:

- India's intervention in the 1988 coup attempt in the Maldives was coded as Operation Cactus. With India's military intervention, the Maldives was able to thwart the military coup.

Operation Pawan and Operation Poomalai:

- Operation Pawan was the codename given to the mission of the Indian Peace Keeping Force (IPKF) in Sri Lanka from 1987 to 1990.

- As part of the Indo-Sri Lankan Accord, the operation was launched to disarm the Liberation Tigers of Tamil Eelam (LTTE) and ensure peace and stability in Sri Lanka.

- India's "parippu drop" or Operation Poomalai was launched by the Indian Air Force mission in 1987 to airdrop supplies to civilians trapped in Jaffna when Sri Lankan forces had laid siege to the peninsula.

Operation Jackpot and Operation Cactus Lily:

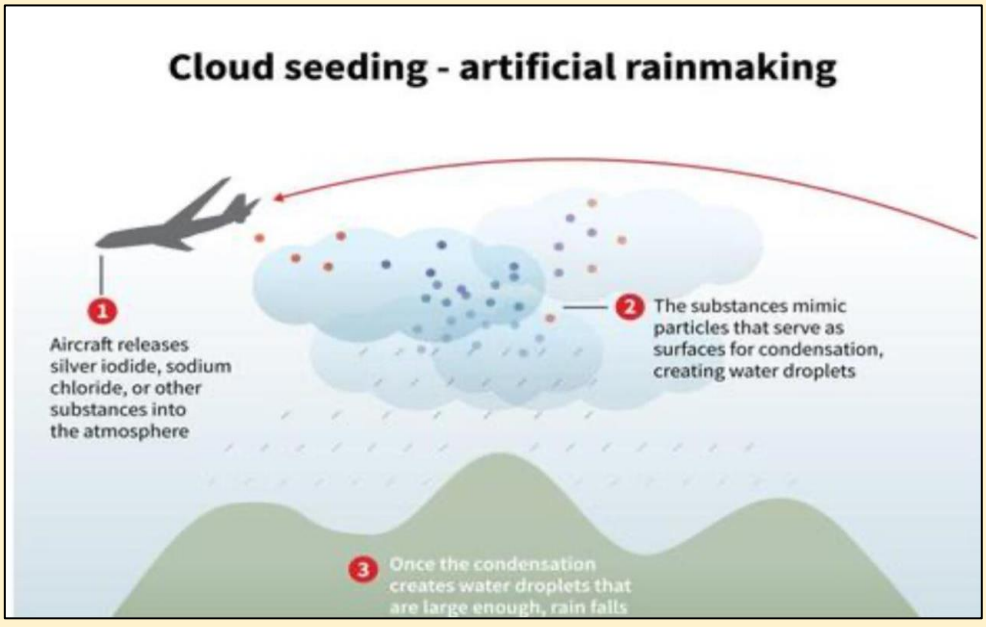
- Codenamed Operation Jackpot was launched during the Bangladesh Liberation War of 1971. It called for operational and logistics support, training, equipping, and tasking of Bengali deserters from the Pakistan Army, East Pakistan Rifles, Police, and civilian volunteers to take on the Pakistani forces within East Pakistan to ultimately liberate the land.

- Operation Cactus Lily, also known as the Meghna Heli Bridge or the Crossing of the Meghna, was an air assault operation conducted by the Indian Army and Indian Air Force to cross the Meghna River and reach Dhaka in December 1971 during the Bangladesh Liberation War.

CLOUD SEEDING

The Delhi government has approved five Cloud-Seeding Trials at an outlay of three crore 21 lakh rupees to Combat Air Pollution.

Decoding the context: The Delhi government said that after the trials, scientific evaluations will assess the effectiveness and environmental impact of cloud seeding in reducing air pollution.



Learning Corner:

- Cloud Seeding is a weather modification technique that enhances precipitation (rain/snow) from clouds by introducing certain substances (cloud condensation nuclei) to stimulate cloud droplet formation.
- It involves introducing agents like silver iodide, potassium iodide, or dry ice into moisture-rich clouds to act as nuclei for water droplet or ice crystal formation, thereby inducing artificial rain.

Mechanism

- Suitable clouds (with sufficient moisture and vertical growth) are identified using meteorological data.
- Agents like silver iodide are dispersed via aircraft or ground-based generators. These agents mimic ice nuclei, encouraging water droplets to coalesce or freeze, eventually falling as rain or snow when heavy enough.
- In Delhi's case, the trials aim to wash away pollutants like PM2.5 and PM10, which contribute to the city's hazardous Air Quality Index (AQI).

Types of Cloud Seeding:

- Static Cloud Seeding
  - Objective: Enhance rainfall or snowfall by increasing cloud droplet formation.
  - Mechanism: Injects ice-nucleating agents (like silver iodide) into cold clouds.
  - Effect: Promotes formation of ice crystals or raindrops around these particles.
  - Use Case: Light rain enhancement during pre-existing cloud cover.

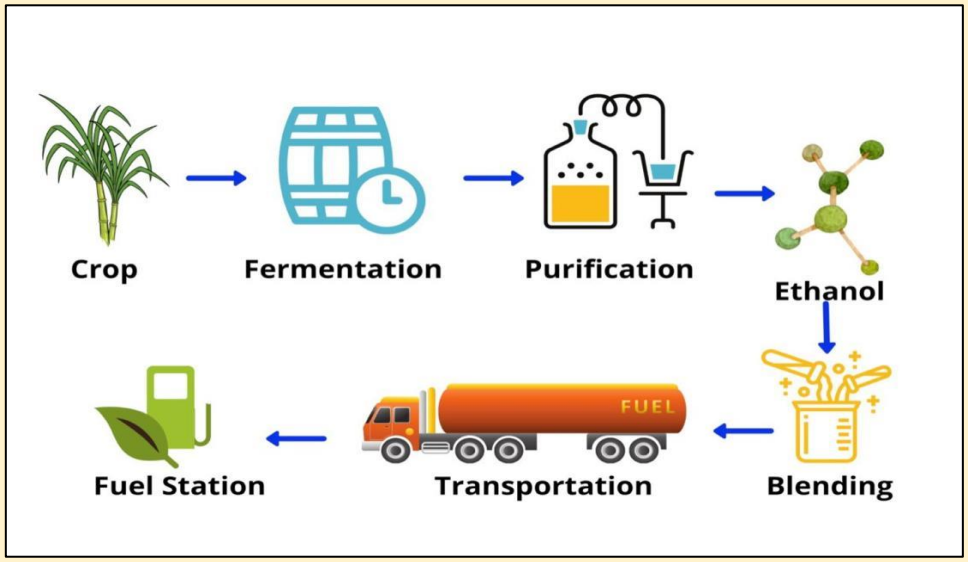
- Dynamic Cloud Seeding
  - Objective: Stimulate vertical air movement to increase cloud mass and rainfall intensity.
  - Mechanism: A multi-stage process involving large amounts of seeding material to alter cloud dynamics (lift, condensation, coalescence).
  - Use Case: Drought mitigation or in areas needing intense rainfall.

- Glaciogenic Cloud Seeding
  - Objective: Increase snowfall from supercooled clouds.
  - Mechanism: Encourages ice formation in clouds below freezing using materials like silver iodide or dry ice.
  - Use Case: Used in mountain regions (e.g., Himalayas, Rockies) to boost snowpack for water storage.

- Hygroscopic Cloud Seeding
  - Objective: Enhance precipitation from warm clouds.
  - Mechanism: Uses salt particles (e.g., NaCl) as nuclei to attract water vapor, forming larger raindrops.
  - Use Case: Tropical regions, including parts of India and UAE.

ETHANOL BLENDING PROGRAMME

The Union government has approved an additional 2.8 million tonnes of Food Corporation of India (FCI) rice for ethanol production in 2024-25, raising the total allocation to 5.2 million tonnes despite ongoing concerns over the diversion of food grains for fuel instead of food security.



Decoding the context: Of the total amount of rice sanctioned under the Union government's Ethanol Blended Petrol (EBP) programme, distilleries had already lifted approximately one million tonnes.

Learning Corner:

- Ethanol (C_2H_5OH), also called ethyl alcohol, is a clear, colorless alcohol.
- Ethanol is one of the primary biofuels, naturally produced through the fermentation of sugars by yeasts or through petrochemical processes like ethylene hydration.
- It is widely used not only as an alternative fuel source but also in various industries as a chemical solvent and in the synthesis of organic compounds.
- Ethanol also has medical applications as an antiseptic and disinfectant, adding to its versatile uses.
- In India, it is primarily derived from first-generation (1G) sources—sugarcane molasses, surplus rice, and maize—though second-generation (2G) technologies using non-food biomass (e.g., rice straw, bagasse) are promoted for sustainability.

3rd and 4th Generation Ethanol sources

- Third-Generation Ethanol source: Uses algae and aquatic biomass (like cyanobacteria and microalgae) as the raw material.

- Fourth-Generation Ethanol source: Builds upon third-generation sources but includes genetically modified (GM) organisms, synthetic biology, or photobiological systems.

Ethanol Blended Petrol (EBP) Programme

- Launched in 2003, the EBP Programme mandates blending ethanol with petrol to reduce fossil fuel dependency, cut emissions, and save foreign exchange.
- It was expanded nationwide in 2019 (except Andaman & Nicobar and Lakshadweep).
- Aims for 20% blending (E20) by 2025-26 (advanced from 2030) and 30% by 2030.

