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Monthly Current Affairs Magazine

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

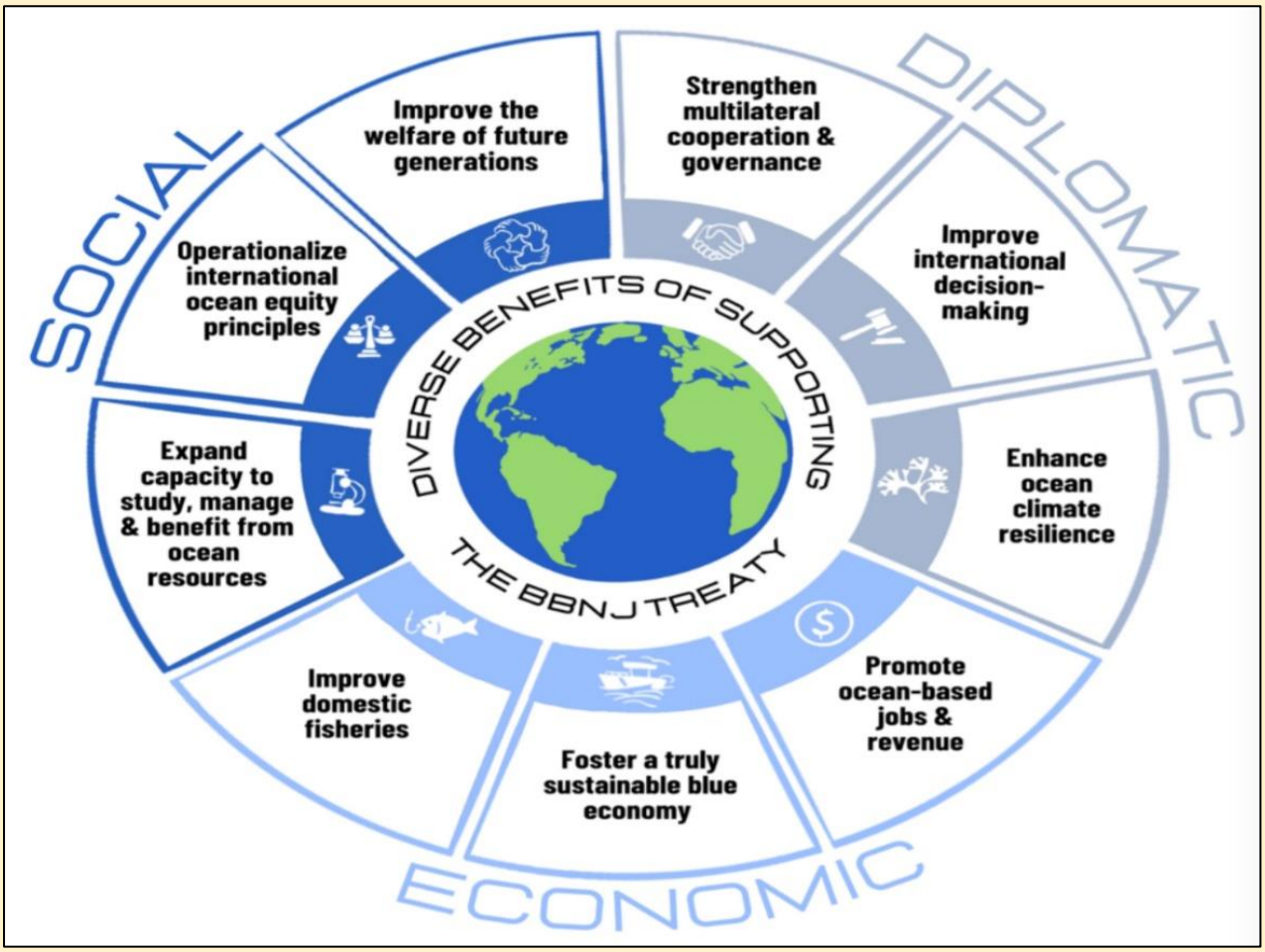
The UNOC is a platform for countries to discuss and accelerate action on ocean conservation. The third edition of the conference sought to address the urgent need for marine protection.

