



**Sleepy Classes IAS**  
Awakening Toppers

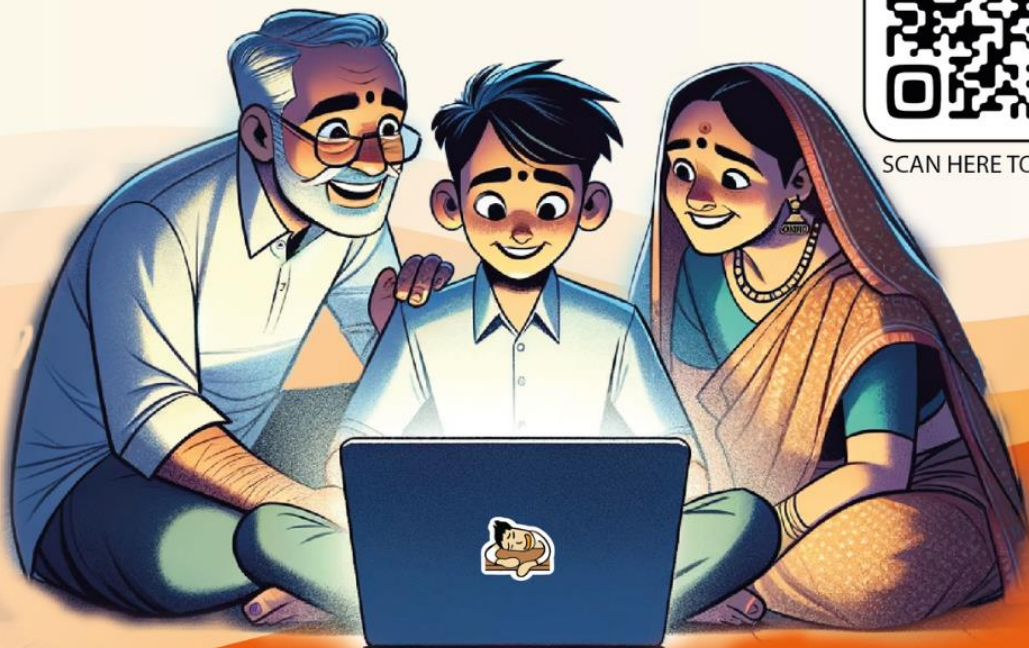
# Monthly

# CURRENT AFFAIRS

## September 2024



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## Social Issues

### Features of Indian Society

#### Jivitputrika Festival



#### Context:

- A devastating incident occurred during the 'Jivitputrika' festival in Bihar, where 46 people, including 37 children, tragically drowned while taking part in the traditional holy dip in rivers and ponds across several districts, according to officials.

#### About Jivitputrika Festival:

- **Jivitputrika (Jitiya Vrat)** is a Hindu festival widely celebrated in northern and eastern India, particularly in Bihar, Uttar Pradesh, Jharkhand, and parts of Nepal.
- The festival is observed by mothers who fast to pray for the health, longevity, and prosperity of their children.
- It spans three days, with the main ritual being a strict 'nirjala' fast, where no water is consumed.
- This fast is seen as a symbol of a mother's devotion and love, believed to bring divine blessings to her children.

- The festival is rooted in Hindu mythology, honoring the story of King Jimutavahana, who selflessly sacrificed himself for the welfare of others.
- The celebration begins with a ritual called Nahai-Khai, where mothers take a purifying bath followed by a nourishing meal.

#### Atrocities Against SCs and STs



#### Context:

- The union government recently released a report under the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989, which highlights the alarming status of atrocities committed against Scheduled Castes (SCs) and Scheduled Tribes (STs) in 2022.

#### Key Findings:

- **Case Statistics:** In 2022, 51,656 cases of atrocities were reported against SCs and 9,735 against STs. A vast majority of these cases (97.7% for SCs and 98.91% for STs) occurred in just 13 states.



- **States with the Highest Incidents:** For SCs, six states contributed to 81% of the total cases: Uttar Pradesh (23.78%), Rajasthan (16.75%), and Madhya Pradesh (14.97%) were among the highest. For STs, Madhya Pradesh (30.61%) and Rajasthan (25.66%) had the highest number of incidents.
- **Conviction Rates:** The conviction rate under the Act dropped from 39.2% in 2020 to 32.4% in 2022, reflecting a decline in judicial outcomes.

### Reason Behind Crimes Against SCs and STs:

- **Caste Prejudice:** Persistent caste hierarchies result in deep-rooted discrimination, where SC/ST communities face violence and exclusion based solely on their birth status.
- **Land Alienation:** SC/ST communities often struggle with land ownership, facing disputes and violence from dominant castes over land access and rights.
- **Economic Marginalization:** Limited access to education, employment, and resources leaves SC/ST communities economically vulnerable, making them easy targets for exploitation and violence.
- **Power Imbalance:** Dominant castes often wield significant political and social power, enabling them to perpetuate discriminatory practices with impunity.

- **Ineffective Law Enforcement:** Despite protective laws, weak enforcement and institutional bias in the police and judiciary prevent victims from receiving justice.
- **Political Manipulation:** Caste tensions are frequently exploited by political actors for electoral gains, further dividing communities and increasing conflict.

### Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989:

- **Objective:** The Act was enacted to protect SCs and STs from caste-based violence, upholding Article 15 and Article 17 of the Constitution.
- **Key Provisions:** It defines various offences against SC/ST members, prescribes stricter punishments, excludes anticipatory bail, and mandates special courts for speedy trials.
- **Recent Amendments:** The 2015 amendment expanded the list of offences, including acts like forced manual scavenging and social ostracism. The 2018 amendment allowed for immediate arrests without prior approval from senior officials.

### Way Forward:

- **Strengthen Legal Framework:** Enhance the infrastructure for special courts and increase the number of trained personnel to handle SC/ST cases more effectively.

- **Improve Reporting Mechanisms:** Implement better systems to encourage victims to report atrocities without fear of retaliation.
- **Raise Awareness:** Conduct widespread education campaigns to inform communities about SC/ST rights and the protections provided by the Act.
- **Targeted Interventions:** Focus on atrocity-prone districts, identifying root causes of violence and implementing local solutions.

- **Monitoring and Evaluation:** Establish strong monitoring mechanisms to assess the effectiveness of interventions, ensuring accountability and ongoing improvement.
- **Collaborate with NGOs:** Partner with civil society and non-governmental organizations to support victims and advocate for stronger protections and policies.

### Quote:

"The greatness of a nation can be judged by how it treats its most vulnerable members." – *Mahatma Gandhi*

## Social Empowerment

### Financial Inclusion for Queer Partners



### Context:

- The Union government has recently clarified that individuals in queer relationships are entitled to open joint bank accounts and nominate their partners as beneficiaries.

### Supreme Court Ruling (October 2023):

- The Supreme Court encouraged the government to ensure equal entitlements for queer partners, focusing on financial and legal inclusivity, but withheld from recognizing same-sex marriages.

- The ruling reflects an incremental approach towards acknowledging LGBTQ+ rights in India, aligning with the broader global trend of expanding legal rights for same-sex couples.

### Government Clarification:

- Following the Supreme Court's ruling, the Union Ministry of Finance issued a clarification allowing queer individuals to open joint bank accounts and designate their partners as beneficiaries.
- This is a significant step toward equal rights for queer individuals, allowing them to manage their finances and access shared banking privileges, similar to heterosexual couples.

### Impact on LGBTQ+ Rights:

- The move is seen as a progressive step toward financial inclusion for the LGBTQ+ community, reducing legal and institutional barriers faced by queer individuals in matters of financial planning.





- However, the continued lack of recognition of same-sex marriage means that other legal entitlements, such as inheritance, adoption, and spousal benefits, remain unresolved.

### **Legal and Social Significance:**

- The clarification reflects evolving societal norms and governmental policy shifts that aim to promote social empowerment and inclusivity for marginalized communities, particularly the LGBTQ+ population.
- This move can potentially lead to further discussions around other areas of legal equality for queer partners, such as healthcare access, tax benefits, and legal protections.

## **PYQ**

**Q) Has caste lost its relevance in understanding the multi-cultural Indian society? Elaborate your answer with illustrations. (10 Marks, 150 words, 2020)**

### **Answer**

#### **Introduction:**

- Define **caste** and its historical role in shaping Indian society.

- Mention the multicultural context of India, acknowledging the debate on whether caste remains relevant today.

### **Ongoing Relevance of Caste:**

- **Political:** Caste-based politics and voting patterns.
- **Social:** Persistence of caste discrimination, especially in rural areas.
- **Economic:** Limited upward mobility for lower castes, despite affirmative action.
- **Cultural:** Caste influences religious and cultural practices.

### **Diminishing Role of Caste:**

- **Urbanization:** Reduced significance in urban, cosmopolitan areas.
- **Education:** More merit-based opportunities across caste lines.
- **Inter-caste marriages:** Slow but increasing trend, especially in urban areas.
- **Legal measures:** Constitutional safeguards and affirmative action.

### **Conclusion:**

- While caste's influence has reduced in some areas, it remains deeply embedded in social, economic, and political structures, making it still relevant for understanding Indian society.

## Science & Tech

### Space

#### BepiColombo

**Context** - Recently Earth receives the first-ever picture of Mercury's South Pole from BepiColombo.

#### About

- The joint **European-Japanese BepiColombo mission** successfully completed its fourth flyby of Mercury on September 5, 2024, bringing the spacecraft closer to its final orbit around the innermost planet.
- Mission controllers have confirmed that all systems performed nominally during the critical manoeuvre, which saw the probe pass just **165 kilometres above Mercury's cratered surface**.
- This latest encounter marks a significant milestone for BepiColombo, as it provided the first-ever glimpse of Mercury's elusive South Pole.

#### Significance

- This information will not only contribute to our **understanding of Mercury** but also help prepare the spacecraft for its **eventual insertion into Mercury orbit**, now scheduled for November 2026 due to recent thruster issues.

- As BepiColombo continues its journey, anticipation builds for the groundbreaking discoveries that await when the mission begins its primary science phase, promising to unlock the mysteries of our solar system's innermost world.

#### Mercury

- Mercury is the **smallest planet** in our solar system and the nearest to the Sun.
- Mercury is only slightly larger than Earth's Moon. Its surface is covered in tens of thousands of impact craters.
- Despite its proximity to the Sun, Mercury is **not the hottest planet in our solar system** - that title belongs to nearby Venus, thanks to its dense atmosphere.
- But Mercury is the **fastest planet**, zipping around the **Sun every 88 Earth days**. Mercury is appropriately named for the swiftest of the ancient Roman gods.
- **Temperature**-Mercury's surface temperatures are both extremely hot and cold. Because the planet is so close to the Sun, day temperatures can reach highs of 800°F (430°C). Without an atmosphere to retain that heat at night, temperatures can dip as low as -290°F (-180°C).



- **Size**-With a radius of 1,516 miles (2,440 kilometers), Mercury is a little **more than 1/3 the width of Earth**. From this distance, it takes sunlight 3.2 minutes to travel from the Sun to Mercury.
- **Moons and Rings**-Mercury doesn't have moons and rings.
- **Atmosphere**-Instead of an atmosphere, Mercury possesses a thin exosphere made up of atoms blasted off the surface by the solar wind and striking meteoroids. Mercury's exosphere is composed mostly of oxygen, sodium, hydrogen, helium, and potassium.
- **Magnetosphere**-Mercury's magnetic field is offset relative to the planet's equator. Though Mercury's magnetic field at the surface has **just 1% the strength of Earth's**, it interacts with the magnetic field of the solar wind to sometimes create intense magnetic tornadoes that funnel the fast, hot solar wind plasma down to the surface of the planet. When the ions strike the surface, they knock off neutrally charged atoms and send them on a loop high into the sky.

### What is BepiColombo?

- BepiColombo is an international mission comprised of two spacecraft riding together to Mercury to orbit and to study the planet from unique vantage points. The **European Space Agency (ESA) provided one orbiter**. The **Japan Aerospace Exploration Agency (JAXA) supplied the second orbiter**.

## ISRO's upcoming missions

**Context-** Recently Cabinet clears **Chandrayaan-4**, Venus orbiter mission and the next-generation launch vehicle development.

### Chandrayaan-4

- The moon mission, named Chandrayaan-4, aims to develop and demonstrate technologies for returning to Earth after a successful landing on the Moon. It will also collect lunar samples for analysis back on Earth.
- Indian Space Research Organisation (ISRO) will handle the development and launch of Chandrayaan-4, which is expected to be completed within 36 months.
- The Chandrayaan-4 mission will cost ₹2,104.06 crore. This budget includes spacecraft development, two LVM3 launches, deep space network support, and special tests.
- The mission will **help India become self-sufficient in technologies for manned missions** and lunar sample analysis, with significant involvement from Indian industries and academic institutions.

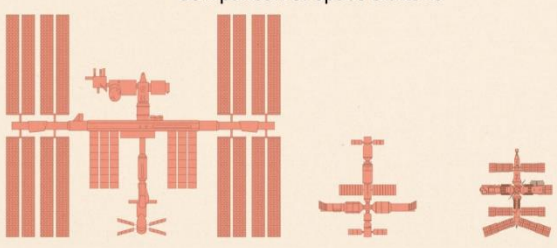
### Venus Orbiter Mission (VOM)

- It will focus on scientific exploration to **better understand Venus's atmosphere** and geology, generating extensive scientific data by probing its thick atmosphere.

- The mission **aims to orbit Venus** with a scientific spacecraft to study the planet's surface, subsurface, atmospheric processes, and the Sun's impact on its atmosphere.
- Studying Venus is important because it is believed to have **once been habitable like Earth**. The mission is scheduled to launch in March 2028
- ISRO will handle the development and launch of the spacecraft. The total budget for the Venus Orbiter Mission is ₹1,236 crore, out of which ₹824 crore will be spent on the spacecraft.

- The revised Gaganyaan programme, under ISRO, has total enhanced funding of ₹20,193 crore.

**Comparison of Space Stations**



	International Space Station	Chinese Space Station	Mir
Maximum Length	109 m	37 m	31 m
Mass	420 metric tons	60 - 70 metric tons	130 metric tons
Lifespan	26 yrs if deorbited in 2024	>10 yrs	15 yrs
Crew Size	6, or 9 short-term	3, or 6 short-term	3, or 6 short-term
Initial Launch Date	1998	2021	1986

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### Space station by 2028

- The Cabinet also approved the construction of the Bharatiya Antariksh Station (BAS), India's own space station for scientific research. Currently, the only two functioning space stations are the US-led International Space Station and China's Tiangong.
- The Cabinet has approved the **development of the first module of the Bharatiya Antariksh Station (BAS-1)** and missions to validate technologies for building and operating BAS. The Gaganyaan programme will be revised to include these new developments and additional requirements, with a focus on completing eight missions by December 2028.
- The Gaganyaan programme, initially approved in December 2018, aims for human spaceflight to Low Earth Orbit (LEO) and to support future Indian space exploration. It plans to operationalise Bharatiya Antariksh Station by 2035 and achieve a crewed lunar mission by 2040.

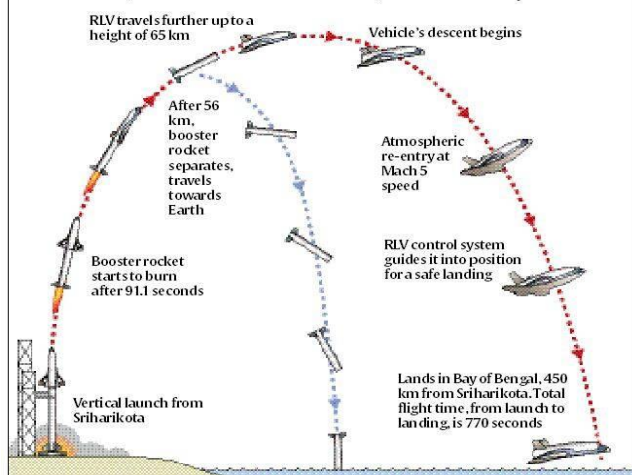
### Reusable launch vehicle

- The Government also approved the **development of a next-generation launch vehicle**. Recently, the ISRO completed testing and handed over the Small Satellite Launch Vehicle (SSLV).
- The Next Generation Launch Vehicle (NGLV) will offer three times the current payload capacity of the LVM3, at 1.5 times the cost. It is designed to carry up to 30 tonnes to Low Earth Orbit (LEO).
- India's existing launch vehicles, including PSLV, GSLV, LVM3, and SSLV, can launch satellites **up to 10 tonnes to LEO** and 4 tonnes to Geo-Synchronous Transfer Orbit (GTO). The NGLV will build on this capability.
- The total approved budget for the NGLV project is Rs. 8240 crore. It will have three development flights with a target of 8 years for the completion of the development phase.