TERRITORIAL ARMY

In the midst of tensions with Pakistan, the Government has empowered the Chief of Army Staff to call on officers and personnel of the Territorial Army to provide for "essential guard or to be embodied for the purpose of supporting or supplementing" the regular army.

Decoding the context: The genesis of the Territorial Army in India can be traced back to the first war of Independence in 1857, when a Volunteer Force was raised.

In 1920, the Indian Territorial Force was established, which is the direct precursor to today's Territorial Army. After independence in 1947, the ITF was disbanded.

The Territorial Army was re-raised on October 9, 1949, under the Territorial Army Act, 1948.

Learning Corner:

- The Territorial Army (TA) is India's second line of defense after the regular army.
- Often called the "Citizen's Army," it comprises volunteers who serve part-time while continuing civilian careers, providing a reserve force to support the Indian Army during national emergencies, wars, and internal security crises.
- The TA's motto, Savdhani Va Shoorta (Vigilance and Valour), reflects its dual role in defense and nation-building.
- The TA units were actively involved in 1962, 1965 and 1971 operations. They have also taken part in OP PAWAN in Sri Lanka, OP RAKSHAK in Punjab and J&K, OP RHINO and OP BAJRANG in the North East in a most active manner.

- Legal and Organizational Structure:
  - Governed by the Territorial Army Act, 1948.
  - Comes under the Ministry of Defence, Government of India.
  - Headed by the Director General Territorial Army (DGTA).

- Eligibility and Recruitment (for Officers):
  - Nationality: Must be a citizen of India.
  - Age Limit: 18 to 42 years on the date of application.
  - Educational Qualification: Graduate from a recognized university.
  - Employment: Must be gainfully employed in a civil/government profession or self-employed. Serving members of the regular armed forces, police, and paramilitary forces are not eligible.
  - Physical Standards: A candidate must be physically and medically fit in all respects.

- Composition:
  - Presently, the Territorial Army has a strength of approximately fifty thousand personnel comprising 65 Departmental TA units such as Railway, IOC, ONGC, and Non Departmental TA units of Infantry Battalion (TA) including Home & Hearth Battalions, Ecological Battalion (TA) affiliated to various Infantry Regiments, and Engineer Regiment (TA) for maintenance of Line of Control Fencing.
  - Besides these, a Composite Eco Task Force for the National Mission for Clean Ganga is being raised at Allahabad.

Significance :

- Force Multiplier: The TA acts as a cost-effective force multiplier, providing a pool of trained manpower that can be mobilized quickly without the financial burden of a large standing army.
- Strategic Depth: It provides strategic depth to the regular army.
- Flexibility and Adaptability: TA personnel bring diverse skills and experiences from their civilian professions, which can be valuable.
- National Integration: It fosters a sense of patriotism and national service among citizens from all walks of life.

- Supporting Essential Services: Their role in providing essential guard duties can free up regular army personnel for other critical tasks.
- Disaster Relief: Historically, TA units have played a crucial role in assisting civil authorities during natural disasters.

DONGRIA KONDH

The National Human Rights Commission (NHRC) has sought for an Action Taken Report from Odisha Chief Secretary on the precarious living condition, lack of basic amenities and necessities of life of more than 10,000 families from "Dongria Kondh" Community.

Decoding the context: While 62 tribal groups reside in Odisha, 13 of them are recognised as PVTGs. 2011 Census, Odisha's share of the country's total tribal population was 9 per cent as per the 2011 census. Tribal settlers comprised 22.85 per cent of the State's population.

Learning Corner:

- Dongria Kondh is an indigenous tribal group living in the Niyamgiri Hills of Rayagada and Kalahandi districts in Odisha.

- They are a subgroup of the Kondh tribe, and are listed as a Particularly Vulnerable Tribal Group (PVTG) by the Ministry of Tribal Affairs, Government of India.

- Population: Approximately 8,000–10,000 people.

Key Features:

- Livelihood: Subsistence farming (horticulture, shifting cultivation), collection of forest produce (like turmeric, honey, wild roots).
- Religion & Culture:
    - Worship the Niyam Raja, their ancestral deity believed to reside in the Niyamgiri hills.
    - Follow traditional animistic beliefs with minimal external religious influence.

- Language: Kui (a Dravidian language, though the Dongrias themselves do not have a written script).
- Society: Clan-based, matrilineal elements, rich in traditional ecological knowledge.

Legal and Environmental Significance:

- Gained national attention for opposing bauxite mining in the Niyamgiri hills by Vedanta Resources in early 2000s.

- In 2013, the Supreme Court of India upheld the rights of Dongria Kondh under the Forest Rights Act (2006), allowing them to decide on mining through Gram Sabha consultations.

Particularly Vulnerable Tribal Groups (PVTGs)

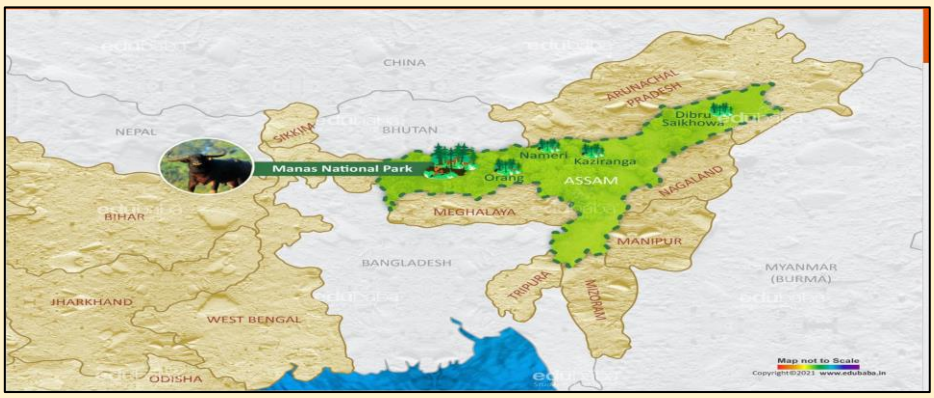
- Initially categorized as Primitive Tribal Groups (PTGs) in 1975 by the Government of India, renamed as PVTGs in 2006.

- The criteria for identifying Particularly Vulnerable Tribal Groups are: –
    - Pre-agricultural level of technology,
    - Low level of literacy,
    - Economic backwardness,
    - A declining or stagnant population.
- Key Facts:
    - Number of PVTGs in India: 75 tribes across 18 States and UT of Andaman & Nicobar Islands.
    - Highest number of PVTGs: Odisha (13 groups, including Dongria Kondh, Bonda, Juang, etc.)

MANAS NATIONAL PARK

Three wild elephants were found dead in the Manas National Park in Assam near the India-Bhutan border.

Decoding the context: It is suspected that poachers have killed the elephants.



Learning Corner:

- Manas National Park, located in Assam, India, spans the districts of Baksa, Chirang, and Bongaigaon, along the foothills of the Eastern Himalayas.
- Named after the Manas River—a major tributary of the Brahmaputra—it was declared a national park in 1990 and is a UNESCO World Heritage Site (designated in 1985), a Project Tiger Reserve and an Elephant Reserve.
- Area: Approx. 950 sq. km (core area); it forms part of a larger biosphere reserve.
- Linked to the Royal Manas National Park of Bhutan, forming a transboundary conservation area.

Geographical and Ecological Significance

- Location and Terrain: Situated at the confluence of the Indian, Indo-Malayan, and Indo-Chinese biogeographical realms, Manas features a diverse landscape of grasslands, tropical semi-evergreen forests, and alluvial floodplains.
- It lies at an elevation of 61-110 meters above sea level, with the Manas River flowing through it, shaping its flood-dependent ecology.
- Biodiversity:
    - Flora: Over 840 plant species, including rare orchids and tropical Sal forests. Grasslands dominate 45% of the park, supporting herbivore populations.
    - Fauna: Hosts 55 mammal species, 450 bird species, 50 reptile species, and 3 amphibian species. Key species include:
        - Endangered Mammals: Bengal tiger, Indian elephant, greater one-horned rhinoceros, pygmy hog, and hispid hare.
        - Birds: Bengal florican, great hornbill, and migratory species like the red-headed vulture.
- Cultural Significance: The park is sacred to the Bodo community, who revere the Manas River. The annual Manas Festival, held in April (last held April 5-7, 2025), promotes eco-tourism and Bodo culture.