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

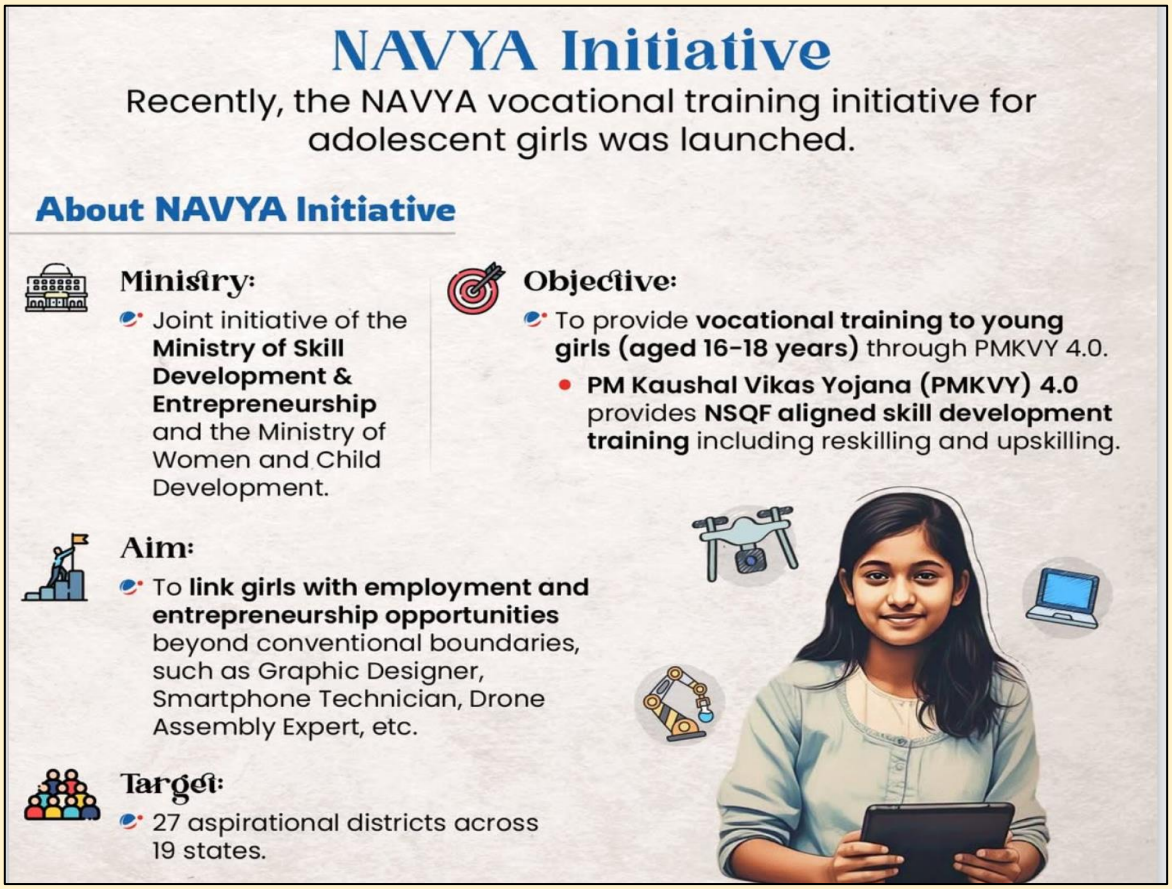
While there are alternative routes for oil transport, they are not as efficient. Saudi Arabia operates a pipeline to the Red Sea, and the UAE has a pipeline to the Gulf of Oman.

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.