## Flight of Promise and Challenge

On May 23, ISRO tested its Reusable Launch Vehicle Technology Demonstrator, India's first winged body spacecraft that went into space and re-entered the atmosphere successfully



## Helium use in rockets

**Context** - Two NASA astronauts aboard Boeing's Starliner will stay on the International Space Station for months because of a faulty propulsion system whose problems included helium leaks.

### Why helium is used ?

- Helium is **inert** - it **does not react with other substances or combust** - and its atomic number is 2, making it the second lightest element after hydrogen.
- Rockets need to achieve specific speeds and altitude to reach and maintain orbit. A heavier rocket requires more energy, not only increasing fuel consumption but also needing more powerful engines, which are more expensive to develop, test, and maintain.
- **Helium also has a very low boiling point (-268.9° C)**, allowing it to **remain a gas** even in super-cold environments, an important feature because many rocket fuels are stored in that temperature range.

- The gas is non-toxic, but cannot be breathed on its own, because it displaces the oxygen humans need for respiration.

### How is it used?

- Helium is used to **pressurize fuel tanks**, ensuring fuel flows to the rocket's engines without interruption; and for cooling systems.
- As fuel and oxidiser are burned in the rocket's engines, **helium fills the resulting empty space in the tanks**, maintaining the overall pressure inside.
- Because it is non-reactive, it can safely mingle with the tanks' residual contents.

### Is it prone to leaks?

- Helium's small atomic size and low molecular weight mean its atoms can escape through small gaps or seals in storage tanks and fuel systems.
- But because there is very little helium in the Earth's atmosphere, leaks can be easily detected - making the gas **important for spotting potential faults in a rocket or spacecraft's fuel systems**.
- In May, hours before Boeing's Starliner spacecraft made an initial attempt to launch its first astronaut crew, **tiny sensors inside the spacecraft detected a small helium leak on one of Starliner's thrusters** that NASA spent several days analysing before deeming it low-risk.
- Additional leaks were detected in space after Starliner launched in June, contributing to NASA's decision to bring Starliner back to Earth without its crew.

- The frequency of helium leaks across space-related systems, some engineers say, have highlighted an industry-wide need for innovation in valve design and more precise valve-tightening mechanisms.

### Alternative

- Some rocket launches have experimented with gases such as **argon and nitrogen**, which are also inert and can sometimes be cheaper. Helium, however, is much more prevalent in the industry.
- **Europe's new Ariane 6 rocket** ditched the helium of its predecessor Ariane 5 for a novel pressurization system that **converts a small portion of its primary liquid oxygen and hydrogen propellants to gas**, which then pressurizes those fluids for the rocket engine.
- That system failed in space during the final phase of Ariane 6's otherwise successful debut launch in July, adding to the global rocket industry's long list of pressurization challenges.

## Ambipolar electric field

**Context-**For the first time in several years, NASA has detected Earth's hidden electric field that plays a key role in driving "polar wind" that launches charged particles to space at supersonic speeds.

the space agency used observations from a suborbital rocket gathered by a group of international scientists to measure an ambipolar electric field.

### About

- The planet-wide electric field, first hypothesised 60 years ago, has finally been detected, thanks to **NASA's Endurance Mission**. Using the rocket's measurements, scientists have quantified the ambipolar field's strength, providing an understanding of **how it affects the ionosphere, a layer of the upper atmosphere**.
- Though weak, the electric field plays a key role in driving a stream of particles into outer space. NASA notes that many of these particles travelling outwards from the Earth's atmosphere "were cold, with no signs they had been heated – yet they were travelling at supersonic speeds."
- Something had to be drawing these particles out of the atmosphere

### Ambipolar field

- The ambipolar field is "bidirectional" as it works in both directions, the space agency explained. While the ions pull the electrons down as they sink with gravity, the electrons lift ions to greater heights as they attempt to escape to space.
- The net effect of the ambipolar field is to extend the height of the atmosphere, lifting some ions high enough to escape with the polar wind
- It's like this conveyor belt, lifting the atmosphere up into space
- Any planet with an atmosphere should have an ambipolar field. Now that we've finally measured it, Scientist can begin learning how it's shaped our planet as well as others over time.

## Tanager-1 satellite

**Context-** Recently NASA launched Tanager-1 satellite to detect major emitters of **carbon dioxide and methane**.

- The launch has come just months after **MethaneSAT** – a satellite which tracks and measures methane emissions – was launched in March.

### How will the Tanager-1 satellite track emissions?

- The satellite will use imaging spectrometer technology developed at Jet Propulsion Laboratory to track methane and carbon dioxide emissions.
- It will do so by **measuring hundreds of wavelengths of light that are reflected by Earth's surface**.
- Different compounds in the planet's atmosphere – including methane and carbon dioxide – **absorb different wavelengths of light**, leaving spectral "fingerprints" that the imaging spectrometer can identify.
- These **infrared fingerprints** can enable researchers to pinpoint and quantify strong greenhouse gas emissions, potentially accelerating mitigation efforts.
- Tanager-1 will be able to **measure point-source emission**, down to the level of individual facilities and equipment, on a global scale.
- It will scan 130,000 square kilometres of Earth's surface per day.
- Scientists will analyse data from Tanager-1 to identify gas plumes with the unique spectral signatures of methane and carbon dioxide – and pinpoint their sources. Plume data will be publicly available online.

## Biotechnology

### Bio-RIDE

**Context-**The Union Cabinet approved continuation of the two umbrella schemes of Department of Biotechnology (DBT), merged as one scheme- '**Biotechnology Research Innovation and Entrepreneurship Development (Bio- RIDE)**' with a new component namely Biomanufacturing and Biofoundry.

### About Bio-RIDE

- Bio-RIDE scheme is designed to foster innovation, promote **bio-entrepreneurship**, and strengthen India's position as a global leader in **biomanufacturing and biotechnology**. It aims to accelerate research, enhance product development, and bridge the gap between academic research and industrial applications.
- The scheme has three broad components:

- Biotechnology Research and Development (R&D);
- Industrial & Entrepreneurship Development (I&ED)
- Biomanufacturing and Biofoundry
- The scheme is part of the Government of India's mission to harness the potential of bio-innovation to **tackle national and global challenges such as healthcare, agriculture, environmental sustainability, and clean energy.**

### Implementation of Bio-RIDE Scheme will -

- **Promote Bio-Entrepreneurship:** Bio-RIDE will nurture a thriving ecosystem for startups by providing seed funding, incubation support, and mentorship to bio-entrepreneurs.
- **Advance Innovation:** The scheme will offer grants and incentives for cutting-edge research and development in areas like synthetic biology, biopharmaceuticals, bioenergy, and bioplastics.
- **Facilitate Industry-Academia Collaboration:** Bio-RIDE will create synergies between academic institutions, research organizations, and industry to accelerate the commercialization of bio-based products and technologies.
- **Encourage Sustainable Biomanufacturing:** A significant focus will be placed on promoting environmentally sustainable practices in biomanufacturing, aligned with India's green goals.

- **Support researchers through Extramural funding:** Bio-RIDE will play critical role in advancing scientific research, innovation, and technological development across diverse fields of biotechnology by supporting extramural funding to research institutions, universities, and individual researchers in areas such as agriculture, healthcare, bioenergy, and environmental sustainability.
- **Nurturing Human Resource in Biotechnology sector:** Bio-RIDE will provide holistic development and support to students, young researchers and scientists working in the multidisciplinary areas of Biotechnology. The integrated programme of Human Resource Development will contribute towards the capacity building and skilling of the manpower and make them competent to leverage the newer horizon of technological advancements
- Further, to enable Circular-Bioeconomy in the country a component on Biomanufacturing and Biofoundry is being initiated **in alignment with 'Lifestyle for the Environment (LiFE)'** launched by the Hon'ble PM to propel mitigation of global climate change by incorporating green and friendly environmental solutions in every aspect of life.
- The Bio-RIDE Scheme will contribute significantly towards realizing the **vision of 'Viksit Bharat 2047'.**



## BioE3

**Context-**The Union Cabinet cleared a proposal to bolster **biotechnology-based manufacturing, called BioE3 (Biotechnology for Economy, Environment and Employment) Policy for Fostering High Performance Biomanufacturing.**

- **High performance biomanufacturing** is the ability to **produce products from medicine to materials, address farming and food challenges**, and promote manufacturing of bio-based products through integration of advanced biotechnological processes.

### BioE3

- To be steered by the Department of Biotechnology, the aim is to have it **catalyse a technology revolution** just as the IT industry revolutionised life in the 1990s
- BioE3 Policy would broadly focus on the **following strategic/thematic sectors**: high value bio-based chemicals, biopolymers & enzymes; smart proteins & functional foods; precision biotherapeutics; climate resilient agriculture; carbon capture & its utilisation; marine and space research
- The **six thematic verticals of the policy are**: bio-based chemicals and enzymes, functional foods and smart proteins, precision biotherapeutics, climate resilient agriculture, carbon capture and its utilisation, futuristic marine, and space research.

## Significance

- The scheme endeavours to **promote research in areas such as basic research** with access to the **international mega facilities**, translational research in sustainable energy, water, etc. and collaborative research through international bilateral and multilateral cooperation.
- It will also contribute to building critical human resource pool to strengthen the science and technology landscape and **expand the R&D base of the country** towards improving the Full-Time Equivalent (FTE) researcher count.
- Focused interventions will be taken up to enhance the **participation of women in the field of Science and Technology (S&T)** with the ultimate goal of bringing gender parity in Science, Technology and Innovation (STI).
- The scheme would reinforce the efforts of the government towards **promoting innovations at all levels**, starting from school level to higher education, and for the industries and start-ups through targeted interventions.
- Significant support will be extended to increase collaboration between academia, Government, and also with industries,

## Robotics

### Robotic mules

**Context** - The Army has procured and inducted **100 robotic mules** in forward areas while logistics drones are undergoing trials which will significantly streamline support and movement to forward areas, especially in high altitude.

- Since the **2020 standoff with China in Eastern Ladakh**, the Army has been looking for a series of technological innovations especially for high altitudes for a range of functions.

### Robotic mule

- The robotic mule is a **high-endurance, agile and durable all-weather** ground robot for use in a broad range of unstructured urban and natural environments for defence applications.

- It is able to **walk up to three years** and able to counter all kinds of obstacles and obstacles.
- It can **go inside water and cross rivers** and has the ability to recognise objects around as there are electro-optics, infrared.
- The mule can **climb stairs, steep hills** and other hurdles and can operate in extreme temperatures, ranging from **-40 to +55 degrees Celsius** and carry a payload of 15kg.
- Extreme high-altitude clothing and habitat is a critical requirement for the Indian Army which is deployed in the world's highest battlefield Siachen and also other super high-altitude locations

## Health

### FIRA Portal

**Context**-FSSAI has launched the FIRA Portal (Food Import Rejection Alert Portal)

- The portal was launched during the **second edition of the Global Food Regulators Summit 2024** hosted by FSSAI at Bharat Mandapam in the national capital

### About FIRA

- Food Safety Standards Authority of India (FSSAI) has developed an **online portal designed to notify the public and relevant food safety authorities** about food import rejections at Indian borders

- The portal - Food Import Rejection Alert (FIRA) -- will **generate alerts on a food consignments rejected by India** due to poor safety standards
- The portal will **facilitate rapid exchange of information among authorities** worldwide on food safety and health risks stemming from rejected food.
- It will also **enable relevant food authorities to take immediate action** for prevention and control of risks before it causes harm.

## Food Safety and Standard Authority of India

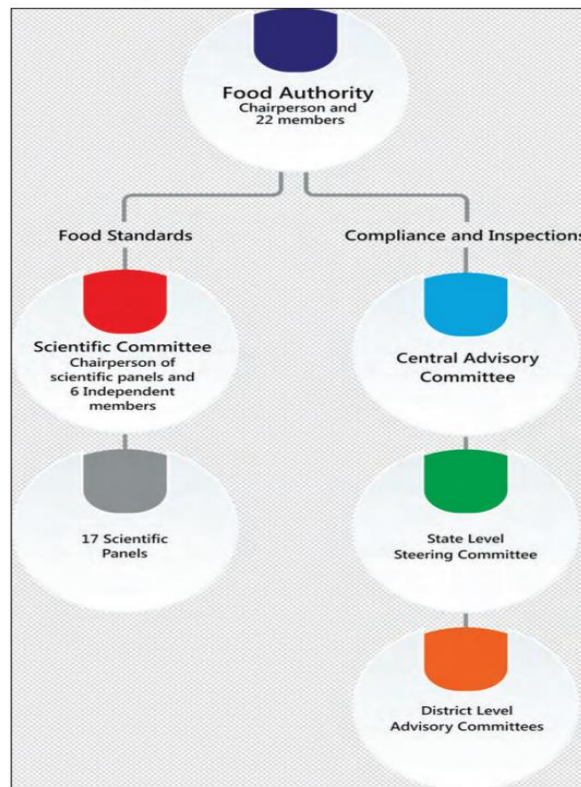
- It is an **autonomous statutory body** established under the Food Safety and Standards Act, 2006 (FSS Act).
- The FSSAI aims to protect and promote public health with proper regulations and supervision on food safety.
- It is a statutory body under the **Ministry of health and family welfare, the Government of India**
- As per Section 5 of the FSS Act, The Food Authority shall consist of a **Chairperson and the following twenty-two members out of which one-third shall be women.**

### Function

- FSSAI sets **rules, guidelines, and regulations which are necessary to be followed by** all the food manufacturing companies, which includes keeping the food clean and hygienic.
- It is compulsory for any business that is related to food, to get **permission, license, and certificate from FSSAI.**
- The food manufactured by the food companies is **tested and marked as the standard** and quality of the food by the FSSAI only.
- It conducts **regular inspections in food-producing** and manufacturing companies to ensure the hygiene and standards of the food.
- The main work of FSSAI is to make the consumers aware to buy and take only those food products that are **healthy, safe, and hygienic for consumption.**

- If the FSSAI finds any food-related threat, it has to inform the government as soon as possible and the government authorities take proper action against it.

### **Pictorial representation of structure of FSSAI**



## **Mpox testing kits**

**Context-**The Central Drugs Standard Control Organization (CDSCO) has approved the manufacturing of **three indigenously developed kits for detecting mpox** (previously known as monkeypox).

- The approval criteria was a sensitivity and specificity of over 95%, the drug regulator said.
- These kits are developed by Siemens healthcare, Transasia diagnostics, and JITM C Genes.
- These RT-PCR kits use **fluid samples from pox rashes** to examine the virus. These kits were validated by the ICMR

## Cases

- The ICMR had put out a call for companies to develop diagnostics and vaccines in 2022, when the **first mpox cases were reported in India**.
- The approval process for these detection kits was revived after the World Health Organization (WHO) earlier this **month declared mpox to be a PHEIC** (Public Health Emergency of International Concern) for the second time in as many years; the outbreak between July 2022 and **May 2023 was also declared as PHEIC**.
- India has reported **30 mpox cases since 2022**, with the latest recorded in March 2024. The infection was initially recorded in people with a history of international travel, but later among others too.

## Mpox

- Mpox, previously known as monkeypox, is a **viral illness caused by the monkeypox virus**. It is an enveloped double-stranded DNA virus
- The **natural reservoir of the virus is unknown**, but various small mammals such as squirrels and monkeys are susceptible.

## Transmission

- Mpox spreads from **person to person mainly through** close contact with someone who has mpox, including members of a household. Close contact includes **skin-to-skin (such as touching or sex) and mouth-to-mouth or mouth-to-skin contact** (such as kissing), and it can also include being face-to-face with someone who has mpox (such as talking or breathing close to one another, which can generate infectious respiratory particles).

- People with **multiple sexual partners** are at higher risk of acquiring mpox.
- During **pregnancy or birth**, the virus may be passed to the baby.
- **Animal-to-human transmission** of mpox occurs from infected animals to humans from bites or scratches, or during activities such as hunting, skinning, trapping, cooking, playing with carcasses or eating animals.