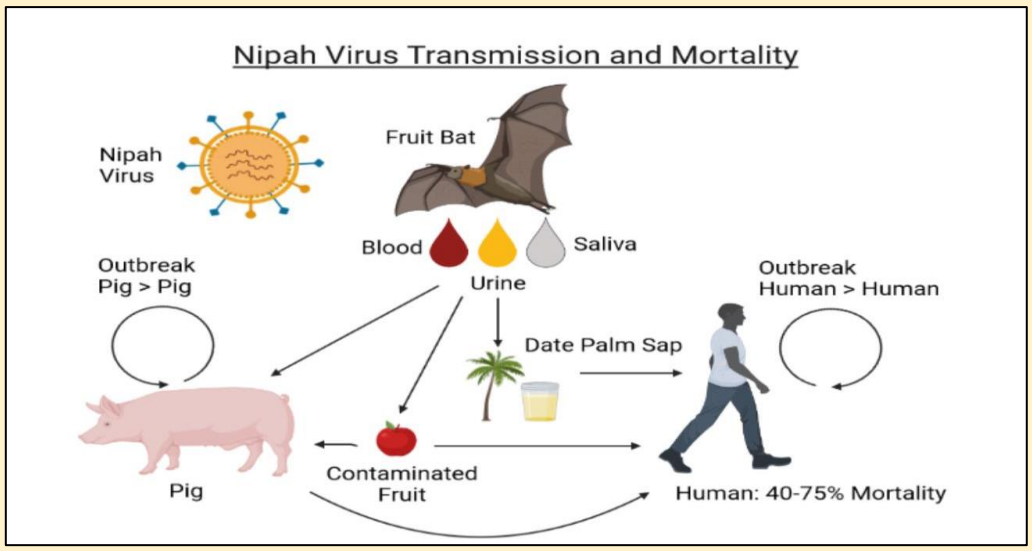
Conservation Challenges

- Poaching and Insurgency: During the Bodo insurgency (1980s-2000s), Manas faced severe poaching, particularly of rhinos. Militants used the park as a hideout, disrupting conservation efforts.
- UNESCO listed Manas as a World Heritage Site in Danger from 1992 to 2011 due to habitat destruction and wildlife loss.
- UNESCO Status Restored: Removed from the "in danger" list in 2011 after improved conservation measures.

NIPAH VIRUS

A new case of Nipah virus was confirmed in Kerala in a 42-year-old woman from Malappuram district.

Decoding the context: The Nipah outbreak now reported is the seventh instance in Kerala. The first outbreak was reported in 2018, followed by outbreaks in 2019, 2021, 2023 and 2024. Last year, Kerala reported two Nipah outbreaks. Both outbreaks in 2024 were in Malappuram district.



Learning Corner:

- Nipah Virus is a zoonotic virus (transmitted from animals to humans) belonging to the Paramyxoviridae family, genus Henipavirus.
- It was first identified in 1998–99 in Malaysia among pig farmers.
- In India, major outbreaks occurred in West Bengal (2001, 2007) and Kerala (2018, 2019, 2021, 2023, 2024).

Transmission

- Reservoir Host: Fruit bats of the Pteropus genus (commonly known as flying foxes) are the primary reservoir.
- Transmission can occur:
  - Animal to human: Transmission occurs via consumption of contaminated fruits or direct contact with bat secretions.
  - Human to human: Close contact with infected persons, especially caregivers.
  - Fomites: Contaminated objects and surfaces.

Symptoms

- Incubation period: 4 to 14 days (can extend up to 45 days).
- Symptoms range from asymptomatic to acute respiratory illness and fatal encephalitis.
- Early symptoms: Fever, headache, drowsiness, disorientation.
- Severe cases may result in coma within 24–48 hours.

Fatality & Concerns

- High case fatality rate: Ranges between 40% to 75%.
- No specific treatment or vaccine available.
- Managed through supportive care.
- Classified by WHO as a priority disease for research due to epidemic potential.

GEOTUBE

A study conducted about the offshore breakwater system using geotube technology along the Poonthura coastal stretch (Kerala) has found that they yielded remarkable transformations in the coastal landscape.

Decoding the context: The study, conducted on a 750-meter pilot project initiated in 2019, found that geotubing prevented wave overtopping beyond the seawall—extending protection twice the breakwater's length on the shore side—and fostered sustainable beach formation even during inclement weather.

Learning Corner:

- Geotubes (also called geotextile tubes) are large, permeable fabric tubes made of high-strength geotextile material.
- They are filled with sand, slurry, or dredged material, and are used primarily for shoreline protection, erosion control, and coastal defense.
- The material allows water to escape while retaining the solids, leading to the formation of a stable, solid structure.

Applications of Geotube Technology

- Coastal Protection:
  - Acts as offshore breakwaters or sea walls to reduce wave energy and prevent erosion.
  - Commonly used in eroding coastal regions like Kerala, Odisha, West Bengal, and Tamil Nadu.

- Riverbank and Flood Protection: Prevents riverbank erosion and serves as levees or dikes in flood-prone areas.
- Dewatering: Used in industries and sewage treatment plants to dewater sludge.
- Reclamation Projects: Helps in land reclamation by containing dredged material.

Case Study: Poonthura, Kerala

- Context: Poonthura coastal stretch in Kerala was facing severe erosion and damage during monsoons and high tides.
- Intervention: Offshore breakwater system using geotube technology was implemented.
- Outcome:
  - Successful reduction in coastal erosion.
  - Natural deposition of sand led to beach widening.
  - Stabilized the coastline, thus protecting life and property.

Advantages of Geotube Technology

- Cost-effective compared to conventional concrete or rock structures.
- Quick to deploy and requires less maintenance.
- Environmentally friendly — promotes beach nourishment and sediment accumulation.
- Can be easily removed or relocated, offering flexibility.

METHANE EMISSIONS

The energy sector contributed around 145 million tonnes (Mt) of methane emissions in 2024, with oil and gas facilities accounting for over 80 million tonnes, according to the International Energy Agency's (IEA) Global Methane Tracker 2025.

Decoding the context: Methane is a greenhouse gas responsible for around 30 per cent of the rise in global temperatures since the Industrial Revolution.

Its levels in atmosphere are growing faster than other greenhouse gases, with its concentration being two-and-a-half times higher than the preindustrial era.

Learning Corner:

- What is Methane (CH_4)?
  - A potent greenhouse gas (GHG).
  - Colorless, odorless, and highly flammable.
  - Has a Global Warming Potential (GWP) 84–87 times greater than CO_2 over a 20-year period, and about 28–36 times over a 100-year period.

Sources of Methane Emissions

- Energy Sector (35% of Human-Related Emissions):
  - Oil and Gas: Over 80 Mt in 2024, driven by leaks, venting, and flaring.
  - Coal: Around 40 Mt, primarily from underground mines in China, the top emitter in this category.
  - Abandoned Facilities: Abandoned coal mines and oil/gas wells emitted 8 Mt in 2024, making them the fourth-largest fossil fuel methane source globally.
- Bioenergy: 10 Mt, largely from incomplete combustion of traditional biomass (e.g., wood for cooking).
- Agriculture (40%): Enteric fermentation in livestock (e.g., cattle) and rice paddies (anaerobic decomposition) are major sources.
- Waste (20%): Landfills and wastewater treatment release methane via organic decomposition under anaerobic conditions.
- Natural Sources: Wetlands contribute significantly, but human activity amplifies emissions.

Environmental Impacts

- Climate Change: Methane's high global warming potential accelerates near-term warming. Reducing emissions could avert 0.2°C of warming by 2050 (IPCC, 2024).
- Air Quality: Methane contributes to tropospheric ozone, a harmful pollutant causing 255,000 premature deaths annually (Global Methane Pledge, 2024).

India's Methane Emissions Profile

- Contribution: India is the third-largest methane emitter globally (after China and the U.S.), with 30 Mt annually, of which 18 Mt comes from agriculture (enteric fermentation, paddy cultivation).
- Policy Stance: India has not signed the Global Methane Pledge (GMP), launched at COP26 (2021), which aims for a 30% reduction in methane emissions by 2030.
- India argues that CO2, with its longer lifespan (100-1000 years), should remain the focus, and methane cuts disproportionately burden developing nations reliant on agriculture.

Global Efforts and Initiatives

- Global Methane Pledge (GMP): 159 countries aim to cut methane emissions by 30% from 2020 levels by 2030. Benefits include preventing 255,000 premature deaths and 26 million tonnes of crop losses annually.
- UNEP's IMEO: The International Methane Emissions Observatory (IMEO) provides data transparency via satellite monitoring.

AXIOM-4 MISSION:

- Axiom Mission 4 (Ax-4) is a private spaceflight organized by Axiom Space.
- It aims to transport a crew to the International Space Station (ISS) for a 14-day mission.
- This will be Axiom Space's 4th mission to the ISS, following their previous missions (Ax-1, Ax-2, and Ax-3).
- The mission will launch from the Kennedy Space Center in Florida using SpaceX's Falcon 9 rocket.
- The spacecraft for this mission is a SpaceX Crew Dragon, known for its advanced technology and safety features.
- This mission is organised in collaboration with NASA, highlighting a strong partnership between private space companies and government space agencies to further space exploration and research.

Crew:

1. Peggy Whitson: A veteran astronaut with extensive experience, having completed multiple missions to the ISS.
2. Sławosz Uznanski: A Polish astronaut joining the mission, marking a significant milestone for Poland in space exploration.
3. Tibor Kapu: A Hungarian astronaut, adding to the diversity of the mission crew.
4. Group Captain Shubhanshu Shukla: An Indian astronaut, making headlines as part of this international crew.

Significance of Ax-4 Mission for India

- The mission is a collaborative effort resulting from an agreement between ISRO and NASA.
- It provides ISRO with an early opportunity to test experiments in space, originally planned for Gaganyaan.

Key Indian Experiments on Axiom-4:

- Microgravity's impact on muscle dysfunction.
- Use of computer screens in zero gravity and their effects on human cognition and vision.
- Growth of six varieties of crop seeds in space conditions.
- Tardigrade survival study—these microscopic creatures can endure extreme environments and may provide insight into life support systems in space.