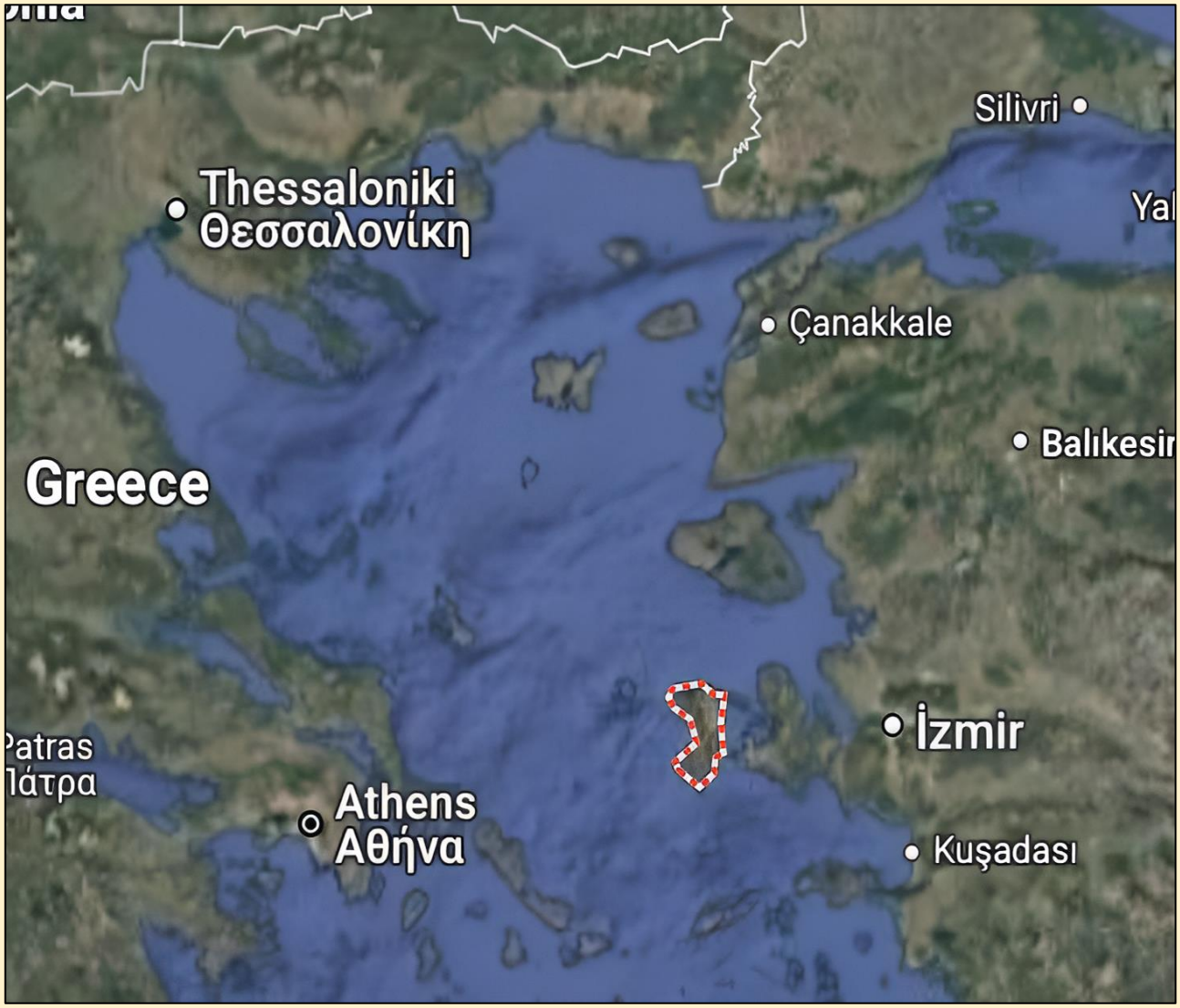
CHIOS ISLAND

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.

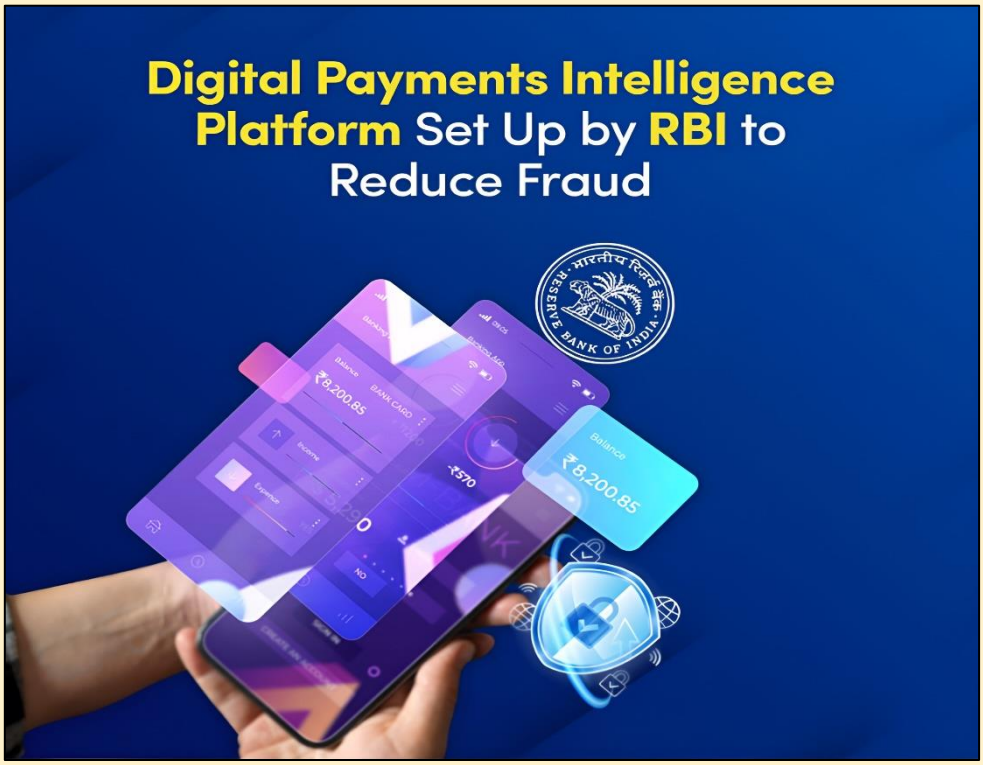
Future Preparedness and Prevention Strategies