## Diagnosis

- The preferred laboratory test for mpox is detection of viral DNA by **polymerase chain reaction (PCR)**. The best diagnostic specimens are taken directly from the rash – skin, fluid or crusts – collected by vigorous swabbing.
- In the absence of skin lesions, testing can be done using swabs of the throat or anus. Testing blood is not recommended.
- **Antibody detection methods may not be useful** as they do not distinguish between different orthopoxviruses.

## Treatment and vaccination

- The goal of treating mpox is to take care of the rash, manage pain and prevent complications. Early and supportive care is important to help manage symptoms and avoid further problems.
- Getting an mpox vaccine can help prevent infection (pre-exposure prophylaxis). It is recommended for people at high-risk of getting mpox, especially during an outbreak.



## Fecal Microbiota Transplants

**Context-**The term fecal microbiota transplants (FMT) seen in news recently.

### Fecal Microbiota Transplants

- Fecal microbiota transplantation (FMT) is a procedure that **delivers healthy human donor stool to a child via colonoscopy, enema, nasogastric (NG) tube**, or in capsule form (popularly called “**poop pills**”). It may be prescribed for debilitating gastrointestinal infections, such as *Clostridium difficile* (*C. diff*), that keep recurring despite antibiotic therapy.
- *C. diff* is a serious infection — one that causes debilitating **diarrhea**

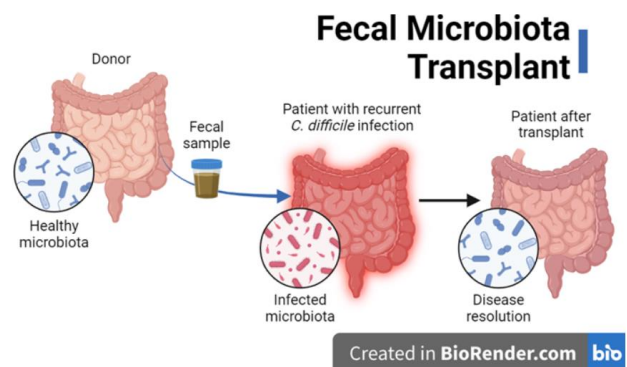
### How does FMT work?

- The GI tract has an “**ecosystem**” of **thousands of bacteria** and other organisms that help keep the body healthy. When your child is given an **antibiotic, this ecosystem is disrupted**, allowing the **growth of disease-causing bacteria**, such as *C. diff*.

- With a fecal transplant, “**good**” **microorganisms from the donor stool** are infused into the patient. Healthy bacteria begin to grow and prevent *C. diff* from recurring.
- Stool donors are rigorously screened and stool samples are extensively tested before being used for FMT.

### There are several different FMT techniques:

- **Colonoscopy:** A thin, hollow tube with an attached camera is placed up the colon, and a catheter-tipped syringe is used to inject donor stool through the channel.
- **Nasogastric (NG) tube:** Using a thin, flexible feeding tube, doctors insert donor stool **through a patient’s nostril**, down the throat, and into the stomach.
- **Oral capsules**, known as “poop pills.”



## AI

### Project Strawberry

- **Context-** OpenAI, the world’s premier artificial intelligence research organisation, will likely release its **most powerful AI model** and could integrate it into ChatGPT-5, the new version of the chatbot and virtual assistant that it launched in late 2022.

- The secretive project, on which OpenAI has been working for long, was earlier known as Project Q\* (Q-star), and is **now codenamed Project Strawberry**

## About

- It is expected to feature autonomous Internet research and dramatically improve AI reasoning capabilities, and has been billed as OpenAI's push to create Artificial General Intelligence – **AI with capabilities similar to that of the human brain.**
- Project Strawberry would be **better at math and programming** than any existing chatbot.

- **Integration with ChatGPT will make the latter the most powerful AI chatbot** there is, the report said.
- ChatGPT has sometimes struggled with math, and experts think the errors could be due to the absence of adequate mathematical information in the training data.

## Blockchain

### National Blockchain Framework

Context-Recently Ministry of Electronics and Information Technology (MeitY) launched blockchain initiatives.

### National Blockchain Framework to Enhance Digital Trust and Service Delivery

- **National Blockchain Framework (NBF)** helps in **promoting research and application development**; facilitating state of the art, transparent, secure and trusted digital service delivery to citizens.
- National Blockchain Framework technology stack is architected with Distributed Infrastructure, Core Framework functionality, Smart Contracts & API Gateway, Security, Privacy & Interoperability and Applications development offering **Blockchain as a Service (BaaS)**.

- NBF currently supports **two permissioned Blockchain platforms** and is extensible. The Technology Stack is hosted on geographically distributed infrastructure at NIC Data centers i.e. Bhubaneswar, Pune, Hyderabad.

### Other initiatives

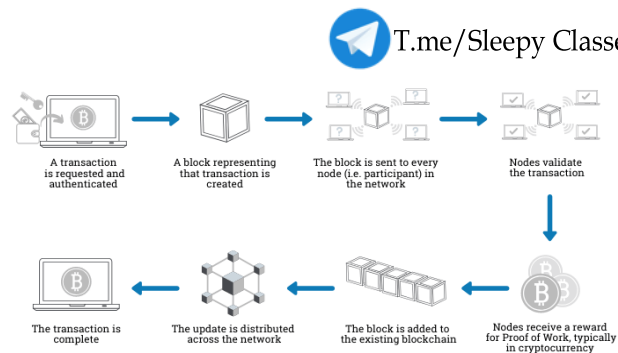
- **Vishvasya-Blockchain Technology Stack** to offer **Blockchain-as-a-Service** with a geographically distributed infrastructure designed to support various permissioned Blockchain based applications.
- **Praamaanik** - an innovative blockchain-enabled solution for **verifying mobile app** origin and **National Blockchain Portal**.
- **NBFLite**- Blockchain sandbox platform, is developed especially for startups/academia for rapid prototyping of applications, carrying out research and capacity building.

## Significance

- National Blockchain Framework would play an important role in **enabling security, trust and transparency** for various citizen centric applications. He also highlighted that the stakeholders should aim to position India as a global leader in blockchain technology and proliferate the developed solutions for Global adoption, leveraging it to drive economic growth, social development, and digital empowerment.
- It holds immense potential for **transforming governance in India** by making public services more transparent, efficient, and accountable
- It helps to **address challenges such as need for skilled manpower** towards building Blockchain based applications, vendor lock-in and research challenges related to security, interoperability, performance and other aspects.

## Blockchain Technology

- Blockchain is a system of **recording information** in a way that makes it difficult or impossible to change, hack, or cheat the system



Public/Permissionless	Private/Permissioned
No permission required to participate	Permission required to participate
Anyone can join, read, write and commit	Only authorized participants can write and commit
All are allowed to participate in consensus and anonymous resilient	Authorized nodes only can participate in consensus
Truly decentralized because of participation of unknown actors	Partially decentralized because of participation of known actors
Highly secure due to more participants	Also secure depending on the size of the network
Finality of transaction could take longer time due to more number of participants in the network compared to private network	Finality of transactions could be better in this model due to less number of participants compared to public networks

## Polity

### Judiciary and criminal law

#### Asset data of Judges

##### Context:

- As per Indian Express report assets data of only 13% of high court judges is available in public domain.

##### Details:

- Of the 749 judges currently shown as posted in the 25 High Courts across the country, the assets of only 98 are available in the public domain through declarations posted on the official websites of these institutions.
- Of these, three High Courts constitute over 80 per cent of the asset declarations- **Kerala High Court, Punjab and Haryana High Court and Delhi High Court.**
- The Allahabad and Bombay High Courts stated that the asset declarations are not covered under the RTI Act, 2005 as "information."
- The Gujarat High Court expressed that there is no public interest in disclosing judges' personal information.
- The Andhra Pradesh High Court and Telangana High Court labelled asset declarations as confidential, and said they cannot be posted online. s

HC	Total judges at present	Assets in Public domain	For others what website states
Delhi High Court	39	11	"File not uploaded"
Punjab and Haryana	55	31	No mention
Himachal Pradesh	12	10	No mention
Chhattisgarh	17	2	No mention
Karnataka	50	2	No mention
Kerala	39	37	No mention
Madras	62	5	No mention
Rajasthan HC	33	None	No mention
Calcutta	44	None	No mention
Gauhati	24	None	No mention
Gujarat	29	None	No mention
Jammu and Kashmir and Ladakh	15	None	No mention
Jharkhand	18	None	No mention
Allahabad	84	None	No mention
Andhra Pradesh	26	None	No mention
Bombay	66	None	No mention
Madhya Pradesh	34	None	No mention
Manipur	4	None	No mention
Meghalaya	3	None	No mention
Orissa	20	None	No mention
Patna	33	None	No mention
Sikkim	3	None	No mention
Telangana	27	None	No mention
Tripura	5	None	No mention
Uttarakhand	7	None	No mention
<b>TOTAL</b>	<b>749</b>	<b>98</b>	

- Parliament's Committee on Personnel, Public Grievances, and Law and Justice had recommended legislation for mandatory disclosure of assets and liabilities of judges of Supreme Court and High Courts on August 7, 2023.

##### Background:

- Restatement of Values of Judicial Life 1997:** In 1997, the Supreme Court adopted certain judicial standards saying that every judge should make a declaration of all assets in the form of real estate or investment held in their names, in the name of their spouses or any other person dependent on them, to the Chief Justice.
- In 2009, the Supreme Court resolved to declare the judges' assets on its official website adding that it was "purely on a voluntary basis".**



- **The Delhi High Court also passed a resolution. stating that all the judges have agreed to make their assets public.**

#### Declaration of assets by judges.

Arguments for	Arguments against
Avoiding conflict of interest.	The right to privacy.
Ensuring principles of natural justice.	Misuse of information
Transparency and accountability.	May affect judicial independence.
Public trust in judiciary	Lack of legal standards or requirements.
Justice should not only be done, but should also be seen to be done.	

### **Landmark judgement :**

#### **Supreme Court of India v. Subhash Chandra Agarwal 2019**

- In November 2009, the Central Information Commission (CIC) ordered the Supreme Court of India to disclose information regarding the Collegium's decision making.
- On January 6th 2009, the CIC ordered the Supreme Court to disclose information regarding judges' personal assets, putting into effect Subhash Chandra Agarwal's RTI request.
- The Supreme Court's CPIO challenged this CIC order in the Delhi High Court (HC).

- On September 2nd 2009, a single-judge Bench comprising Justice Ravindra Bhat upheld the CIC order. The Supreme Court CPIO appealed and in January 2010 a three-judge Delhi HC Bench referred it to the Supreme Court.

1. Would disclosing the information requested by Subhash Chandra Agarwal interfere with the independence of the judiciary? Is it therefore not in the public interest to disclose this information?
2. Would disclosing the information requested erode (i) the credibility of the Collegium's decision and/or (ii) curtail the future "free and frank expression" of Collegium members, when appointing judges to the Supreme Court?
3. Does Section 8(i)(j) of the RTI Act, exempt the CPIO from providing the requested information? Section 8(i)(j) exempts the disclosure of "personal information" that has "no relationship to any public activity or interest".

### **JUDGEMENT:**

- Supreme Court held that judicial independence does not stand in contradiction with the need for transparency.
- It observed that whether or not information is subject to public disclosure must be decided on a case-by-case basis, by weighing competing public interest claims.
- For example, the right to information may have to be weighed against the right to privacy.



- On the first CIC order pertaining to Collegium decision-making, it directed its CPIO to re-examine the request, but by taking into account the objections, if any, by third parties, as stipulated under Section 11(1) of the RTI Act.
- On the second CIC order pertaining to personal assets, the Court upheld the Delhi High Court judgment and directed the CPIO to disclose the relevant information to SC Agarwal.

### Way forward

- Legal Enactment of a law to make mandatory disclosure of assets.

## Bail in PMLA

### Context:

- While granting bail to former Tamil Nadu minister V Senthil Balaji, arrested in June 2023 on money-laundering charges arising out of cash-for-jobs scam case, the Supreme Court sounded a clear warning about the abuse of PMLA 2002 provisions by the Enforcement Directorate (ED).

### Details:

- The court criticized the use of Section 45 of the PMLA, which imposes a high threshold for granting bail, asserting it should not be misused to extend incarceration indefinitely.
- **Personal Liberty and Bail:** The judgment underscored "bail is the rule, and jail is the exception" in India's criminal jurisprudence, highlighting that personal liberty under Article 21 must be protected.

- **Judicial Concern over PMLA:** Reflecting growing concerns, the court warned that PMLA provisions could infringe upon fundamental rights if used to delay trials unjustifiably.
- **Pending Petitions on PMLA:** Two Supreme Court benches are reviewing petitions challenging PMLA provisions, including powers of summons, arrest, search, and seizure.
- **Reference to Previous Cases:** The ruling referenced judgments on similar stringent bail provisions in laws like UAPA and NDPS, where delays in trial proceedings weighed heavily in favor of bail.
- **High Bail Threshold vs. Trial Delays:** The court noted that delays and high bail thresholds in laws like PMLA, UAPA, and NDPS cannot coexist, advocating for the expeditious disposal of cases under such statutes.
- **Impact of Delayed Trials:** The ruling stated that delayed trials under PMLA, UAPA, and NDPS infringe upon the accused's rights, particularly under Article 21, suggesting that such delays could justify bail.
- **Judicial Powers:** The court affirmed that constitutional courts can intervene under Articles 32 and 226 to uphold fundamental rights when standard bail provisions are overridden by stringent statutes.
- **Consequences of Prolonged Incarceration:** The judgment reflected on cases where accused individuals spent years in jail only to be acquitted, noting that this results in an unjust loss of time.



- **Compensation for Rights Violation:**  
The bench suggested that prolonged detention without trial might entitle individuals to compensation under Article 21, a matter the courts may need to address in the future.

### **Previous Judgments Referred**

- **Vijay Madanlal Choudhary Case (2022):**
  - In this landmark judgment, the Supreme Court upheld several stringent provisions of the PMLA. The court validated the wide-ranging powers of the Enforcement Directorate (ED) under PMLA, including those related to summons, arrest, search, and seizure.
- **Sections Addressed:** The court specifically addressed Section 45 (conditions for bail), Section 3 (definition of money laundering), Section 24 (burden of proof), and Section 50 (powers of ED to summon, search, and record statements).
- **KA Najeeb Case (2021):**
  - The Supreme Court granted bail to an accused under the Unlawful Activities (Prevention) Act (UAPA), citing delays in the trial. This judgment emphasized that prolonged incarceration without a trial constitutes a violation of personal liberty under Article 21.
  - Specific Sections of PMLA Addressed

- Section 45 (Bail Provisions)
  - Details: Section 45 outlines that bail can only be granted if the court is convinced there are reasonable grounds that the accused is not guilty and is unlikely to commit further offenses if released. This section also requires that the public prosecutor be given an opportunity to oppose bail.
  - Court's Observation: The court criticized Section 45's stringent bail conditions, especially when trials are expected to be prolonged indefinitely. It expressed concern that this provision could lead to indefinite pretrial detention, thereby infringing on Article 21 rights.
- Section 50 (Power to Summon and Record Statements)
  - Details: Section 50 empowers the ED to summon individuals, compel them to give evidence, and record statements under oath, akin to judicial proceedings. Failure to comply can result in arrest.
  - Relevance in Current Ruling: While not central to the bail discussion, Section 50 was previously upheld as valid in the Vijay Madanlal Choudhary case. However, its impact on personal liberty and procedural fairness has been a recurring topic of concern in PMLA-related cases.

- Section 24 (Burden of Proof)
  - Details: This section shifts the burden of proof to the accused, contrary to the general presumption of innocence until proven guilty. Under PMLA, it is presumed that the accused is guilty unless they can prove otherwise.
  - Court's Perspective: In combination with Section 45, this provision creates a highly restrictive framework for granting bail. The court emphasized that this framework should not lead to prolonged detention without trial, as this would infringe on the constitutional right to personal liberty.

## Collegium System

### Context

- The Supreme Court allowed a writ petition filed by two senior district judges from Himachal Pradesh contending that the Himachal Pradesh High Court collegium ignored their merit and seniority while recommending names for elevation to the High Court.
- The Court directed the collegium of Himachal Pradesh High Court to reconsider the names of District Judges Chirag Bhanu Singh and Arvind Malhotra for elevation as judges of the High Court.

### Detail

- The Supreme Court observed that the procedure adopted by the High Court collegium in the matter of reconsideration of the two petitioners was inconsistent with the law laid down by in the Second Judges and Third Judges cases.
- There was no collective consultation and deliberation by the members of the High Court collegium.. the decision of the Chief Justice of the High Court on the suitability of the two petitioners appears to be an individual decision. The same stands vitiated both procedurally and substantially.