International Space Station (ISS)

- The ISS, orbiting 430 kilometres above Earth, completes 16 orbits daily, witnessing 16 sunrises and sunsets.
- It orbits Earth every 90 minutes at 8 km per second.
- Spanning 109 meters, it's almost as long as an American football field.
- It includes 6 sleeping areas, 2 bathrooms, a gym, and a panoramic view bay window.
- Its solar array wingspan is 109 meters, and the station houses about 13 km of electrical wiring.
- Its journey began on November 20, 1998, with Russia's Zarya Control Module.
- The US added the Unity Node 1 module on December 4, 1998, marking the start of a functional space lab.
- It evolved into its current form after 42 assembly flights.

UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS (SDG)

India has entered the top 100 in the United Nations Sustainable Development Goals (SDG) rankings for the first time, securing the 99th position out of 193 countries in the 2025.

Key Highlights:

- Current Rank (2025): 99th
- Previous Ranks: 109th (2024), 112th (2023), 121st (2022)
- SDG Index Score: 67
- Regional Comparison: Ahead of Bangladesh (114th), Pakistan (140th); behind Maldives (53rd), Bhutan (74th), Nepal (85th), Sri Lanka (93rd)

Reasons for Improvement:

- Progress in poverty reduction, clean energy access, healthcare, housing, and infrastructure.
- Effective implementation of government welfare schemes.
- Strong regional momentum in South and East Asia.

Global Context:

- Only 17% of SDG targets are on track globally, with progress hindered by conflict, economic instability, and climate crises.
- India's progress is crucial due to its large population and developmental influence.

Learning Corner:

Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs) are a universal call to action adopted by all United Nations Member States in 2015 as part of the 2030 Agenda for Sustainable Development. There are 17 goals and 169 targets aimed at ending poverty, protecting the planet, and ensuring peace and prosperity for all by 2030.

Key Features:

- Adopted at the UN Sustainable Development Summit (2015) in New York.
- Succeed the Millennium Development Goals (MDGs) (2000–2015).
- Apply equally to developed and developing countries—"No one left behind."
- Cover social, economic, and environmental dimensions of development.

SDGs in India:

- NITI Aayog monitors progress through the SDG India Index.
- Focus areas include poverty eradication, women empowerment, renewable energy, sanitation, and digital access.
- In 2025, India ranked 99th globally in SDG progress, entering the top 100 for the first time.

BIODIVERSITY BEYOND NATIONAL JURISDICTION (BBNJ) AGREEMENT

The United Nations Oceans Conference (UNOC) recently concluded in France. This event marked milestone in global marine conservation. The conference focused on the Biodiversity Beyond National Jurisdiction (BBNJ) agreement, commonly referred to as the High Seas Treaty. This treaty aims to protect oceans and establish marine-protected areas in international waters.

UN Oceans Conference

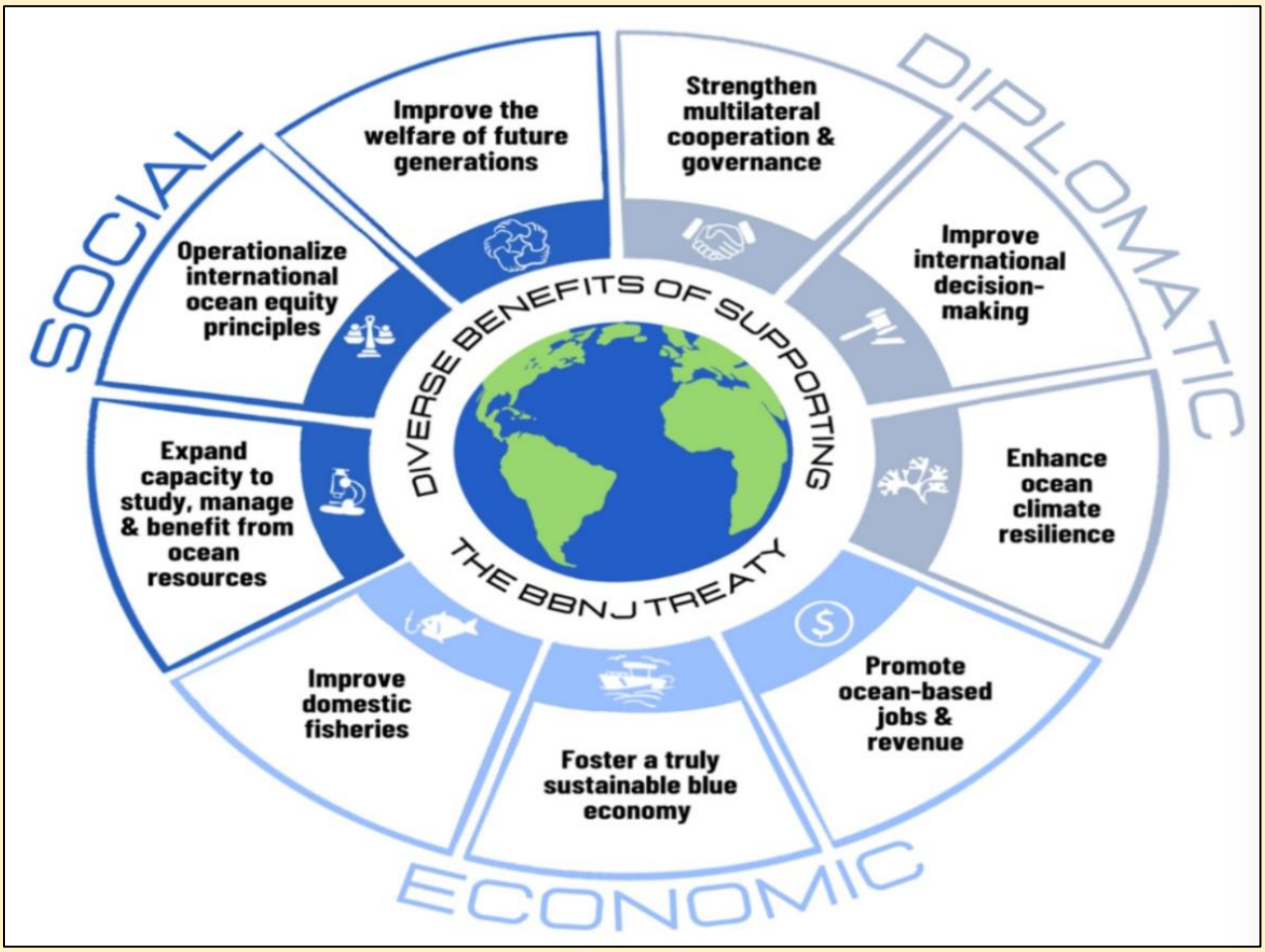
The UNOC is a platform for countries to discuss and accelerate action on ocean conservation. The third edition of the conference sought to address the urgent need for marine protection.

It aimed to prevent over-fishing and regulate deep-sea mining in areas not owned by any nation. The conference's goals align with the broader Convention on Biological Diversity, which commits nations to protect 30% of marine and coastal areas by 2030.

Significance of the BBNJ Agreement

The BBNJ agreement is crucial for conserving marine biodiversity. It requires 60 ratifications to become legally binding. As of the conference's conclusion, 56 countries had ratified the treaty.

This agreement focuses on creating marine protected areas beyond national jurisdiction, conducting environmental impact assessments, and regulating marine genetic resources. It also emphasises capacity-building for developing nations to enhance their ocean governance.



Challenges to Ratification

Despite the positive developments, several challenges remain. The most contentious issue is the sharing of benefits derived from marine resources.
The high seas host unique life-forms, and there is no consensus on how to distribute profits from their extraction. Environmental groups have raised concerns that without strict regulations, the oceans may face irreversible damage.

Future Expectations

The UN expects to reach 70 ratifications for the BBNJ agreement by September. This would pave the way for the inaugural BBNJ Conference of Parties in late 2026. The ongoing commitment of nations to marine conservation will be critical for the future health of the oceans.

STRAIT OF HORMUZ

The Strait of Hormuz is important maritime route. It connects the Persian Gulf with the Gulf of Oman. Recent tensions between Iran and the United States have raised concerns about the possibility of Iran blocking this vital waterway. This action could have implications for global oil and gas markets, particularly affecting countries dependent on energy supplies from the region.

Geographical Importance of the Strait of Hormuz

The Strait of Hormuz is only 33 kilometres wide at its narrowest point. It serves as a vital shipping lane for oil and liquefied natural gas (LNG). Approximately 20 million barrels of oil flow through the strait each day. This represents over one-quarter of the world's seaborne oil trade. The strait is bordered by Iran and Oman, making its control strategically .

Economic Impact of Disruption

Blocking the Strait of Hormuz would have immediate consequences. Global oil prices would likely surge. This is due to the high dependency of several countries on oil transported through the strait.

The United States Energy Information Administration (EIA) reports that around 83% of LNG trade also transits this route. Disruptions would lead to increased shipping costs and could destabilise global markets.

Iran's Strategic Calculations

Historically, Iran has refrained from fully blocking the strait. During the Iran-Iraq War, both nations attacked vessels but did not halt traffic.

Iran relies on the strait for its own oil exports, especially to China, which purchases Iranian oil at discounted prices. Disrupting the strait would also jeopardise Iran's economic interests, as it would alienate potential allies in the region.