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

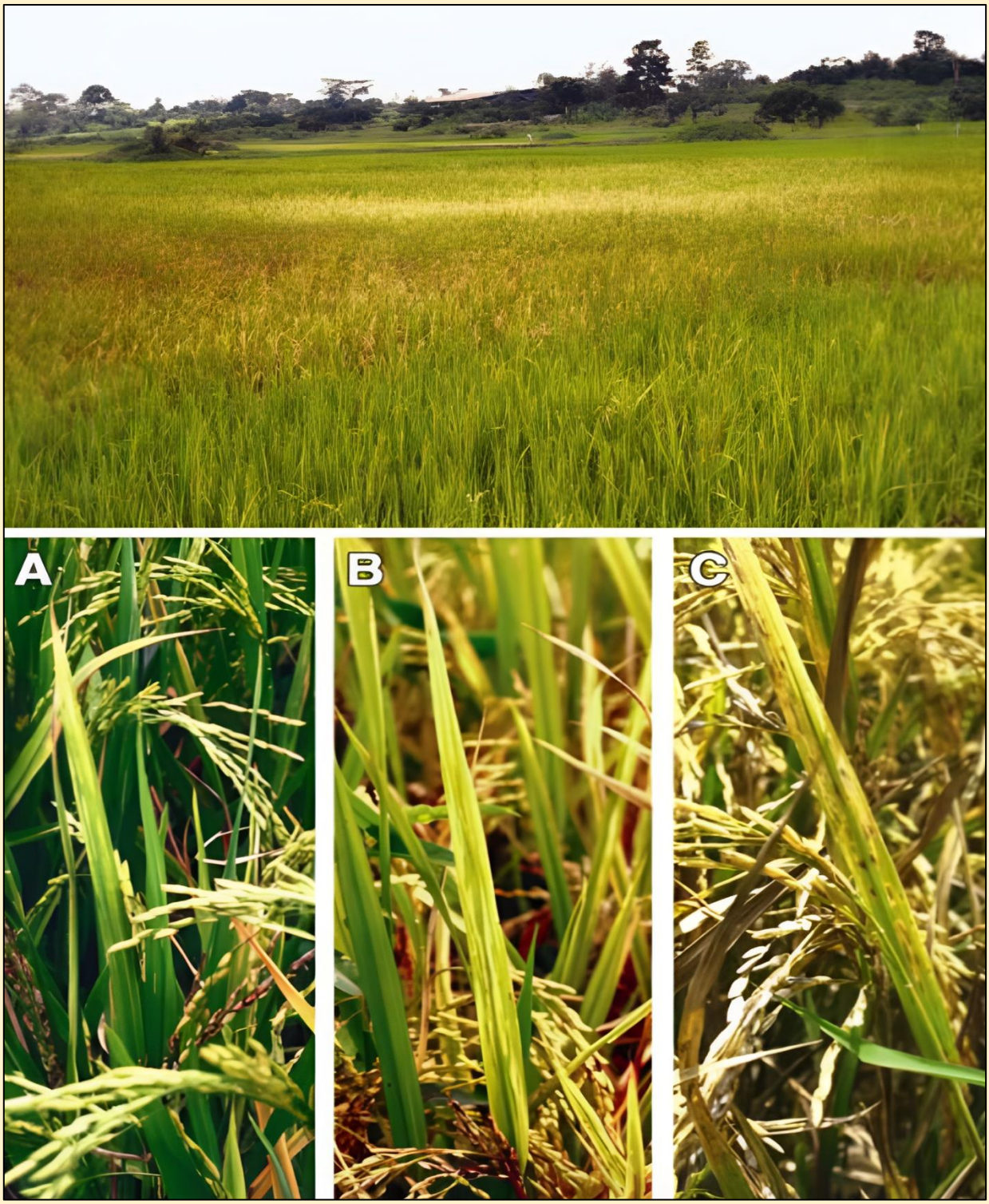
- Strengthens digital transaction security
- Reduces dependency on delayed manual fraud reporting
- Promotes trust and resilience in India's digital payments ecosystem

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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EMAIL: DIRECTORCCEK@GMAIL.COM, INFO.CCEK@GMAIL.COM WEB : HTTPS://KSCSA.ORG

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