### Background

- On January 4, 2024, the Supreme Court Collegium remitted the proposal for the petitioners' elevation back to the Chief Justice of the Himachal Pradesh HC for fresh recommendations.
- A letter from the Union Minister of Law and Justice on January 16, 2024, urged the HC Collegium to reconsider the petitioners' names.
- Senior Advocate Arvind Datar for the petitioners submitted that their judgments were not called for while evaluating suitability and eligibility of judicial officers for elevation.
- HC collegium recommended two other judicial officers. The initially recommended judges challenged this decision in the SC, arguing their seniority was overlooked.

## **Ruling:**

- The SC examined whether the HC Chief Justice had "effective consultation" with other judges of the High Court.
- SC held that despite the resolution being addressed to the Chief Justice of HC, he could not independently make recommendations.
- Decisions must involve "collective consultation" among the Chief Justice and the two senior-most judges of HC.

## **Memorandum of Procedure (MoP) for Appointment of High Court Judge:**

- **High Court Collegium Recommendation:** The Chief Justice of the High Court, in consultation with the 2 senior most judges of that court, recommends names for appointment.
- **State-Level Review:**
  - The recommendations are sent to the Chief Minister and Governor for their views, though they do not have the power to reject the recommendation.
- **Central Government:** The Governor forwards the recommendations to the Union Minister of Law and Justice, who conducts a background check.
- **Supreme Court Collegium Review:**
  - The recommendations are then sent to the CJI, who consults the Supreme Court collegium. If approved, the names are sent to the President for final approval.

## **Emergence of collegium system :**

- S.P. Gupta v. Union of India (1981)(First Judges Case)
  - It declared that "cogent (strong and convincing) reasons" may be used to reject the CJI's recommendations regarding judicial appointments and transfers.
  - For the following twelve years, the Executive was granted precedence over the Judiciary in judicial selections as a result of the verdict.
- Second Judges Case (1993):
  - The Supreme Court established the Collegium system in the Advocates-on-Record Association v. Union of India (1993) case, ruling that "consultation" actually meant "concurrence."
  - The decision gave the judiciary the power to select and move judges from the higher judiciary and made the central government obligate to follow the SC collegium's recommendations.
  - It further stated that it was an institutional judgment developed after consulting with the two seniormost judges in the SC, not the individual opinion of the CJI.
- Third Judges Case (1998): SC on the President's reference (Article 143) expanded the Collegium to a 5-member body, comprising the CJI and 4 of his senior-most colleagues.
  - It also outlined 2 limited grounds for challenging a recommendation.
  - Lack of "effective consultation" with relevant individuals or institutions.

- The candidate's ineligibility based on the qualifications specified in Articles 217 (High Court) and Article 124 (Supreme Court) of the Constitution.

## Demolition Guidelines

The Supreme Court expressed displeasure over the random demolition of homes and properties of persons accused of crime without following due process, and said it would lay down pan-India guidelines on this issue.

### Context of the Move:

- There have been several allegations of property demolitions being utilized as a kind of punitive justice, also referred to as retributive justice, which has led to the SC's ruling.
- Bulldozers are being employed more frequently by local state governments to destroy the properties of people who are suspected of crimes, frequently eschewing the established legal processes.

### Response of the Supreme Court:

- The SC emphasized that it is against due process and natural justice norms to demolish property based just on charges or convictions. The fairness and legality of this approach have come under scrutiny.
- The practice of tearing down properties without following the correct legal processes was criticized by the SC.
- They emphasized that demolition without following the law is not justified by a conviction alone.

- The SC noted that regulations are required to guarantee that demolitions be conducted in an equitable and uniform manner.

### Local Laws Used For Demolition:

#### Rajasthan:

- Regulation: Demolition procedures are outlined in the Rajasthan Municipalities Act, 2009, and the Rajasthan Forest Act, 1953.
- Due Process: Authorities must issue a notice to the alleged violator, allowing them to submit a written response before any property confiscation. Only a Tehsildar has the authority to order eviction, ensuring a formal procedure is followed before any property seizure.

#### Uttar Pradesh:

- Regulation: Under the Uttar Pradesh Urban Planning and Development Act, 1973.
- Due Process: Property owners must be served with a notice that gives them 15 to 40 days to respond before demolition occurs. They are also entitled to appeal the order.

#### Delhi:

- Regulation: Demolition procedures fall under the Delhi Municipal Corporation Act, 1957 (DMC Act).
- Due Process: Allows for the removal of unauthorized structures without prior notice in certain situations. However, it also provides the property owner an opportunity to challenge the demolition order and appeal to the Appellate Tribunal.



## Haryana:

- Regulation: Governed by the Haryana Municipal Corporation Act, 1994.
- Due Process: Similar to the DMC Act, but with a shorter three-day period to initiate demolition. It also mandates a fair opportunity for the owner to present their case against the demolition order

## Landmark Judgements :

### Maneka Gandhi vs. Union of India (1978):

- The Supreme Court clarified that Article 21 specifies "procedure established by law" rather than "due process of law," indicating that legal procedures must avoid arbitrariness and irrationality, being just, fair, and non-arbitrary.

- Consequently, demolitions conducted on mere suspicion or baseless allegations violate the principles of justice, fairness, and non-arbitrariness.

### Olga Tellis vs. Bombay Municipal Corporation (1985):

- The Supreme Court established that Article 21, which guarantees the right to life, also encompasses the right to livelihood and shelter. Therefore, demolishing homes without proper legal procedures breaches constitutional rights.

### K.T. Plantation (P) Ltd. vs. State of Karnataka (2011):

- The Supreme Court ruled that any law permitting the deprivation of property under Article 300-A must be enacted in a manner that is just, fair, and reasonable.

## Constitutional Framework

### Supreme Court guidelines on preventive detention.

#### Context:

- In Jaseela Shaji vs the Union of India case, 2024, set stringent standards for authorities imposing preventive detention, making it mandatory to furnish all relevant documents and statements to the person being detained.
- The decision, delivered by a bench headed by justice Bhushan R Gavai, emphasised the constitutional guarantee of personal freedom, and stressed the necessity for detainees to be provided with a fair and effective opportunity to challenge detention orders.

#### Details:

- The bench, which also comprised justices Prashant Kumar Mishra and KV Viswanathan, ruled that the failure to supply all relevant documents and statements, especially in a language the detainee is conversant with, hampers their right to effectively contest the detention and, by extension, the constitutional right of effective representation.

- The judgment set a high bar for detaining authorities, obliging them to not only inform detainees of the grounds of their detention but also ensure that all essential materials are provided in a comprehensible format.
- It further highlighted that authorities must guard against arbitrary actions and ensure that the rights of individuals under preventive detention are respected at every stage.
- The ruling came in response to a preventive detention order under the Conservation of Foreign Exchange and Prevention of Smuggling Activities Act, 1974 (COFEPOSA), upheld by the Kerala high court.
- The Supreme Court overturned this decision, citing significant procedural lapses that violated the detainee's right of effective representation under **Article 22(5) of the Constitution**.

(5) When any person is detained in pursuance of an order made under any law providing for preventive detention, the authority making the order shall, as soon as may be, communicate to such person the grounds on which the order has been made and shall afford him the earliest opportunity of making a representation against the order.

- Holding that authorities must ensure detainees' representations are transmitted and decided with **"utmost expedition,"** the bench decried the negligence of prison authorities, and noted that in the present technological age, documents could have easily been sent via email or tracked through speed post.

### **Types of Detention:**

- **Punitive Detention:** This type of detention occurs after a person has been tried, convicted, and sentenced by a court for a committed offense. It follows the standard legal process.
- **Preventive Detention:** This type of detention is used to prevent an individual from committing a potential future offense, without a trial or conviction. It is precautionary and based on suspicion.

### **Article 22 Provisions:**

#### **First Part - Rights Under Ordinary Law:**

- **Scope:** Applies to general arrests, excluding enemy aliens or those under preventive detention laws.

#### **Rights Included:**

- **Right to be Informed:** The arrested individual must be informed of the reasons for their arrest.
- **Right to Legal Representation:** The person has the right to consult and be defended by a lawyer.
- **Right to Prompt Judicial Review:** They must appear before a magistrate within 24 hours of arrest.
- **Right against Prolonged Detention:** Detention cannot exceed 24 hours without a magistrate's authorization.

## Second Part - Rights Under Preventive Detention Laws:

- **Maximum Detention without Review:**  
A person can be held for up to three months without review unless an advisory board with high court judges deems extended detention necessary.
- **Communication of Grounds:** The detained individual must be informed of the reasons for detention, though specific details that could compromise public interest may be withheld.
- **Right to Representation:** The detainee has the right to contest the detention order.
- **Parliament:**
  - Can legislate preventive detention laws for national defense, foreign affairs, and India's security.
- **Concurrent Powers:** Both Parliament and state legislatures can enact preventive detention laws for state security, public order, and essential community services.

### **Preventive Detention Laws in India:**

Several laws have been enacted to address issues of national security, public order, and crime prevention, including:

- **Maintenance of Internal Security Act (MISA), 1971 (repealed in 1978)**
- **Conservation of Foreign Exchange and Prevention of Smuggling Activities Act (COFEPOSA), 1974**
- **National Security Act (NSA), 1980**
- **Terrorist and Disruptive Activities (Prevention) Act (TADA), 1985 (repealed in 1995)**

- **Prevention of Terrorism Act (POTA), 2002 (repealed in 2004)**
- **Unlawful Activities (Prevention) Act (UAPA), 1967, which has been amended several times, including in 2004, 2008, 2012, and 2019.**

## POCSO Act

### **Context:**

- Setting aside a Madras High Court judgment which held that mere storage of child pornographic material without any intention to transmit the same was not an offence under the Protection of Children from Sexual Offences Act (POCSO Act), the Supreme Court held that the **storage of such material, without deleting or without reporting the same, would indicate an intention to transmit.**

### **Details:**

- An alliance of non-government organisations filed an appeal before the top Court against a Madras High Court order quashing criminal charges against a young man who was sought to be prosecuted for viewing and storing video clips featuring children being exploited for sexual acts.
- The police had booked him after getting information from the National Crime Records Bureau (NCRB) that the accused had downloaded the material on his mobile phone.
- The police later filed a charge-sheet **under Section 67B of the Information Technology Act, 2000, and Section 15(1) of POCSO.**



- Section 67B, introduced in the IT Act in 2009, provides for a **jail term up to five years** for the first offence, and **up to 10 years for a subsequent offence** that involves publishing or transmitting material depicting children in sexual acts in electronic form.
- **Section 15(1)** provides for a three-year jail term for those storing child abuse material for commercial purposes. Subsequently, Section 15 was expanded to include other forms of offences related to online content on child sex abuse.
- The Court was hearing appeals against a Madras High Court ruling which said that “mere possession” and downloading or viewing of child pornographic content without an intent to further share it would not constitute an offence.
- The top court termed the HC verdict “egregious” on the issue and set it aside.

### **Key points of judgement :**

#### **1. Constructive possession :**

- Section 15 of the POCSO Act penalises storage of child pornography with an “intention to share or transmit” it.
- The Court interpreted “possession” to also mean “constructive possession”, which is beyond physical control to situations “where an individual has the power and intention to control the contraband, even if it is not in their immediate physical possession”.

- While “viewing the images on the screen, did the person have the ability to print them, save them, forward them or delete them. If he did, then he can be said to have knowingly exercised custody or control over those images,” the Court said.

#### **2. Failure to report is an offence**

- “For instance, say, ‘A’ is sent an unknown link by ‘B’, which upon clicking opened a child pornographic video on the phone of ‘A’.
- Now if ‘A’ immediately closes the link, although once the link is closed ‘A’ is no longer in constructive possession of the child pornography, this by itself does not mean that ‘A’ has destroyed or deleted the said material by merely closing the link. ‘A’ will only be absolved of any liability if he after closing the link further reports the same to the specified authorities,” the SC said.

#### **3. Broaden scope of FIR**

- The ruling also states that an accused can be booked under the provision even if such “storage” or “possession” does not exist at the time of registration of an FIR or any criminal proceeding. Essentially, simply deleting the material later on will not absolve the offender.



#### 4. Safe harbour under Section 79 of

##### IT act:

- The court pointed out that it has been brought to its notice that social media intermediaries (SMI) do not report such cases of child abuse and exploitation to the local authorities specified under POCSO Act and warned that they cannot claim exemption from the liability under Section 79 of the IT Act which says they “shall not be liable for any third party information, data, or communication link made hosted by him...unless due diligence is conducted by it and compliance is made.
- Such due diligence includes not only removal of child pornographic content but also making an immediate report of such content to the concerned police units in the manner specified under the POCSO Act and the Rules thereunder”.

#### 5. Change nomenclature:

- SC called upon Parliament to “seriously consider” an amendment to the POCSO Act to substitute the term “child pornography” with “child sexual exploitative and abuse material” (CSEAM) to “reflect more accurately on the reality of such offences”.

##### Pros and cons

##### Pros:

- Clarify the discrepancies in how various high courts had interpreted the issue.
- Strengthen child protection

##### Cons

- Criminalizing typical teenage behaviour  
- Law Commission of India had already recommended that consensual exchanges of intimate material among children should be handled sensitively and not criminalise

### FACT CHECK UNIT

##### Context:

- The Bombay High Court struck down as unconstitutional a key provision of the amended Information Technology (IT) Rules, 2021 which empowered the government to identify “fake news” on social media platforms through a “Fact Check Unit” (FCU).

##### Background:

- In April 2022, the Ministry of Electronics and Information Technology (MeitY) promulgated the IT (Intermediary Guidelines and Digital Media Ethics Code) Amendment Rules, 2023 (2023 Rules), which amended the Information Technology Rules, 2021.
- The amendment to Rule 3(1)(b)(v) of the IT Rules, 2021 expanded the general term “fake news” to include “government business”.
- Under the Rules, if the FCU comes across or is informed about any posts that are “fake”, “false”, or contain “misleading” facts pertaining to the business of the government, it would flag it to the social media intermediaries.



- The online intermediaries would have to take down such content if they wanted to retain their “safe harbour”, that is, legal immunity with regard to third-party content published by them.
- On January 31, in the split verdict by the division bench, Justice Patel agreed with the petitioners’ contentions and struck down the amendment while Justice Neela K Gokhale upheld the Government’s side.
- Thereafter, under the High Court Rules, Chief Justice Devendra Kumar Upadhyaya assigned Justice Chandurkar to give a deciding opinion as the third judge.

### **Argument:**

- Stand-up comic Kunal Kamra, the Editors’ Guild of India, the News Broadcasters & Digital Association, and the Association of Indian Magazines challenged the constitutional validity of the Rules, terming them arbitrary, unconstitutional, and in violation of fundamental rights.
- The Centre said the Rules were not against any opinion, criticism, satire, or humour targeting the government, and were meant to only proscribe or prohibit the peddling of fake, false, and misleading facts on social media related to “government business”.

### **Judgement:**

- Justice Chandurkar agreed with Justice Patel (retired), and held that the amended Rule 3(1)(b)(v) was violative of **Articles 14 (equality before law), 19(1)(a) (freedom of speech and expression) and 19(1)(g) (right to practise a profession or trade)** of the Constitution.

- The rule curtailed the fundamental rights of citizens beyond the reasonable restrictions prescribed under Article 19(2), which was “impermissible through the mode of delegated legislation”.
- The judge held that the expressions “fake, false or misleading” in the Rule are “vague and overbroad”, and endorsed Justice Patel’s view that under the right to freedom of speech and expression, there is no further “right to the truth”.
- Centre’s claim that decisions given by the FCU can be challenged before a constitutional court “cannot be treated as adequate safeguard”, and therefore, the Rule cannot be saved by reading it down or making a concession of limiting its operation.
- The impugned Rule resulted in a “chilling effect” on the intermediary due to the “threat of losing safe harbour”, and also on the freedom of speech – and was therefore liable to be struck down.

### **High Court Split Verdict Given Earlier**

- Justice Patel said that the petitioners were “correct in saying that the State cannot coercively classify speech as true or false and compel the non-publication of the latter”. “That is nothing but censorship,



## Simultaneous Elections

### Context:

- The Union Cabinet, chaired by the Prime Minister Shri Narendra Modi, has accepted the recommendations of the High-Level Committee on Simultaneous Elections under the chairmanship of former President Shri Ram Nath Kovind.
- Union Minister Ashwini Vaishnaw told reporters that the move to simultaneous elections would be effected in two phases – in the first phase, Lok Sabha and Assembly elections will be aligned; the second phase, which will be held within 100 days of the first, will cover local body elections.