Military Presence and Global Response

The United States maintains a military presence in the region, including the 5th Fleet stationed in Bahrain. This allows for a rapid response to any threats posed by Iran. However, any military engagement would create chaos in global shipping. Iran's potential actions could provoke military response from the US, escalating tensions further.

Implications for India

India imports a substantial portion of its crude oil from the Strait of Hormuz. In 2024, about 84% of India's crude oil imports came through this route.

A blockage would affect India's energy security and lead to price fluctuations. Although India sources oil from various regions, the impact of price volatility would be felt across its economy.

Alternatives to the Strait of Hormuz

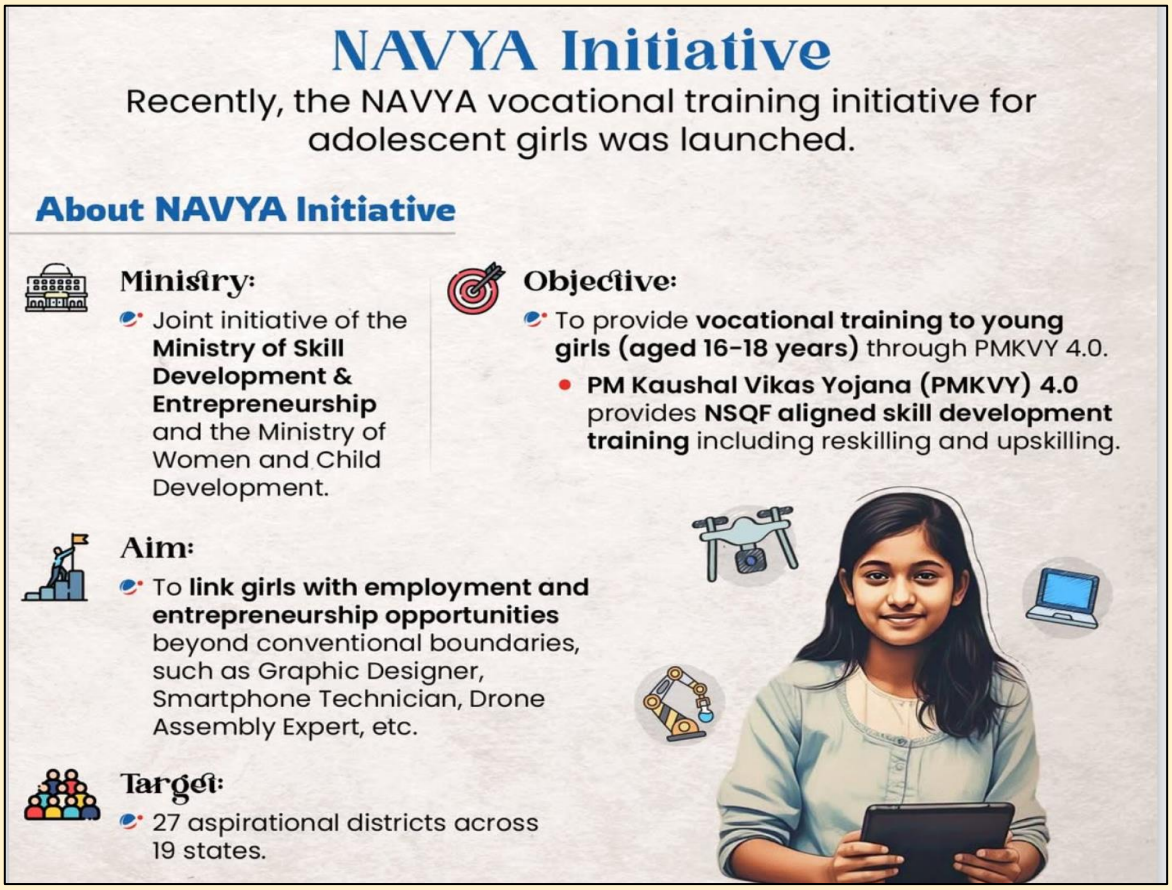
While there are alternative routes for oil transport, they are not as efficient. Saudi Arabia operates a pipeline to the Red Sea, and the UAE has a pipeline to the Gulf of Oman.

However, these alternatives cannot fully replace the volume of oil transported through the Strait of Hormuz. Any disruption would still have far-reaching effects on global oil supply chains.

NAVYA SCHEME

The NAVYA initiative is step towards empowering adolescent girls in India. Launched on 24th June 2025, this programme is a collaboration between the Ministry of Women and Child Development and the Ministry of Skill Development and Entrepreneurship.

It aims to provide vocational training to girls aged 16 to 18 years, particularly in non-traditional job roles. The launch took place in Sonbhadra, Uttar Pradesh, denoting the government's commitment to inclusive development.



Objective of NAVYA

NAVYA stands for Nurturing Aspirations through Vocational Training for Young Adolescent Girls. The programme is designed to equip girls with skills that enhance their employability.

It targets those with a minimum qualification of Class 10. The initiative seeks to empower young women and encourage their independence.

Geographical Scope

The pilot initiative will be implemented in 27 districts across India. This includes aspirational districts and regions in the North-eastern states. The selection reflects a targeted approach to reach underserved populations. The government aims to ensure that girls in remote areas also benefit from this programme.

Collaboration and Institutionalisation

The NAVYA initiative formalises the collaboration between two ministries. This partnership aims to streamline skilling efforts for adolescent girls. By institutionalising this convergence, the government hopes to enhance the effectiveness of vocational training programmes.

Link to Existing Schemes

NAVYA draws from existing skill development schemes like the Pradhan Mantri Kaushal Vikas Yojana (PMKVY). This connection ensures that the initiative builds on proven frameworks. It also helps to maximise resources and reach a wider audience.

Empowerment through Skills

The initiative focuses on empowering girls with skills and confidence. By providing training in non-traditional job roles, NAVYA challenges gender stereotypes. It encourages young women to pursue careers in fields typically dominated by men.

Launch Event Highlights

The launch event featured interactions with adolescent girl trainees. Participants received certificates from PMKVY and PM Vishwakarma. These recognitions serve as motivation for the girls and validate their achievements.

Long-term Vision

NAVYA aligns with the Prime Minister's vision of Viksit Bharat@2047. The initiative aims to create a self-reliant and inclusive future for young women in India. Through skill development, the government aspires to transform them into catalysts for change.

SARISKA TIGER RESERVE

The Sariska Tiger Reserve in Rajasthan is undergoing changes in its Critical Tiger Habitat (CTH) boundaries. This move aims to benefit over 50 marble and dolomite mines that were previously shut down due to their proximity to the reserve.

The Rajasthan government has proposed a new boundary plan that would exclude certain areas from the CTH, allowing these mines to operate again. The plan is currently under review and aims to address both conservation and local economic concerns.

About Critical Tiger Habitat

Critical Tiger Habitat refers to areas essential for the survival and conservation of tiger populations. These habitats are designated to protect tigers from human activities.

Mining and other industrial activities are typically restricted within a one-kilometre radius of such habitats. The Sariska Tiger Reserve was established to ensure the protection of its tiger population and associated ecosystems.

Proposed Changes to the CTH

The Rajasthan government plans to rationalise the CTH boundaries by excluding approximately 48.39 square kilometres of land identified as degraded and affected by human activities.

This land primarily consists of hilly parcels that do not contribute to tiger movement. In compensation, 90.91 square kilometres of quality habitat from the Sariska buffer zone will be added to the CTH.

Implications for Mining Activities

The proposed boundary changes would allow over 50 marble and dolomite mines to resume operations. These mines are crucial for the local economy, with estimates of annual revenue reaching Rs 700-800 crore. The mining sector in the vicinity has faced challenges due to previous court orders, which mandated the closure of operations near the reserve.

Environmental Concerns

While the proposal aims to boost local economies, it raises environmental concerns. Experts warn that excluding certain areas could disrupt the internal connectivity of the tiger reserve. This could hinder tiger movement between different segments of the reserve, affecting their breeding and survival.

Allegations of Corruption

There have been allegations of corruption linked to the boundary rationalisation process. Some mine owners claim they have been pressured to pay bribes for their operations to be reinstated.

The local authorities have denied these claims, asserting that the boundary changes are based on expert recommendations focused on tiger conservation.

Supreme Court Involvement

The Supreme Court has been actively involved in overseeing the boundary rationalisation process. A Central Empowered Committee (CEC) was formed to address various issues, including boundary demarcation and illegal mining activities. The court has mandated the completion of the rationalisation process within a specified timeframe.

Location and Geography:

a. **Sariska Tiger Reserve** is located in **Alwar district, Rajasthan**, stretching across**881 square kilometres** of diverselandscapes.
b. The terrain includes **scrub-thorn arid forests**, **dry deciduous forests**, **grasslands**, and **rocky hills**.
c. It forms a crucial part of the **Northern Aravalli leopard and wildlife corridor**. Situated within the **Aravalli Range**, the park's elevation ranges from **300 to 722 meters**, receiving an average annual rainfall of about **700 mm**.
d. Sariska is also rich in **mineral resources** like copper, although illegal **marble mining** continues to threaten its fragile ecosystem despite the Supreme Court ban.

Flora:

a. The forests of Sariska are dominated by the **dhok** tree, which covers a major portion of the reserve.
b. Other important tree species include **salar**, **kadaya**, **dhak**, **gol**, **ber**, **khair**, **bargad**, **arjun**, **gugal**, and **bamboo**.
c. The undergrowth features numerous shrubs such as **kair**, **adusta**, and **jhar ber**, creating a varied and rich plant ecosystem suited to the dry conditions of the region.

Fauna:

a. Apart from being home to the **Bengal tiger**, Sariska hosts a wide variety of wildlife.
b. Key mammal species include the **Indian leopard**, **sloth bear**, **jungle cat**, **caracal**, **striped hyena**, **golden jackal**, **chital**, **sambar deer**, **nilgai**, **wild boar**, **honey badger**, **small Indian civet**, **mongoose species**, **Rhesus macaque**, and **Northern plains grey langur**.
c. Birdlife is equally rich, with species like the **Indian peafowl**, **grey francolin**, **white-throated kingfisher**, **bush quail**, **sandgrouse**, **treepie**, **golden-backed woodpecker**, **crested serpent eagle**, and the **Indian eagle-owl**.
d. After losing its entire tiger population by 2005, Sariska became the **first reserve in the world** to successfully **relocate tigers**, starting in **2008**. As of **2020**, the reserve hosts around **20 tigers**, marking a significant conservation success story.

ANTIMICROBIAL RESISTANCE (AMR)

What is Antimicrobial Resistance (AMR)?

Antimicrobial Resistance (AMR) occurs when microorganisms such as bacteria, viruses, fungi, and parasites evolve and no longer respond to medicines like antibiotics, antivirals, or antifungals. This makes infections harder to treat, increasing the risk of disease spread, severe illness, and death.

Causes of AMR

- Overuse and misuse of antibiotics in humans and animals
- Incomplete dosage or self-medication
- Overuse in agriculture and livestock
- Poor infection control in hospitals and clinics
- Environmental contamination from pharmaceutical waste

Global Impact

- AMR is a growing global health threat.
- Could cause 10 million deaths annually by 2050 if unchecked.
- Increases treatment costs, hospital stays, and mortality.

Ways to Reduce AMR
Rational Use of Antibiotics

- Prescribe only when necessary and complete the full course.
- Avoid self-medication and over-the-counter antibiotic use.

Responsible Use in Agriculture

- Ban non-therapeutic use of antibiotics in animal feed.
- Promote alternatives like insect-based feed and vaccines.

Improved Hygiene and Sanitation

- Handwashing, clean water, and infection control reduce the need for antibiotics.

Stronger Surveillance and Regulation

- Monitor antibiotic use and resistance patterns.
- Enforce strict guidelines in healthcare and veterinary sectors.

Promote R&D

- Invest in new antibiotics, diagnostics, and vaccines.

Public Awareness

- Educate communities on the dangers of AMR and safe medicine practices.

India's Efforts

- National Action Plan on AMR (2017–2021)
- Red Line Campaign: Marking prescription-only antibiotics with a red line
- FSSAI regulations to curb antibiotic use in food-producing animals

Fighting antimicrobial resistance with insect-based livestock feed
Key Highlights:

1.Problems with Traditional Livestock Feed:

- Leads to high greenhouse gas emissions, water and land use.
- Drives antimicrobial resistance (AMR) due to overuse of antibiotics.
- AMR is a growing threat with projected deaths increasing to 10 million by 2050 if unchecked.

2. Insect-Based Feed: A Sustainable Alternative:

- Insects like black soldier fly larvae, crickets, locusts, etc., are being considered as high-protein feed sources.
- They can convert organic waste into protein-rich feed, reducing waste and emissions.
- Uses less land and water, produces fewer emissions, and is cost-effective.

3. Indian Initiatives:

- CIBA and ICAR have signed MoUs to explore and scale up insect feed in shrimp and fish farming.
- Research is ongoing to evaluate nutritional benefits and scalability.

4. Scientific Evidence:

- Insects offer better digestibility than soy or fish meal.
- 1 kg of soymeal can be replaced by 0.76 kg of crickets or 0.88 kg of locusts, making it efficient.
- They are rich in amino acids, healthy fats, and micronutrients.

5.Global Support:

- The UN FAO supports insect farming to reduce AMR and meet rising protein demand sustainably.

BEEJ UTSAV

The recent 'Beej Utsav' held at the tri-junction of Rajasthan, Madhya Pradesh, and Gujarat has brought attention to the critical role of indigenous seeds in promoting agricultural sustainability. This four-day festival attracted over 9,400 participants from tribal communities.

It focused on the importance of preserving indigenous seeds and rebuilding community-led seed systems. The event brought into light the significance of seed heritage, biodiversity, and climate consciousness.

Importance of Indigenous Seeds

Indigenous seeds are vital for maintaining biodiversity. They are adapted to local climates and conditions. Unlike hybrid seeds, indigenous varieties do not require chemical inputs. They offer resilience against climate change.

The festival showcased rare varieties of grains, pulses, vegetables, and fruits. This included traditional fruit seeds like wild mango and grains such as Doodh Mogar maize.

Community Engagement and Activities

The festival featured various activities aimed at educating participants. These included 'Beej Samvad' (seed dialogue), biodiversity fairs, and seed ball making.

Participants learned practical techniques for preserving seeds. The events also included plantation drives to promote environmental awareness. Community honours were awarded to farmers who excelled in seed preservation.

Role of Community Institutions

Several community-led institutions played important role in organising the festival. Groups such as Krishi Evam Adivasi Swaraj Sangathan and Vaagdhara were instrumental in mobilising participants.

These organisations focus on tribal livelihood issues and advocate for sustainable agricultural practices. Their involvement emphasised the need for community-driven solutions.

Challenges of Modern Agriculture

Many small farmers rely on market-driven hybrid seeds. These seeds often come with high costs and health risks due to chemical inputs. This reliance makes farming unsustainable.

The festival served as a reminder of the importance of reclaiming seed sovereignty. It encouraged farmers to return to traditional practices that promote food security.

The Future of Agriculture

The discussions at the Beej Utsav pointed towards a need for cultural and community-based agricultural practices. Participants expressed a desire to reconnect with their agricultural roots. This shift could provide solutions to the pressing issues of climate change and food insecurity. Emphasising indigenous seeds can lead to more sustainable farming practices.

GLOBAL SCIENCE-POLICY PANEL ON CHEMICAL POLLUTION.

Countries convened in Punta del Este, Uruguay, from June 15 to 18, 2025, to establish a new global science-policy panel on chemical pollution. This initiative aims to support the sound management of chemicals and waste.

However, delegates failed to adopt a core objective focused on protecting human health and the environment. The panel joins existing bodies like the Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).

Background and Purpose

The push for this panel originated from a 2022 resolution by the United Nations Environment Assembly. The aim is to create an independent body that provides scientific advice on chemical management and pollution prevention. The panel will address the pressing issues of climate change, biodiversity loss, and pollution.

Key Functions of the Panel

The panel will have five main functions:

- Identify critical issues and propose evidence-based solutions.
- Assess current challenges and suggest solutions, especially for developing countries.
- Provide relevant information and identify research gaps.
- Facilitate information-sharing, particularly with developing nations.
- Enhance institutional capacities through capacity-building efforts.

Challenges and Disagreements

Despite the foundational document being adopted, several unresolved issues remain. Bracketed sections indicate a lack of consensus.

Key sticking points include the participation of observers in negotiations and the decision-making process, whether by consensus or voting. The preference for consensus may hinder swift action.

Health Implications of Chemical Pollution

The World Health Organization (WHO) has brought into light the health risks associated with certain chemicals.

These include those found in food packaging, linked to various health issues. In 2019, a subset of chemicals contributed to an estimated two million deaths globally due to related health problems.

Future Steps and Operationalisation

Establishing the panel's operations could take three to five years. Countries must adopt further drafts on procedural rules, work programmes, and funding. The credibility and effectiveness of the panel will depend on these discussions and the commitment to addressing health and environmental protection.

INTERNATIONAL YOGA DAY

Yoga is celebrated globally, especially on International Yoga Day. This ancient practice, with roots in India, has a complex history that is difficult to pinpoint. While often referred to as a 5,000-year-old tradition, evidence does not support such specific dating.

Archaeological Evidence

Two archaeological finds are often cited in discussions of yoga's origins.

- The first is the seal from the Indus Valley Civilization, dated to around 2,500-2,400 BCE. This seal depicts a seated figure, possibly in a yoga posture. However, interpretations vary. It could represent a yogic pose or merely someone sitting cross-legged, a common sight in South Asia.
- The second find comes from Balathal, Rajasthan. A 2,700-year-old skeleton was discovered in a meditative posture known as samadhi. This evidence appears more credible due to the specific pose of the figure.

Nevertheless, these discoveries only suggest a baseline for yoga's origins, implying that its roots likely extend further back in time.

Ancient Textual References

The term "yoga" is found in Vedic literature, dating from 1,500-500 BCE. However, its context differs from modern interpretations. In the Mahabharata, composed between 300 BCE and 300 CE, yoga is mentioned in philosophical contexts and as part of physical penances.

Other texts, like the Upanishads, also reference yoga similarly. There is a perspective that yoga may not originate from Vedic traditions but rather from earlier heterodox movements like Buddhism and Jainism. These traditions incorporated yoga practices, denoting its diverse influences.