### The government seeks to implement the plan in two phases.

- First phase: Conduct Lok Sabha and Assembly elections simultaneously.
- Second phase: Conduct local body elections (panchayat and municipalities) within 100 days of general elections.
- A common electoral roll will be used for all elections, with voter ID cards prepared by the Election Commission of India (ECI) in coordination with state election authorities.
- Initiate detailed discussions throughout the country.
- Constitute an implementation group.

### HOW THE NUMBERS STACK UP IN PARLIAMENT

#### WHAT PARTIES TOLD PANEL

32 OF THE 47 parties that gave their opinion to the Kovind panel supported the idea; 15 opposed it. NDA ally TDP didn't give its opinion, but told *The Indian Express* that it backed One Nation, One Election in principle. The BSP was initially against it, but now has come out in support. ALL 32 PARTIES were either BJP allies, or friendly towards the party then. Now, the BJD has turned against the BJP. Of the 15 parties against the move, five are in power in states, including Congress.



Kovind presents report to President Murmu in the presence of Home Minister Amit Shah. File

#### PARLIAMENT PICTURE NOW

PARTIES THAT BACKED the idea of simultaneous elections before the Kovind panel have 271 members in Lok Sabha now. This number includes the 240 MPs from the BJP.

THE NDA, including TDP and others who neither supported nor opposed simultaneous polls before the Kovind panel, has 293 MPs in Lok Sabha.

#### NUMBERS GAME IN LOK SABHA

A TWO-THIRDS majority of members present and voting is needed for the required constitutional amendment to go through – in the full House of

543, that works out to 362 MPs.

NDA HAS 293 MPs – so there is a possibility of passage of the amendment only if 439 MPs vote on the Bill, and the remaining 104 abstain. Alternatively, the government will have to convince non-NDA parties to back it.

#### ARITHMETIC IN RAJYA SABHA

NDA HAS 121 MPS, including the six nominated members. The opposition INDIA bloc has 85 MPs.

IF ALL 250 members are present, a simple majority would be 125 and two-thirds would be 164 MPs. Currently, there are 234 MPs in RS.

### Changes in Constitution needed:

#### Article 83 and 172

- The amendment may be brought in to ensure that the term of the reconstituted assembly (after the dissolution) is less than five years to compensate for the time in the run-up to the next simultaneous polls.
- In such situations, amendments to the Constitution are required so that “in the event of mid-term dissolutions, the term of the reconstituted legislature shall be for a period lesser than five years and for the remaining unexpired period of the original term of five years.”
- This Constitutional Amendment will not need ratification by the States

First constitutional amendment (w/o state consultation)	Second Constitutional Amendment (with state consent)
Article 82A	Article 324 A
Article 327	Article 325 (Single electoral roll)
Article 83 and 172	
Laws related to union territories	

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- This Constitutional Amendment will not need ratification by the States
- Article 356 allows the Centre to dismiss an elected state government and impose the President's Rule. An amendment to this Article may pave the way to prevent the premature dissolution of the Houses and Assemblies.

#### **Article 85 and 174 :**

- Dissolution of Lok Sabhas / Assemblies

#### **Article 82A**

- According to the roadmap presented by the Kovind Committee, the President will issue a notification during the first sitting of Lok Sabha after a general election, bringing into effect Article 82A – a new article introduced through the first Bill to facilitate the transition to simultaneous elections.
- The date of this notification will be known as the “appointed date”.
- Any state Assemblies elected after this “appointed date” will be dissolved once the Lok Sabha’s term expires.

#### **Article 325**

- The changes suggested include the amendment to the provisions of the Constitution relating to preparation of the electoral roll by the Election Commission of India in consultation with the State Election Commission(s) for the elections to the local bodies.

#### **Article 324A**

- It would also require an amendment to a constitutional provision in order to have simultaneous elections for municipalities, panchayat along with general elections of the Lok Sabha and the state legislatures
- Need for Constitutional Amendments: Several constitutional amendments to Articles 83, 85, 172, and 174 would be required, along with obtaining consensus from the states.
- Risk of Premature Dissolution: Political instability may result in unscheduled dissolutions of the Lok Sabha or state assemblies, disrupting synchronization.





- **State vs. National Focus:** Holding elections at the same time could mix state-specific issues with national concerns, potentially diluting the focus on each.
- **Logistical Challenges:** Conducting elections simultaneously across India's vast and diverse regions involves significant challenges in terms of voter management, security, and deployment of personnel.
- **Greater Focus on Governance:** Holding elections once every five years allows central and state governments to concentrate on governance without being in perpetual 'election mode.' It reduces public disruptions from political rallies and ensures the continuous delivery of essential services.
- **Higher Voter Turnout:** The Law Commission suggests that simultaneous elections could boost voter turnout, as voters would only need to cast multiple votes at once, making the process more convenient.
- **Lower Financial Burden on the State:** Continuous election cycles place a heavy financial strain on state resources. A single election process would significantly reduce the Election Commission of India's (ECI) overall election expenditure. For instance, the 2014 Lok Sabha elections cost ₹3,870 crore, while the 2015 Bihar state elections alone cost ₹300 crore. The ECI estimates 'One Nation, One Election' would cost around ₹4,500 crore.
- **Improved Internal Security Management:** Elections demand substantial security personnel, who could otherwise be used to address internal security concerns, such as managing issues related to naxalism.
- **Reduction in Black Money Circulation:** Elections involve high expenditures, often funded by black money. Conducting elections simultaneously would help decrease the flow of black money in the economy.
- **More Efficient Use of Political Parties' Resources:** Simultaneous elections would cut down on campaign costs for parties and candidates, helping smaller regional parties manage their finances more effectively.
- **Fewer Populist Measures:** Frequent elections prompt politicians to focus on short-term electoral gains instead of long-term policies. Simultaneous elections would encourage more consistent governance, minimizing the emphasis on populist measures.
- **Reduced Imposition of the Model Code of Conduct:** The Model Code of Conduct (MCC) temporarily halts development activities during elections. By minimizing the frequency of MCC enforcement, simultaneous elections would reduce 'policy paralysis' during election periods.

## International Relations

### India's Neighbourhood

#### Taliban's New Morality Law

- Taliban supreme leader Hibatullah Akhundzada has directed officials to enact **Afghanistan's "morality law"**, formalising and codifying the restrictions on women and other groups in the country.
- The Ministry of Propagation of Virtue, Prevention of Vice and Hearing Complaints published the 114-page code, the first formal **enactment of such laws since the Taliban took power in August 2021**, late last month.
- **The code makes it mandatory for a woman to veil her entire body at all times in public, and deems a face covering as "essential to avoid temptation and tempting others".**
- Woman's voice is **deemed "intimate"**, and should *not be heard singing, reciting*, or reading aloud in public.
- A report in The Guardian noted a provision that says **women should not be heard singing or reading aloud even inside their homes.**
- **The playing of music and mixing of men and women who not related are banned.**
- Women and men are forbidden from even **looking at each other** if they are not related by blood or marriage.
- Code also requires **men to not wear shorts** above the knee or closely trim their beards.

- Other provisions in the code sanction the **persecution of LGBTQ people and religious minorities.**

#### Implications of New Law

- UN experts said the code introduces "new, even more repressive measures". "Empowered by the new law, the Taliban's morality inspectors have extensive authority to **arbitrarily detain and punish individuals... Ordinary citizens [are] encouraged to report transgressions,**" they said – which would worsen the "already pervasive climate of fear and surveillance across Afghan society"
- UN experts described the measures as "gender apartheid", and "disturbingly similar" to what was seen in the previous Taliban regime (1996-2001).
- The group has not moderated its approach since its return to power.

#### Recognising Taliban Internationally: Implications

- Three years after the Taliban retook control of Afghanistan, even though they have been successful in establishing broad-based control over the country, the condition of the common Afghans remains untenable.
- In contrast to the Taliban 1.0, which was **officially recognised by three states namely: Pakistan, Saudi Arabia, and the United Arab Emirates (UAE)**, no state has formally recognised the current Islamic Emirate.



- The Taliban's ascent to power in Afghanistan represents an exceptionally challenging case in which a **constitutionally elected government was toppled by a UNSC-sanctioned group** that grasped power through extra-constitutional means such as force or coups d'état that **should not be considered legitimate by other countries**.
- The growing diplomatic engagement with the Taliban brings in the concept of "implied" recognition **where a recognising state takes certain actions**, such as crafting a diplomatic relationship, **but does not officially recognise the other state**.
- The terms "recognition of state" and "recognition of government" are defined differently in international law.
- The international community of nations recognise the **establishment of a new or existing country** with an international legal personality.
- Recognition of government, on the other hand, refers to the **transfer of power inside** an already recognised state or country between two entities: A new "authority" or "government"

### Engaging in Grey Zone

- Operating in this middle ground of engaging with the Taliban **without publicly recognising their authority provides** various strategic advantages to the concerned countries.

- This approach enables countries to **conveniently interact for their own interests and balances their needs** without officially granting legitimacy to the Taliban regime.
- For the Taliban, engagement offers a public relations boost, **allowing them to claim they are not international outcasts** as critics suggest.
- Countries can **preserve their national interests** and secure their borders in Afghanistan by **maintaining diplomatic relations**.

### Neighbouring Countries of Afghanistan



### Engaging in Grey Zone

- Significantly, this approach allows **governments to separate themselves** from being associated with the Taliban's contentious policies and **human rights record** while still engaging in crucial dialogue and collaboration.



- In a recent development, the Taliban's chief spokesperson, Zabihullah Mujahid declared that their relations with China, Russia, Tajikistan, Uzbekistan, Turkmenistan, Iran, Pakistan, and other nations in the region are official, **noting the presence of embassies**, inter-country travel, and consulates with traders coming, going and transferring goods.

### Another Perspective

- The legal ramifications of international organisations recognising governments are a **lot more complex than those of countries**.
- For example, a **recognising state is not compelled to interact**, create, or broaden its connection with a newly recognised government.
- On the contrary, an international organisation **cannot restrict the new government's rights, membership**, or other duties within the organisation.
- The aforementioned may also clarify why **many international organisations** have been less inclined to recognise the Taliban than individual states.

### International Law

- Article 41(2) of the International Law Commission's Articles on Responsibility of States of Internationally Wrongful Acts (2001) which states that if a country violates a fundamental rule of international law (jus cogens), **other countries cannot accept or acknowledge the situation that this violation created**.

- They must treat it as illegal and work to restore the situation to one that respects the violated rule.
- Resultantly, if a new entity violates a **peremptory rule of general international law**, states must refuse to recognise it as a state or government **under the principle of non-recognition**.
- A treaty or a UNSC binding resolution may instruct governments not to recognise a new de facto administration.

### Conclusion

- **The Taliban's rigid rule over Afghanistan might not be sufficient** to classify it as a "government" as the Taliban government's recognition is **inextricably linked** to its readiness to comply with contemporary international laws.
- Additionally, remaining legally unrecognized does not free Taliban of their obligations under international human rights and humanitarian laws, since **it hinges on administration** rather than government status.

## Africa

### Forum on China- Africa Forum

- Chinese President Xi Jinping pledged \$51 billion of funding to African countries on Thursday (September 5) at the 9th edition of the Forum on China-Africa Cooperation (FOCAC) in Beijing.
- China will support 30 infrastructure projects across the continent, with 360 billion yuan (\$50.7 billion) to be offered as financial assistance.
- The Forum on China-Africa Cooperation was established in 2000 to formalise the strategic partnership between China and African nations.
- **A summit is conducted every three years, with the host alternating between China and an African member.**
- The FOCAC counts 53 African nations as its members – the entire continent except Eswatini, which has diplomatic ties with Taiwan against Beijing's **"One China" Policy**.
- The African Union Commission, the continental bloc tasked with ensuring cooperation and economic integration across its member countries, is also a member.
- African leaders will engage in bilateral talks with China on political and economic cooperation over three days.
- **The theme this year is "Joining Hands to Advance Modernization and Build a High-Level China-Africa Community with a Shared Future."**
- Commitments to continued economic and political cooperation were made.

- The current summit is expected to address state governance, industrialisation, agricultural upgradation, and improved cooperation over China's infrastructure financing via the Belt and Road Initiative (BRI).

### Forum on China- Africa Forum- Significance

- The summit comes at a time when China is experiencing a prolonged economic slowdown post-pandemic, with Bloomberg reporting that **China's growth target for the year looks increasingly out of reach as its manufacturers battle deflationary pressures** and unemployment challenges.
- There are also concerns about loan defaults – in 2020, Zambia defaulted on its loan (valued at \$3.5 billion this March), while Ghana defaulted on most of its \$30 billion external debt in 2022.
- It may partly explain China's approach to the current FOCAC.
- A Reuters report notes that President Xi Jinping wishes to **narrow the country's investment portfolio** away from big-ticket infrastructure to "small and beautiful projects."
- According to BBC Africa, Kenya is seeking **funding for multiple infrastructure** projects including the completion of the transnational **Standard Gauge Railway to Uganda**, which China discontinued in 2020.



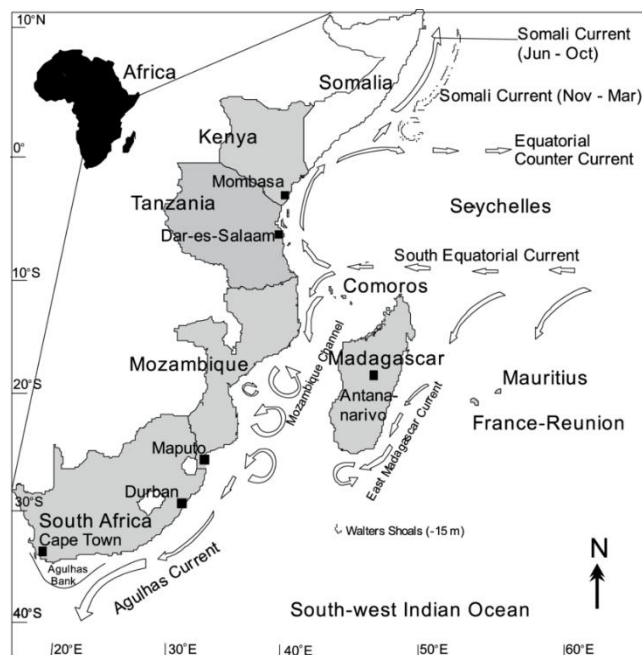


- This comes despite its massive debt to China, which triggered countrywide protests.
- **Another concern from countries like South Africa is the balance of trade being in China's favour.**
- China gets 20% of the region's exports, mainly primary commodities like metals, mineral products and fuel, and is responsible for about 16% of African imports, chiefly Chinese manufactured goods, electronics and machinery.
- Africa is also an integral partner in the BRI, which intends to establish cross-border economic, political and cultural relations akin to the erstwhile Silk Road through land and maritime routes.
- **China has reportedly invested over \$120 billion in supporting infrastructure for the BRI over the past decade.**

### Mauritius: Navigating power shifts in the Western Indian Ocean

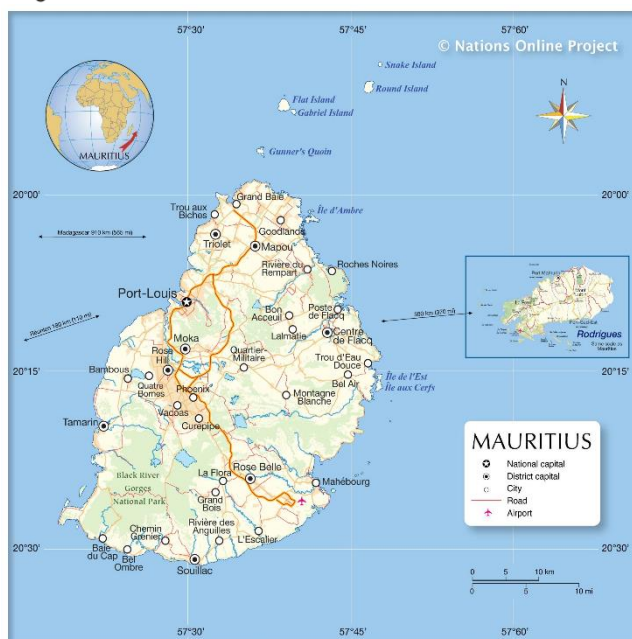
- The global order is going through a discernible transition, as **evidenced by the waning US hegemony and the ascent of China** and other middle-power countries, leaving the world in flux.
- In this rapidly changing world order, the political and security landscape of the **Western Indian Ocean Region (WIOR)** has witnessed drastic transformation.

### WIOR



### Mauritius: Navigating power shifts in the Western Indian Ocean

- Located off the coast of southeast Africa, WIOR is home to **some of the world's busiest International Shipping Lines (ISL)**, transporting most international freight and container traffic.
- The WIOR is also abundant in natural resources.
- A 2017 World Wildlife Fund (WWF) report estimates that the **region's natural resources are worth US\$ 333.8 billion.**
- In the centre of WIOR lies the small, densely populated island nation of the Republic of Mauritius.
- Home to more than a million people, the country comprises a group of islands with a 1.9 million square km Exclusive Economic Zone (EEZ) and an additional 396,000 square km marine area covered by a Joint Management Agreement (JMA) with the Seychelles.



- The Republic comprises two main islands, Mauritius and Rodrigues, along with other offshore islands such as Agalega and St. Brandon.
- In the security dimension, Mauritius evokes an intriguing perspective—a small island state *operating in a dynamic security environment* between the two major continents of Asia and Africa.

### **Salience of Mauritius**

- Major power interests are growing in the region, with rivalries between the US and China and **India and China becoming more prominent.**
- Security concerns, geoeconomic interests, and capacity-building primarily drive these rivalries.
- According to an Interpol report, international crimes such as **piracy, money laundering, drug trafficking, and human trafficking** also grew more intense in recent times.

- Mauritius's capacity to assume a more assertive role may be **restricted to its involvement** in international institutions as a small island state.
- Yet, it has **implemented some specific proactive measures** to improve the security situation in WIOR.
- Mauritius acknowledges the value of peace, stability, and prosperity of WIOR towards an **open, free, and inclusive Indo-Pacific.**
- The region has become a theatre of powerplay as **numerous countries project** their power there.
- South Africa is the powerhouse of the WIO region.
- **It has long been considered a security supplier to most WIO countries and a net security provider in the southwest Indian Ocean.**
- With its colonial past and continued ongoing ties in the region, **France has historically been the dominant nation among all the island nations.**
- The Indian Ocean Commission (IOC), a regional bloc of five island nations in the area, was established by France in 1982.
- Despite its geographic distance, India has long regarded the West Indian Ocean region as a maritime neighbour.
- **India was recently granted observer status within the IOC.**
- In the WIO region, **India is joining France and other European partners** to prevent terrorism, especially in the Mozambican channel.
- India is set to play an even bigger role as it completed a new jetty and airstrip at Agalega Island.

- Chinese interest in the Indian Ocean is steadily increasing.
- Chinese warships have been policing the Indian Ocean since 2008, and by 2017, China already had a fully operational military base in Djibouti, hosting 400 marines.
- It is also allegedly planning multiple other bases including in **Equatorial Guinea, Gabon, Seychelles, and Comoros.**
- The **US is also increasing its presence** to fend off growing Chinese penetration and preserve its influence in the region.
- Due largely to its security concerns, Australia has taken an active role in the WIO.
- However, as the country shifts its focus to regions closer to home, such as the Pacific, the **Australian Navy's influence is progressively dwindling in WIOR.**
- However, given their changing interests, Australia may later decide to reevaluate its commitments in the region.

- Going forward, it will be interesting to see how **Mauritius plays these multiple external actors** with their vested interest in fulfilling its own objectives and **preventing any major conflict between these global powers.**

### Conclusion

- While assessing the security and development challenges of African Small Island States, the outstanding battle to influence Mauritius and its surrounding region must be considered.
- The archipelago's advantageous geostrategic location, political stability, and sound governance are contributing to its attractiveness.
- Since gaining independence, the nation has excelled at preserving internal peace and stability.
- No wonder international financial institutions such as the International Monetary Fund (IMF) or World Bank are eager to invest in Mauritius.

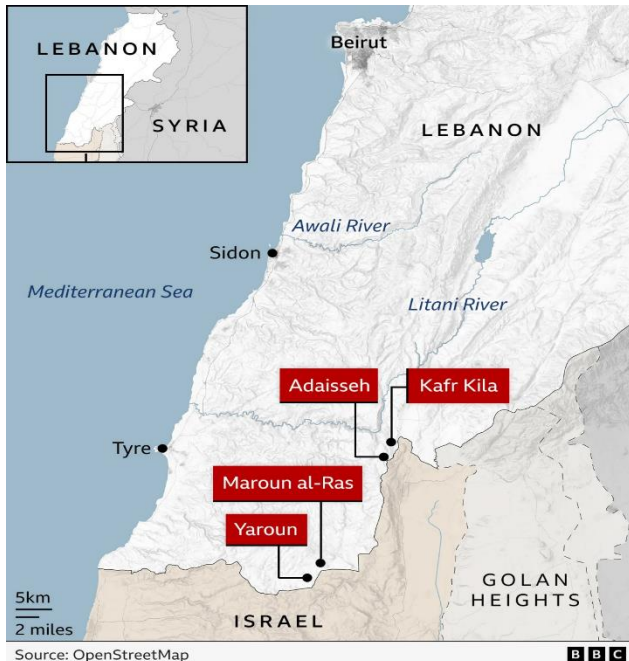
## West Asia

### Israel- Hezbollah

- Over the last 2 weeks, Israel has carried out massive bombardments in Lebanon targeting Hezbollah, killing at least 700 people and displacing more than 1,00,000.
- Among the dead was Hassan Nasrallah, Secretary-General of Hezbollah.







- The Israel Defense Forces (IDF) has said it is carrying out "limited, localized, and targeted ground raids" in southern Lebanon to dismantle what it calls Hezbollah's "terrorist infrastructure"

## Hezbollah

- The Hezbollah was formed as a Shia resistance organisation in 1982, with help from Iran's Islamic Revolutionary Guard Corps (IRGC), in the aftermath of Israel's invasion of Lebanon in the same year.
- Israel sent troops to Lebanon to **force the Palestine Liberation Organisation (PLO)** out of the country.

- While Israel managed to force the PLO to **relocate from Lebanon to Tunisia**, and carved a buffer in southern Lebanon, the war led to the **rise of militant Shia resistance**, which turned out to be a long-term security challenge for Israel.
- The group, which is termed a terrorist organisation by both Israel and the U.S., takes credit for **forcing Israel to end its occupation of southern Lebanon in 2000**, 18 years after it invaded Lebanon.
- Last time Israel and Hezbollah fought a full-scale war was in 2006 when Israel invaded Lebanon after a Hezbollah cross-border raid.
- Hezbollah is not a conventional force.
- It's a **highly armed guerrilla army** with conventional weapons and asymmetric tactics, which had hurt Israel in the past.
- Hezbollah, either by conscious decision or by limitations, **chose to fire short-range rockets** into Israel in response to the air strikes.

### Areas targeted in Israel-Hezbollah conflict

Aerial attacks launched in the latest 24-hour period

- Israeli strikes
- Hezbollah strikes
- Previous attacks (from 23 Sep)



Note: Data includes air strikes, artillery, rocket and mortar attacks

Source: ISW data between 18:00 GMT 6 Oct and 18:00 GMT 7 Oct 2024

B B C

## Big Blow to Lebanon

- Under Nasrallah's leadership, Hezbollah fighters had forced Israel to withdraw from Lebanon at the end of the wars of 2000 and 2006.
- After the October 7, 2023, attacks by the Palestinian militant group Hamas in southern Israel, Nasrallah had harassed Israel in the north, which led to the evacuation of about 63,000 Israelis from near the country's border with Lebanon.
- The Axis of Resistance is Iran's term for the groups targeting Israel – Hamas, Hezbollah, and the Houthis in Yemen. **Hezbollah, the most powerful of these Iranian proxies.**

- Nasrallah's assassination is the crowning moment of Israel's campaign against Hezbollah's leadership that began with the killing of Fuad Shukr in July 2024.

## West Asia in A Flux

- Saudi Arabia, the UAE, and Qatar will be watching to see how quickly the conflict can now be brought to an end.
- They will be looking at Iran's next move – whether it decides to retaliate, which will lead to a continuation of the conflict, or there is a dialing down of tensions.
- **Whether Nasrallah's killing marks a point of dramatic escalation or a gradual lowering of temperatures in the West Asian crisis remains to be seen.**

## International Organizations

### QUAD Summit- 2024

- Prime Minister Narendra Modi arrived in the United States, where he will participate in the fourth Quad Leaders Summit in Wilmington, Delaware on Saturday (September 21).

### About QUAD

- Following the Indian Ocean tsunami of December 2004, India, Japan, Australia, and the US created an informal alliance to collaborate on disaster relief efforts.
- In 2007, then PM of Japan, Shinzo Abe, formalised the alliance, as the Quadrilateral Security Dialogue or the Quad.

- But this nascent group was hampered by a lack of cohesion amongst members and accusations that the **Quad was nothing more than an anti-China bloc.**
- Thus, the early iteration of the Quad, largely based on maritime security, eventually dissipated.
- In 2017, faced again with the rising Chinese challenge, the four countries revived the Quad, and broadened its objectives.
- Quad is **not structured** like a typical multilateral organisation and lacks a secretariat and **any permanent decision-making body** (like the EU or UN).



- Instead, it has focused on expanding existing agreements **between member countries** and highlighting their shared values.

## Objectives of QUAD

- The group's primary objectives include maritime security, addressing the risks of climate change, creating an ecosystem for investment in the region, and boosting technological innovation.
- In 2020-21, the grouping also collaborated to combat the Covid-19 crisis, especially vis-à-vis vaccine diplomacy.
- Quad members have also indicated a willingness to expand the partnership through a so-called Quad Plus that would include **South Korea, New Zealand, and Vietnam**, amongst others
- Despite its ostensible commitment to a broad range of issues, **the Quad's raison d'être is still considered to be the threat China poses.**
- The Quad's member states have all got their own reasons to be **wary of the rise of China, and curbing Beijing's regional advances.**

## Takeaways from QUAD Summit 2024

- **Quad Cancer Moonshot**", a groundbreaking partnership to save lives in the Indo-Pacific region.
- Under this, India will provide \$7.5 million worth of HPV sampling kits, detection kits and **cervical cancer vaccines** to countries in the Indo-Pacific.

- A commitment from the Serum Institute of India, in partnership with Gavi and the Quad, to support orders of up to 40 million HPV vaccine doses for the Indo-Pacific region.
- The First-ever **"Quad-at-Sea Ship Observer Mission" in 2025** to improve interoperability and **advance maritime safety** between our Coast Guards across the Indo-Pacific.
- The **Quad Indo-Pacific Logistics Network pilot project**, to pursue shared airlift capacity among our nations and leverage our collective logistics strengths, in order to **support civilian response to natural disasters** more rapidly and efficiently across the Indo-Pacific region.
- The "Quad Ports of the Future Partnership" will harness the Quad's collective expertise to support sustainable and resilient port infrastructure development across the Indo-Pacific.
- A "Semiconductor Supply Chains Contingency Network Memorandum of Cooperation" that would leverage the complementary strength of the Quad partners to realize a diversified and competitive market and enhance Quad resilience in semiconductor supply chains.
- Quad partners agreed to launch a **"Maritime Initiative for Training in the Indo-Pacific" (MAITRI)** to enable Indo-Pacific partners to maximise tools provided through Indo-Pacific Maritime Domain Awareness (IPMDA) and other Quad initiatives.

- MAITRI will enable regional partners to monitor and secure their waters, enforce their laws, and **deter unlawful behaviour**.
- India will host the inaugural MAITRI workshop in 2025 (during India's Quad Presidency).

### Does QUAD Have a Security Agenda?

- It is true that, unlike AUKUS and SQUAD, the **Quad does not have a stated comprehensive security goal**.
- The strategic and security compulsions in the Indo-Pacific necessitate the Quad to deliberate **on the shifting dynamics at sea in the region**.
- It may be argued that the bedrock of convergence among the Quad countries lies in **the quest for a peaceful and stable Indo-Pacific**.

- Since the group became active again in 2017, it has continued to underscore the need to have a **free and open order in the Indo-Pacific**—ensuring freedom of navigation & maintaining peace and stability in the region.
- While the group has been reluctant to name China, **it is abundantly clear that the focus has remained on Beijing's coercive tactics** and sustained disregard for international law.

### To Sum Up!

- It would be inaccurate to posit that the Quad has had a muted maritime security agenda.
- An overview of the Quad joint statements would reveal that increasingly, the group has **sharpened its criticism against Chinese actions in the South China Sea** expressing concern over the worsening growing militarization of disputed pockets in the region

## Places in News

### Pokrovsk

- The Russians turned to Pokrovsk, the eastern Ukrainian city with a pre-war population of about 70,000, after they captured Avdiivka in February this year.
- Pokrovsk is part of Donetsk, one of the four Ukrainian oblasts which Russian President Vladimir Putin annexed in 2022 (Luhansk, Kherson and Zaporizhzhia are the others).

- Since February, Russian troops have slowly advanced towards Pokrovsk, building pressure on Ukraine's defensive lines.
- Now, with the Russians a few kilometres away, Ukrainian President Volodymyr Zelenskyy says the situation is "difficult".





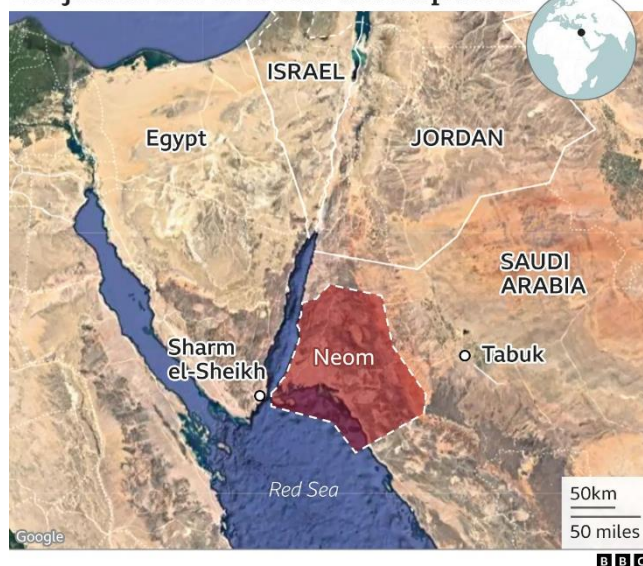
- Since February, Russian troops have slowly advanced towards Pokrovsk, building pressure on Ukraine's defensive lines.
- Now, with the Russians a few kilometres away, Ukrainian President Volodymyr Zelenskyy says the situation is "difficult".
- The city is home to a key railway station, built in the 19th century, and is located at the intersection of several vital roads that connect central Ukraine with the east.
- Pokrovsk grew around the railway station and **emerged as a producer of coking coal, a lifeline of Ukraine's pre-war economy**, and a vital logistical hub.
- During the Second World war, the city saw some of the fiercest battles.
- The Germans, who took the city in October 1941, forcibly moved many residents to Nazi labour camps elsewhere in Europe.
- Pokrovsk also witnessed the massacre of local Jewish people by the Nazis. **The city was liberated in September 1943 by the Soviet Red Army.**

## Neom

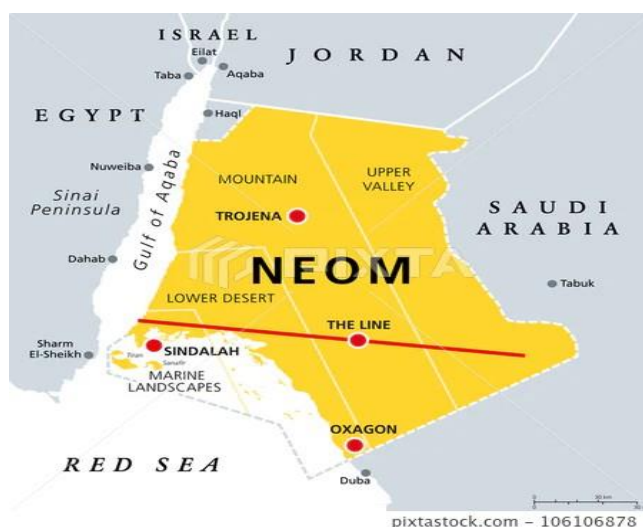
- Neom was visualised as part of Saudi Arabia's ambitious Vision 2030 project, which sought to diversify the country's economy and thus reduce its dependence on oil.
- **Spread over an area of 26,500 sq km, Neom is situated in Saudi Arabia's western Tabuk province.**

- First announced by the Crown Prince in 2017, its name is a fusion of the Greek word "neo" meaning "new", and the Arabic word "mustaqbal" meaning "future".