The Yoga Sutra of Patanjali

The Yoga Sutra, attributed to Maharishi Patanjali and composed around 350 CE, is a very important text in yoga history. It is the oldest comprehensive work dedicated solely to yoga. Most scholars agree that contemporary understanding of yoga is shaped by this text, which outlines various aspects of the practice.

Challenges in Tracing Origins

Determining the precise origins of yoga is challenging. Indian historical traditions differ from Western methodologies. In the West, a clear distinction exists between empirical history and myth. In contrast, Indian sources often blend myth with practice, complicating historical analysis. Most available texts do not provide definitive answers regarding yoga's origins. They offer vital information about the evolving meanings and practices associated with yoga but lack empirical specificity.

Cultural Evolution of Yoga

Yoga is not static; it evolves continually. Its development is influenced by diverse cultural interactions. Like many cultural practices, yoga's identity is shaped by various antecedents, making it difficult to isolate its origins. This characteristic of evolution is a fundamental aspect of yoga's rich history.

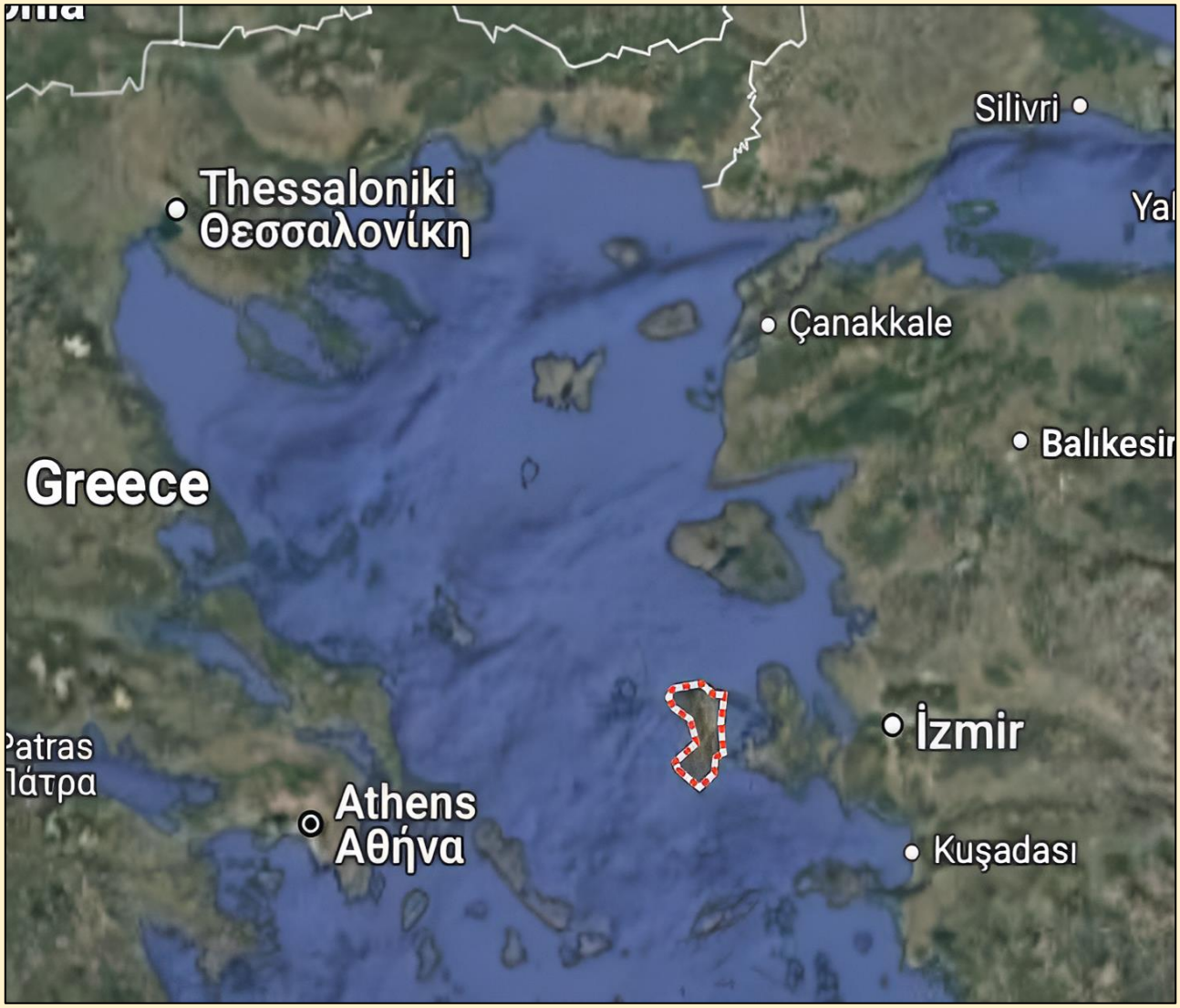
CHIOS ISLAND

On June 22, 2025, wildfire erupted on Chios Island in the eastern Aegean Sea. This event prompted emergency evacuations across multiple areas. The fire was exacerbated by strong winds, making containment efforts challenging for firefighters.

Over 100 firefighters were deployed, supported by aerial resources including helicopters and planes. The situation reflects the growing threat of wildfires in Greece, largely attributed to climate change.

Recent Wildfire Events

On June 22, three separate fires ignited near the town of Chios. The rapid spread of flames forced emergency services to issue evacuation orders for a dozen locations. Firefighters from various regions, including Athens and Thessaloniki, were dispatched to assist local teams. Aerial support was crucial, with ten helicopters and two planes working to control the blaze.



Climate Change and Wildfire Frequency

Greece's hot and dry summers contribute to the prevalence of wildfires. However, climate change has intensified the situation. Authorities have noted an increase in both the size and frequency of these blazes. The 2018 Mati fire serves as a tragic example, where over 100 lives were lost due to similar conditions.

Historical Context of Wildfires in Greece

Wildfires are part of Greece's environmental history. The country has faced devastating fires for decades. The 2018 Mati fire brought into light the dangers posed to communities. Such events have prompted discussions about fire management and climate resilience.

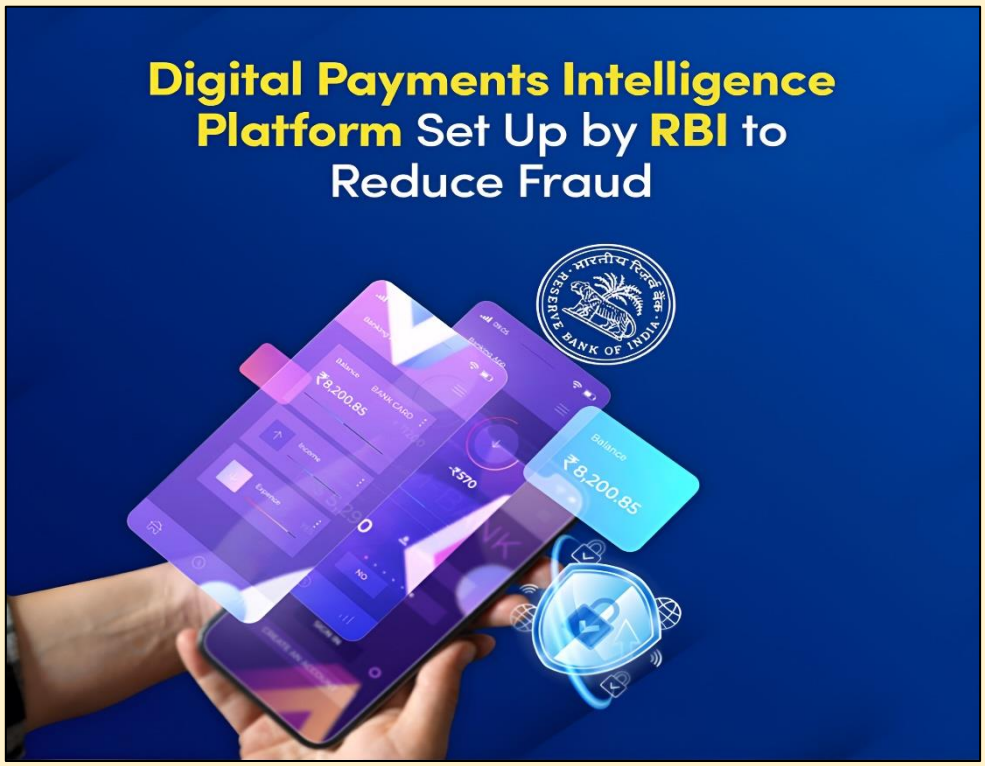
Future Preparedness and Prevention Strategies

In light of increasing wildfire risks, Greece is focusing on enhancing its firefighting capabilities. This includes better training, advanced technology, and community awareness programs. Strategies for prevention and rapid response are essential for protecting lives and property.

DIGITAL PAYMENT INTELLIGENCE PLATFORM (DPIP)

The Digital Payment Intelligence Platform (DPIP) is a new RBI-led initiative aimed at curbing digital payment frauds in India.

It is being developed as a Digital Public Infrastructure (DPI) to enable real-time data sharing and fraud detection across banks.



Why It's Needed

- Surging Frauds: Bank frauds have tripled in FY25, reaching ₹36,014 crore.
- Sector-Specific Threats: Public banks face more loan frauds, while private banks report higher internet and card frauds.

Development & Structure

- Built by: Reserve Bank Innovation Hub (RBIH)
- In Partnership With: 5–10 major public and private banks
- Oversight: High-level committee chaired by A.P. Hota (former NPCI chief)
- Launch Timeline: Expected to be operational within a few months

Key Features

- Real-Time Intelligence Sharing: Banks will instantly share and act on fraud data
- AI-Powered Risk Analysis: Detects patterns to identify scams before they escalate
- Unified Banking Response: Recognizes digital fraud as a shared industry threat.

Expected Impact

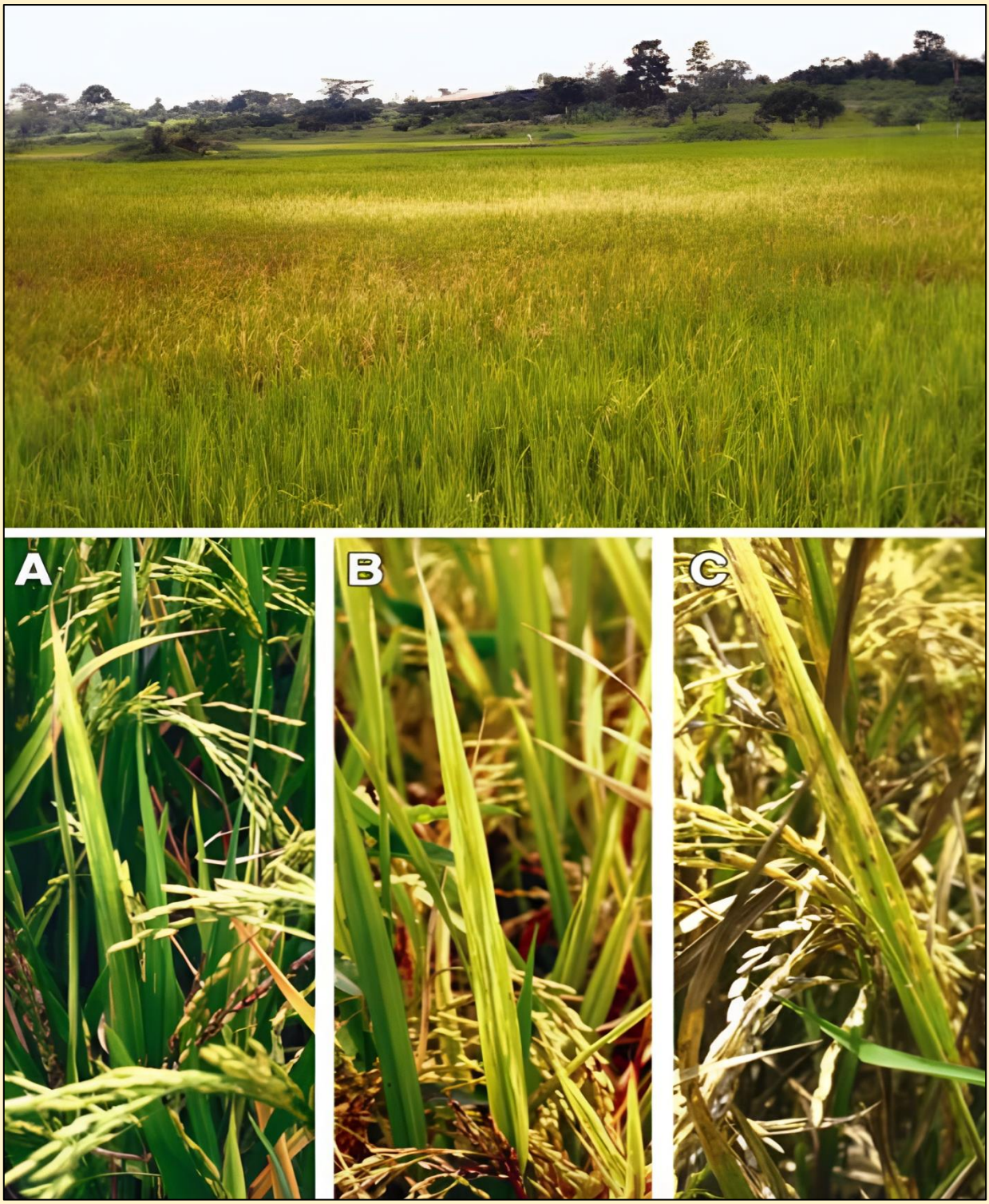
- Strengthens digital transaction security
- Reduces dependency on delayed manual fraud reporting
- Promotes trust and resilience in India's digital payments ecosystem

RICE YELLOW MOTTLE VIRUS

Rice farming in Africa faces challenge due to the Rice Yellow Mottle Virus (RYMV). This viral disease has been spreading silently for over a century. Recent genomic studies have brought into light its impact on rice production across the continent. Farmers are experiencing declining yields and increasing uncertainty.

What is RYMV?

RYMV is a viral disease affecting rice crops. It belongs to the genus Sobemovirus. The virus is endemic to Africa and has been detected in most rice-growing countries. It has high genetic variability, allowing it to evolve quickly and overcome plant resistance.



Historical Context

The virus emerged in the mid-1800s in the Eastern Arc Mountains of Tanzania. It spread through trade routes, colonial movements, and wartime transport. RYMV travelled from the Indian Ocean coast to Lake Victoria and reached Madagascar by the 1970s. Human activity has contributed to its spread.

Symptoms and Impact

Infected rice plants show yellow-green spots on leaves, which later expand into streaks. Other symptoms include stunted growth and reduced yields. Losses can range from 10% to 100%, depending on the timing of infection and rice variety. Early infections typically lead to greater losses.

Transmission Mechanisms

RYMV is transmitted by beetles, grasshoppers, and even livestock. Insects feeding on infected plants can spread the virus to healthy crops. Mechanical transmission can occur through irrigation water and contact with infected plant material. The virus survives in alternate hosts and can infect plants via damaged roots.

Management Strategies

Using resistant rice varieties is crucial for controlling RYMV. Two major resistance genes, RYMV1 and RYMV2, have been identified. Traditional African rice, O. glaberrima, shows greater resistance than O. sativa. Other management practices include synchronous planting, ploughing under infected residues, and regular weeding to reduce virus sources.

Need for Action

The study calls for urgent investments in genomic surveillance and stringent seed quarantine protocols. Strengthening biosecurity measures is vital. Proactive strategies are needed to protect rice crops from RYMV. This includes developing resilient crop strains and enhancing regional cooperation.

INS TAMAL TO BE COMMISSIONED ON JULY 1, 2025

Key Highlights

Final Foreign-Built Warship: Marks the end of India's reliance on foreign-built warships as focus shifts to indigenous shipbuilding under 'Atmanirbhar Bharat'.

Class & Design:

- 8th Krivak-class frigate
- 2nd in the upgraded Tushil-class (evolved from Talwar and Teg classes)
- Displacement: 3,900 tonnes | Length: 125m | Speed: 30+ knots
- Crew: Over 250 | Blue-water endurance

Weapons & Systems:

- BrahMos cruise missiles, Shtil SAMs
- A190-01 100mm main gun
- CIWS, torpedoes, ASW rockets
- Advanced radar, EW, and electro-optical systems
- Network-centric warfare capable

Indigenous Contribution: 26% Indian-made components

Frigates in Indian Defence

What Are Frigates?

Frigates are medium-sized, fast, and multi-role warships used primarily for **escort duties, anti-submarine warfare (ASW), anti-air warfare (AAW), and surface combat.** They form a vital part of modern naval fleets due to their versatility and endurance.

Frigates in the Indian Navy

India operates several classes of frigates, both indigenously built and foreign-designed, forming the backbone of the Navy's surface combat fleet.

Major Classes of Indian Navy Frigates

Shivalik Class (Project 17)

- India's first stealth frigates
- Features stealth design, advanced sensors, and BrahMos missiles
- Built by Mazagon Dock Shipbuilders Limited (MDL), Mumbai

Nilgiri Class (Project 17A)

- Successors to Shivalik class with enhanced stealth and automation
- Under construction in Indian shipyards (MDL & GRSE)
- Will be equipped with Barak-8 SAMs and BrahMos

Talwar Class (Russian-built, Krivak III design)

- Equipped with Klub-N missiles and Shtil SAMs
- Used for multi-role operations
- India inducted six ships of this class

Teg Class (Follow-on to Talwar class)

- Enhanced Russian design with improved sensors and weapons
- Includes ships like INS Teg, Tarkash, and Trikand

Tushil Class

- Upgraded Krivak-class frigates
- Includes INS Tushil and INS Tamal (latest foreign-built frigate)
- Final foreign collaboration before full indigenous shift

Key Features of Indian Frigates

- Stealth technology to reduce radar visibility
- Equipped with BrahMos supersonic cruise missiles
- Advanced radar and sonar systems
- Capable of ASW, AAW, and surface warfare
- Network-centric warfare capabilities for joint operations

Strategic Importance

- Essential for blue-water capabilities and long-range deployment
- Protect sea lines of communication (SLOCs)
- Act as deterrents against submarine and aerial threats
- Enable power projection in the Indian Ocean Region (IOR)

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KEY HIGHLIGHTS

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Optional Subjects

Geography, History, Malayalam, Political Science & International Relations, Public Administration and Sociology

Fees optional subjects is Rs. 11,800/– (Fees Rs 10,000/- + GST Rs.1,800/-).

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