### Projected site of Neom development



- Neom claims to be a "blueprint for tomorrow in which humanity progresses without compromise to the health of the planet".
- It's a \$500bn (£366bn) project, part of Saudi Arabia's Vision 2030 plan to wean the country off oil - the industry that made it rich.



## The Line

- Probably the best-known among all the Neom projects, **the Line will be built as a 170-kilometre-long mirrored city line spanning** 34 square kilometres across the desert.
- The original plans for the city had “vertically layered” buildings 500 metres tall and 200 metres wide.
- **Designed to be entirely walkable, the city will be powered by 95 per cent renewable energy.**

## Oxagon

- The Oxagon is an octagonal industrial city which will house an integrated industrial port and residential apartments. Oxagon too will be powered entirely by renewable energy.
- Trojena is set to host the Asian Winter Games in 2029.
- The region is home to Saudi Arabia’s tallest mountains (Jabal Soudah), and will house a ski resort.
- According to the Neom website, Trojena “experiences sub-zero winter temperatures and has a year-round moderate climate that is cooler on average than the rest of the region”.

- Magna is designed to be a luxury lifestyle coastal destination, located on the coast of the Gulf of Aqaba .
- The region will house 12 premiere destinations spanning 120 kilometres, and will be home to a nature reserve which aims to be the “gold standard in sustainable tourism”.

## Sindalah

- Sindalah is a luxury island in the Red Sea, which hopes to rival the likes of the Greek isles, the Caribbean Sea and the Mediterranean coastline, all favoured by yacht and boat owners.
- Set to open this year, Sindalah will span 840,000 square metres.

## Concerns

- The BBC in 2020 reported that Saudi security forces were resorting to force to evict the Huwaitat tribe, the indigenous residents of the Tabuk region where Neom is being built.
- The UN in 2023 expressed alarm at the Saudi government’s imminent execution of Huwaiti dissenters for protesting their forced evictions while being charged as terrorists.



## Internal Security

### Military Exercises

#### Exercise Yudh Abhiyaas

- The **20th edition of India-USA** Joint Military Exercise YUDH ABHYAS-2024 commenced today, at Foreign Training Node in Mahajan Field Firing Ranges, Rajasthan.
- The exercise is scheduled to be conducted from **9th to 22nd September 2024**.
- Exercise YUDH ABHYAS has been held annually since 2004, alternating between India and the USA.
- This edition marks a significant increase in the scope and complexity of the joint exercise in terms of troop strength and equipment.
- The Indian Army contingent comprising 600 personnel is being represented by a battalion of the **RAJPUT Regiment** along with personnel from other arms and services.
- The US contingent comprising of similar strength will be represented by the troops of 1-24 Battalion of the **Alaska based 11th Airborne Division of the US Army**.
- Aim of the Joint Exercise is to enhance joint military capability of both sides to undertake **counter terrorism operations** in a sub conventional scenario under Chapter VII of the United Nations Charter.
- **The exercise will focus on operations in the semi-desert environment.**

- Exercise YUDH ABHYAS will enable both sides to **share best practices** in tactics, techniques and procedures of conducting joint operations.
- It will facilitate **developing inter-operability, bonhomie and camaraderie** between the two armies.
- The joint exercise will also enhance defence cooperation, further augmenting bilateral relations between the two friendly nations.

#### Exercise Al Najah- 5

- The Indian Army contingent departed today for the **5th edition of India-Oman Joint Military Exercise AL NAJAH**.
- The exercise is scheduled to be conducted from 13th to 26th September 2024 at Rabkoot Training Area in Salalah, Oman.
- **Exercise AL NAJAH has been held biennially since 2015, alternating between India and Oman.** Last edition of the same exercise was conducted at Mahajan in Rajasthan.







- The Indian Army contingent comprising 60 personnel is being represented by a Battalion of the **Mechanised Infantry Regiment** along with personnel from other arms and services.
- The Royal Army of Oman contingent also **comprising of 60 personnel** will be represented by the troops of Frontier Force.
- Aim of the Joint Exercise is to enhance joint military capability of both sides to undertake counter terrorism **operations under Chapter VII of the United Nations Charter**.
- The exercise will focus on operations in the Desert environment.
- The **Indian Air Force (IAF)** has successfully completed Exercise Eastern Bridge VII with the **Royal Air Force of Oman (RAFO)** at the RAFO airbase in Masirah.
- The IAF contingent has returned to India after participating in a comprehensive series of training missions, which featured the **participation of MiG-29** and Jaguar aircraft from IAF, F-16 and Hawk from RAFO.
- This exercise significantly enhanced strategic relations with OMAN besides operational coordination and **tactical skills between the two air forces**.
- Exercise Eastern Bridge VII was aimed to **strengthen military cooperation** and enhance the interoperability of both forces.

- The exercise included complex air operations, **air-to-air combat drills**, and mission scenarios designed to **improve strategic and tactical capabilities**.

### Exercise Aikya

- The National Disaster Management Authority (NDMA), in collaboration with the Southern Command of the Indian Army and Tamil Nadu **State Disaster Management Authority (TNSDMA)**, conducted "**EXERCISE AIKYA**," an Integrated Symposium cum Tabletop Exercise (TTE) on disaster management, in Chennai
- "**Aikya**," meaning "**Oneness**" in Tamil, reflects the exercise's aim to integrate India's Disaster Management community.
- EXERCISE AIKYA marks a significant step towards a **more resilient disaster** management framework in India.
- EXERCISE AIKYA simulated emergency situations to test roles and responsibilities, fostered discussions on **technologies and trends in disaster relief**, and reviewed lessons from recent operations.
- It addressed issues including tsunamis, **landslides, floods, cyclones, industrial incidents, and forest fires**, with focus on recent events in **Tamil Nadu, Wayanad, and Andhra Pradesh**.

## Cyber Security

### Exploding Pagers

- On 17 September 2024, in an unprecedented development, **thousands of pagers** reportedly belonging to the members of the Hezbollah cadres exploded across Lebanon.
- The explosions, which appeared to be large-scale, **coordinated attacks**, killed more than 40 people and injured thousands.
- A day later, in the apparent second wave of attacks, **walkie-talkies exploded in Hezbollah** strongholds in eastern and southern parts of the Lebanese capital, Beirut.



- Initial reports suggested that Israeli intelligence agencies **may have rigged the pagers** at the production level by planting a small amount of **explosive material in the device model** that Hezbollah ordered from a Taiwanese company, Gold Apollo.
- In warfare, **states have eternally looked** for new ways to surprise their adversaries with **spectacular tactics on and off the battlefield**.
- Even then, the hacking and rigging of Hezbollah's communication devices shows once again the **deep reach of Israeli security and intelligence agencies**.
- The symbolic message is that despite the **intelligence failure of the October 7 Hamas** raid last year, Israel retains its capability to **target its adversaries the way it wants** and at the time that it chooses to.
- Disruptive attacks on critical national infrastructure, including Distributed Denial of Service, **malware and ransomware** attacks, by adversarial state and non-state actors have now **been a regular occurrence in cyberspace**.
- Israel and its adversaries – Iran, Hezbollah, and Hamas – have frequently launched **cyberattacks against each other's** critical infrastructure.



- However, sabotaging and targeting communication devices will likely lower the threshold for cyberattacks, opening a new chapter in *offensive cyber operations*.
- This is also the first time we have seen such extensive physical damage and human casualties being **caused by electronic sabotage and cyber tactics**.
- Regarding cyberspace, International Humanitarian Law (IHL) explicitly mentions that **“cyberattacks must not be directed against civilians or civilian objects.”**
- Admittedly, the targeting in this case was specific: only the pagers and walkie-talkies used by Hezbollah cadres.
- **Yet, as ground reports suggested, their impact was not limited to the cadres.**
- States have constantly attempted to sabotage and disrupt their adversaries' critical infrastructure, including communication networks.
- The US, for instance, has long alleged that the **Chinese government planted backdoor vulnerabilities in Huawei telecom equipment**.
- However, the purported tampering of Hezbollah's pagers is the first known instance of hardware tampering at the production level.
- Mitigating this possibility will be a major cybersecurity challenge with the advent of the Internet of Things (IoT) and the proliferation of smart electronic and communication devices.

- By 2023, it was estimated that the world would have 43 billion IoT-connected devices.
- Often designed with limited computational power and inadequate encryption capabilities, these devices are more susceptible to cyberattacks.

## Dark Web

- The perils of the dark web and its threat to India recently became apparent after the University Grants Commission-National Eligibility Test (UGC-NET) exam papers were leaked online.
- Sold on the dark web for INR 6 lakhs, the papers were further circulated on encrypted messaging platform, Telegram, and led to the **immediate cancellation of the examination**.
- The internet has many layers. The surface web is the part of the internet that users interact with in **their daily online activities** and the **deep web contains content that is not indexed by ordinary search engines** such as online banking sites, where data is stored in databases and frequently updated based on user permissions.
- The dark web, a smaller and more concealed segment of the deep web, **requires specialised software like Tor**.
- Born out of the United States Department of Defense in the 1990s, **research organisations developed an anonymized and encrypted network** to protect sensitive communications of the US intelligence community.



- This led to the creation of the Tor network, short for “**The Onion Router**”, which serves as the underlying technology of the deep web.
- Drug trafficking is one of the most prominent illegal activities on the dark web.
- Various **marketplaces** specialise in the sale of narcotics, offering a wide range of substances and **promising discreet delivery methods**.
- The largest was the Silk Road, which was shut down in 2013.
- Following that, others such as Silk Road 2, Evolution, and Agora popped up.
- In addition to drug trafficking, it facilitates the **sale of weapons and counterfeit goods**.
- Firearms, explosives, and other illicit weapons can be purchased, **often with deliveries disguised as legitimate shipments**.
- Counterfeit goods range from luxury items and electronics to pharmaceuticals and identification documents, posing risks to consumer safety and intellectual property rights.
- It also **serves as a marketplace** for cybercrime services and tools.
- Cybercriminals trade malware, ransomware, hacking services, and stolen data, enabling **sophisticated attacks** on individuals, businesses, and governments worldwide.

## India's Efforts

- In India, accessing the deep or dark web itself is **not considered illegal**; the government does **not classify it as an unlawful activity**.
- However, the legality of activities performed there is subject to scrutiny, with certain actions being **explicitly illegal** such as trading child pornography, purchasing illegal firearms, or buying drugs.
- Thus, while the deep web as a platform is not inherently illegal, **the illicit nature of certain activities done on the dark web has potential legal consequences**.
- In 2020, a suspect was arrested by the Narcotics Control Bureau (NCB) for selling psychotropic tablets on the dark web.
- Between 2020 and April 2024, 92 cases of drug trafficking using the dark web or cryptocurrency have been reported.
- In another case, on 23 January 2024, cybersecurity firm CloudSEK reported a breach compromising the personal information of **approximately 750 million individuals in India**.
- India currently relies on a framework established by the Information Technology Act of 2000, **which has been updated through amendments in 2008 and 2021**.
- These updates aim to tackle emerging threats, including those from the dark web.



- Additionally, the **National Cyber Security Policy of 2013** is instrumental in designing strategies to counteract cyber threats, including those originating from the dark web.
- Organisations like **CERT-In (Indian Computer Emergency Response Team)** manage and respond to cyber incidents, including those involving the dark web.
- Similarly, law enforcement agencies, such as the Central Bureau of Investigation (CBI) and state police units, are actively engaged in addressing cybercrime, including illicit activities conducted on the dark web.
- India has made significant advancements in combating cybercrime through initiatives such as the **Crime and Criminal Tracking Network and System (CCTNS)** and the **Indian Cyber-Crime Coordination Center (14C)**.

## Way Forward

- Since cybercrimes cross national borders, **international cooperation is indispensable** in tackling dark web activities. Establishing treaties and agreements for cybercrime cooperation can enhance global efforts to combat dark web activities.
- Initiatives like the recently **approved UN Cyber Crime Treaty** aim to provide a framework for countries to cooperate on cybercrime investigations and prosecutions, harmonising legal approaches and facilitating information sharing.
- Providing **specialised training** to law **enforcement personnel** on dark web investigation techniques and tools is essential.
- **Public awareness campaigns** can educate the public about the dangers of the dark web, **promote safe internet practices**, and improve digital literacy.

## Defence Modernization

### India's Fighter Strength Depletion

- The Indian Air Force's (IAF) multiple trials and tribulations never seem to abate.
- With a sanctioned strength of 42 squadrons against the current 30 squadrons, the service's fighter strength depletion has acquired a momentum that appears very difficult to arrest.
- The most recent manifestation of the problems plaguing the service are air crashes.
- The **crash of a Russian-built MiG-29** fighter jet in Barmer, Rajasthan, due to a very "critical technical snag" as the IAF put it in its statement following the mishap is another example.
- Earlier in June this year, a **Sukhoi-30 MKI crashed in Maharashtra** during a routine training sortie due to another technical snag.
- These crashes come against the backdrop of **several crashes involving frontline fighter jets of the IAF and the Indian Navy (IN)** in the last decade and a half.



## Key Challenges for the IAF

- Firstly, the consequences of losing the best jets in the IAF's combat fleet have been accompanied by the loss of several MiG-21 fighters, which in any case, are being phased out from the IAF.
- **Indeed, by the end of 2025, the remaining or final two squadrons of the MiG-21s will be retired.**
- This would leave several of the bases from which they operated empty. **Indeed, their replacement was supposed to be the Tejas Light Combat Aircraft Mark-1A (LCA Mk-1A).**
- However, Hindustan Aeronautics Limited (HAL) is **already falling behind** its production target of 16 Tejas fighter planes per year, let alone meeting the deployment requirements of the IAF.
- Since GE is the engine supplier for both variants of the Tejas—Mk-1A and its follow-on Mk-2, **the IAF's critical shortages are unlikely to ameliorate any time soon**, notwithstanding a recent agreement between India and the United States (US) dubbed the Security of Supply Arrangement (SOSA).
- Indeed, **the benefits of SOSA** while impactful will accrue over time and the agreement states it is **"non-binding"**.
- Thirdly and consequently, the burden for the IAFs **in-service frontline fighter aircraft** has only increased and in all probability will become worse.

- For instance, **the plummeting MiG-21 strength** due to obsolescence and the inevitable **retirement of its two remaining squadrons** in about a year has compelled the IAF to fly its **frontline combat aircraft such as the Sukhoi-30 MKI.**
- The latter aircraft are being forced to increase their flying hours and have greater range than a MiG-21 allowing them to cover a larger area, but this comes at the cost of the Su-30 MKIs **remaining airborne for a longer period** thereby exerting greater stress on the machine.
- Due to the lack of timely replacement of the MiG-21s with the Tejas Mk-1A, the IAF now faces the **worst of both worlds**—US's GE that cannot supply engines for India's indigenous Tejas aircraft in time and Russia's **Rosoboron export that cannot provide the necessary upgrades for the Sukhoi-30 MKI.**

## **Conclusion**

- To partially meet the acute fighter crunch, the **IAF is on course to purchase 11-12 Mirage 2000 fighter jets from the Qatari Air Force (QAF)** as a stopgap measure to make up for its dwindling fighter combat numbers.
- But these aircraft have slightly different onboard technologies, and they are less **advanced than the Mirage-2000s in service** with the IAF requiring IAF pilots to undergo **additional training to operate them.**

## Police Reforms

### National Security Strategies Conference

- At a security conference held in September 2024, the top police officers of the country discussed how to study the issues concerning tribals with a “**non-Western approach**”.
- The issues arising from **tribal unrest** has consistently figured **among the top internal security challenges in the country** for the past two years at least.
- The moot point was adopting a non-colonial approach to handle tribal issues.
- Since **policing is central** to the grievances of tribals, examples of how the West treated the indigenous people were cited.
- Some **tribes are labelled habitual criminals**, and it was **agreed that they should not be stigmatized**.
- The idea of National Security Strategies Conference was conceived by the Prime Minister Shri Narendra Modi during the DGsP/IGsP Conference with the objective of **finding solutions to major National Security challenges through discussions** amongst a unique mix of senior police leadership managing national security challenges, young police officers **working at the cutting-edge** level and domain experts of specialised fields.

### Colonial Era Tribal Laws

- The British had **enacted a law in 1871** in which **more than 100 tribal communities** were labelled “**criminal tribes**”.
- The stigma associated with the tribes continued in **most parts of the country** post-Independence leading to the repeal of the legislation in 1952.
- The communities that were notified as ‘criminal’ under the British-era law had become “**de-notified**”, giving the category its name – De-notified Tribes.

### Discussion on Multiple Security Challenges

- Radicalisation of youth via social media particularly focusing on “Islamic and Khalistani radicalization.”
- **Narcotics and trafficking** has become a major concern in internal security, impacting social and economic stability.
- Security at non-major ports and fishing harbours which **pose significant risks** for smuggling and other illegal activities.

## Ethics

### Ethics and Human Interface

#### The Ethics of Zimbabwe's Elephant Culling



#### Context:

- Zimbabwe is planning to cull 200 elephants to alleviate hunger caused by a severe drought. The meat will be distributed to communities affected by the worst drought in four decades. The decision comes as Zimbabwe struggles with an elephant population that far exceeds the carrying capacity of its national parks, contributing to human-wildlife conflicts.

#### Ethical Issues:

##### Animal Rights vs Human Survival:

- Culling elephants to provide food raises ethical concerns about the balance between human survival and the rights of animals, particularly endangered species.

#### Conservation vs Overpopulation:

- While the culling is aimed at reducing overpopulation in national parks, it also challenges conservation principles, as elephants are a protected species and integral to biodiversity.

#### Human-Wildlife Conflict:

- The growing elephant population, coupled with the drought, has heightened human-wildlife conflicts, leading to loss of human lives and further justifying the culling from a human safety perspective.

#### Sustainability vs Immediate Relief:

- While culling provides immediate food relief, the long-term sustainability of such practices is questionable, and the broader impact on ecosystems must be considered.

#### Economic Justification vs Ethical Conservation:

- Zimbabwe is advocating for lifting restrictions on ivory and live elephant trade, raising ethical questions about using wildlife for economic gains at the expense of conservation ethics.

#### Resolution:

##### Balanced Approach:

- Zimbabwe should seek alternative measures, such as wildlife relocation or contraception programs, to manage elephant populations without resorting to culling.

### Humanitarian Aid:

- International organizations should provide drought-relief aid to reduce the need for extreme measures like culling and to address the immediate food crisis.

### Long-term Conservation Strategies:

- Efforts must focus on developing sustainable solutions that ensure both human welfare and wildlife protection, including habitat restoration and anti-poaching measures.

### Regulated Elephant Management:

- Instead of culling, regulated management strategies like translocation or eco-tourism-driven conservation can offer more ethical solutions that also contribute to the local economy.

### Re-evaluation of CITES Restrictions:

- Reassessing global restrictions on ivory and elephant trade could be explored, but only with strict international oversight to prevent exploitation and ensure it supports genuine conservation efforts.

*(Convention on International Trade in Endangered Species)*

### Quote:

"The question is not, 'Can they reason?' nor, 'Can they talk?' but 'Can they suffer?'" –  
*Jeremy Bentham*

## Civil Service Values and Ethics in Public Administration

### The Emerging 'Food vs Cars' Ethical Dilemma



### Context:

- The increasing use of phosphoric acid, a crucial component in fertilizers, for producing electric vehicle (EV) batteries is creating a new challenge: a 'Food vs Cars' dilemma. This mirrors the earlier 'Food vs Fuel' conflict.

- The 'Food vs Fuel' dilemma arose when crops like sugarcane, maize, and soybeans were used to produce biofuels (ethanol, biodiesel) instead of food, leading to concerns over food security.
- Similarly, the 'Food vs Cars' issue involves the growing demand for phosphoric acid in lithium-iron-phosphate (LFP) batteries used in EVs.
- While this shift supports cleaner energy, it risks reducing the availability of phosphoric acid for fertilizers, which are essential for crop production and food security.



## Ethical Dilemmas:

- **Food vs Cars:** The diversion of phosphoric acid for EV battery production versus its use in fertilizers for agriculture highlights the ethical tension between food security and advancing green technology.
- **Agriculture vs Clean Energy:** Should limited phosphoric acid be allocated to boost crop yields for food security or to support EV production for clean energy and climate goals?
- **Global Fairness vs Wealth Concentration:** India's dependence on phosphate imports raises questions of global fairness as the shift of resources towards EV production may favor wealthier industries at the cost of small-scale farmers.
- **Sustainability vs Development:** The conflict between environmental sustainability (through EV batteries) and food security challenges policymakers to decide between ecological progress and ensuring adequate food production.
- **Farmers vs Industry:** As more phosphoric acid is diverted to the EV industry, small farmers may struggle with rising fertilizer costs, leading to worsening economic inequality in countries like India.

## Ways to Resolve Dilemmas:

- **Balanced Resource Allocation:** Governments and industries must strike a balance between supporting clean energy technologies like EVs and ensuring agricultural inputs remain sufficient for food production.

- **Innovation in Fertilizers:** Investing in research for alternative, sustainable fertilizers could reduce dependency on phosphoric acid while maintaining crop productivity.
- **Global Cooperation:** International collaboration can ensure equitable distribution of resources like phosphoric acid, avoiding monopolization by wealthier industries.
- **Policy Intervention:** Governments should regulate the distribution of key resources, ensuring priority is given to sectors vital for food security while also promoting clean energy transitions.
- **Support for Small Farmers:** Subsidies and economic support for small-scale farmers can offset rising fertilizer costs, helping to prevent widening inequality in agricultural sectors.

## Quote:

"Ethical dilemmas are inevitable, but the way we resolve them defines the integrity of our actions."  
— John C. Maxwell

## Taliban's New Morality Law: Institutionalizing Gender Apartheid in Afghanistan



### Context:

- The Taliban has introduced a 114-page "morality law," enforced by the Ministry of Propagation of Virtue and Prevention of Vice, which intensifies restrictions on Afghan women.
- The law mandates full-body veiling, including face coverings, to prevent "temptation."
- It also prohibits women from singing or reciting in public, deeming their voices as "intimate."
- Additionally, interactions between men and women who are not related by blood or marriage are forbidden.
- The law also targets LGBTQ individuals and religious minorities, leading to further persecution.
- This legal framework, described as "gender apartheid," recalls the oppressive policies of the Taliban's previous regime from 1996-2001 and reinforces the systemic repression of women and marginalized groups.

### Ethical Issues with the Law:

- **Gender Apartheid:** The law institutionalizes discrimination against women, severely restricting their rights and personal freedoms, reinforcing an oppressive social order.
- **Mandatory Veiling:** Forcing women to wear full-body coverings, including veils, strips them of bodily autonomy and the right to make personal choices about their appearance.

- **Suppression of Women's Voices:** By prohibiting women from speaking, singing, or reading publicly, the law silences their contributions and erases their presence in public life.
- **Social Restrictions on Gender Interaction:** The ban on interactions between men and women unless related by blood or marriage further limits individual freedoms and imposes severe social control on everyday life.
- **Persecution of LGBTQ and Minorities:** The law exacerbates the oppression of LGBTQ individuals and religious minorities, subjecting them to increased discrimination and persecution.
- **Culture of Fear and Surveillance:** Encouraging citizens to report "violations" promotes a climate of fear and suspicion, eroding trust within communities and creating a hostile living environment.
- **Arbitrary Enforcement:** Morality inspectors wield unchecked authority, leading to arbitrary detentions and punishments, which further undermine justice and human rights.

### Role of International Organizations:

- **Global Advocacy:** International bodies like the **United Nations (UN)** and human rights organizations such as **Amnesty International** and **Human Rights Watch** must raise global awareness and condemn the law's violation of women's and minority rights.

- **Pressure and Sanctions:** Organizations like the **United Nations Human Rights Council (UNHRC)** and the **European Union (EU)** can push for sanctions against the Taliban regime for their oppressive practices, aligning with international human rights treaties.
- **Support for Refugees:** The **United Nations High Commissioner for Refugees (UNHCR)** and **International Rescue Committee (IRC)** should prioritize providing asylum and aid to those fleeing persecution, particularly women and minorities.
- **Diplomatic Engagement:** International actors, including the **Organization of Islamic Cooperation (OIC)**, should engage diplomatically with neighboring countries to ensure the protection of vulnerable populations.
- **Humanitarian Assistance:** Resources and support through NGOs and international organizations such as **CARE International** and **UN Women** should be directed towards Afghan women to alleviate the impacts of the law.

## Supreme Court's Stance on 'Bulldozer Justice': A Call for Due Process



### Context:

- The Supreme Court of India recently issued a strong warning to states, condemning the practice of demolishing properties of accused individuals without following legal procedures.
- The Court emphasized that such actions cannot be justified even in cases of conviction and that due process must be observed.
- The Court has announced its intention to establish nationwide guidelines to ensure that demolitions are conducted lawfully and that the rights of the accused are protected.

### Ethical Issues:

- **Due Process vs Arbitrary Actions:** Demolishing properties without legal procedures undermines the right to a fair trial and violates the principle of presumption of innocence.
- **Individual vs Collective Punishment:** Punishing entire families or communities for the actions of an individual is ethically unjust.
- **Fairness vs Discrimination:** The selective targeting of demolitions, often disproportionately affecting certain communities, raises concerns of bias and discrimination.
- **State Power vs Justice:** Using demolitions as a tool for swift justice reflects an abuse of state power, rather than ensuring justice through legal channels.



- **Property Rights vs Destruction:** Destroying someone's property without legal justification violates the constitutional right to property ownership.
- **Human Rights vs State Actions:** Demolishing homes leaves families homeless, raising significant concerns about the violation of human dignity and the right to shelter.
- **Transparency vs Accountability:** The lack of transparency in the demolition process leads to unethical governance and undermines public trust.

### Resolution:

- **Establish Clear Guidelines:** Nationwide guidelines must be implemented to regulate demolitions, ensuring that legal procedures are strictly followed.

- **Ensure Judicial Oversight:** Mandate that all demolitions require court orders and legal review to protect the rights of the accused.
- **Enhance Transparency:** Authorities must provide clear documentation and evidence when labeling properties as illegal, ensuring owners have the right to contest the claims.
- **Protect Property Rights:** Ensure that property owners have the right to appeal demolition orders and are given adequate notice before any action is taken.
- **Increase Accountability:** Establish independent monitoring mechanisms to review the legitimacy of demolition actions and hold authorities accountable for abuses of power.

### Quote:

"Injustice anywhere is a threat to justice everywhere." – *Martin Luther King Jr.*

## Probity in Governance

### The Urgent Need for a Healthy Work Environment



### Context:

- The tragic death of 26-year-old Anna Sebastian Perayil, an employee at Ernst & Young (EY), has sparked a national debate on the toxic work culture prevalent in corporate India.
- Anna's mother attributes her daughter's death to extreme work pressure, highlighting the dangers of overwork, excessive hours, and unattainable expectations.
- Employees often fear speaking out due to potential career repercussions, further aggravating the problem.



## **Ethical Issues:**

- **Toxic Work Culture:** A work environment that fosters overwork and burnout while discouraging employees from voicing their concerns about stress is ethically problematic, as it dehumanizes labor and disregards employee well-being.
- **Workplace Stress and Mental Health:** Employers who fail to manage excessive workloads, long hours, and high-stress levels jeopardize the mental and physical health of their employees, showing a lack of responsibility toward their well-being.
- **Fear of Retaliation:** Employees often refrain from reporting work-related stress due to fear of negative consequences, such as retaliation or poor performance evaluations. This creates an unethical power dynamic and prevents open communication.
- **Unrealistic Work Expectations:** Imposing unmanageable workloads without considering employees' capacity or well-being is a violation of ethical labor practices, as it disregards the limits of human performance and health.
- **Lack of Empathy and Support:** The absence of company representatives at critical moments, like Anna's funeral, demonstrates a lack of compassion and emotional support, which are essential in fostering a humane workplace.

- **Mental Health Stigma:** The fear of being judged or penalized for acknowledging mental health struggles reveals a significant ethical gap, as it prevents employees from seeking necessary support.
- **Credit Misappropriation:** When managers take credit for their subordinates' work, it reflects a lack of fairness and integrity, undermining trust and morale in the workplace.
- **Failure to Prioritize Employee Welfare:** Despite having wellness programs, many companies fail to genuinely implement them, highlighting a gap between policy and practice in addressing employee welfare.

## **Ways to Prevent Toxic Work Culture:**

- **Promote Open Communication:** Encourage employees to voice concerns without fear of retaliation. A transparent feedback mechanism can bridge the gap between employees and leadership.
- **Implement Reasonable Workloads:** Set achievable goals that consider employee capacity and work-life balance.
- **Prioritize Mental Health Support:** Establish mental health resources, such as counseling, stress management workshops, and flexible work options.
- **Foster Empathy in Leadership:** Leaders should model compassionate behavior, being present during times of employee distress and offering emotional support.
- **Create Clear Expectations:** Define roles and tasks clearly, ensuring that workloads are realistic and distributed fairly.



- **Hold Managers Accountable:** Regularly assess managers' behavior and hold them accountable for fostering a supportive work environment.
- **Recognize Employee Contributions:** Establish a culture where employees' contributions are acknowledged and rewarded fairly.

### Quote:

"A healthy work culture is the foundation of a productive workforce. It's not the hours we put in, but the heart we put into our work that matters." – *Simon Sinek*

## Environment

### POLLUTION

#### Plastic Pollution

**Context** - India generates **highest plastic pollution in world**, a study published in the journal Nature recently found.

- The study, carried out by **University of Leeds researchers** Joshua W Cottom, Ed Cook, and Costas A Velis.

#### Key Highlights

##### India's plastic waste

- India contributes to a **fifth of global plastic pollution**.
- India **burns roughly 5.8 million tonnes (mt) of plastic** each year, and releases another 3.5 mt of plastics into the environment (land, air, water) as debris.
- Cumulatively, India contributes to **9.3 mt of plastic pollution** in the world annually, significantly more than the countries next in this list – Nigeria (3.5 mt), Indonesia (3.4 mt) and China (2.8 mt) – and exceeding previous estimates.

##### Problem of 'unmanaged' waste

- The study estimated that around 251 mt of plastic waste is produced every year, enough to fill up roughly 200,000 Olympic sized swimming pools.
- Roughly a fifth of this waste – 52.1 mt – is “emitted” into the environment, unmanaged.

##### Managed Vs Unmanaged waste

- Managed waste as what is collected by **municipal bodies, and either recycled or sent to a landfill**. Most plastic waste meets the latter fate.

- Unmanaged waste refers to plastic which is burnt in open, uncontrolled fires producing fine particulates and toxic gases like carbon monoxide which have been linked to heart disease, respiratory disorders, cancer, and neurological problems.
- It also includes plastic which ends up in the environment as unburnt debris – polluting every conceivable place on Earth from the heights of Mount Everest to the bottom of the Mariana Trench in the Pacific Ocean.
- Of the unmanaged waste, roughly 43% or 22.2 mt is the form of unburned debris and the rest, some 29.9 mt, is burnt either in dumpsites or locally.

##### Global North-South divide

- There is a notable Global North and Global South divide when it comes to plastic pollution.
- On an absolute basis, study find that plastic waste emissions are **highest across countries in Southern Asia, Sub-Saharan Africa and South-eastern Asia**.
- In fact, approximately 69% (or 35.7 mt per year) of the world's plastic pollution comes from 20 nations, none of which are High Income Countries (those with a gross national income per capita of \$13,846 or more, according to the World Bank).
- This is despite these HICs – which are all in the so-called Global North – having higher plastic waste generation rates than countries in the South.



- Not a single HIC is ranked in the top 90 polluters, because most have 100% collection coverage and controlled disposal.
- Open burning is the predominant form of plastic pollution in the Global South (with the exception of Sub-Saharan Africa, where uncontrolled debris comprised a larger share of the pollution pie) unlike in the Global North, where plastic pollution predominantly comprised uncontrolled debris.
- This, the researchers say, is simply a symptom of inadequate or completely absent waste management systems, and a lack of public infrastructure for the same.

### Criticism of the research

- The study comes as treaty negotiations for the very **first legally binding international treaty on plastics pollution are ongoing**.
- In 2022, the **UN Environmental Assembly** agreed to develop such a treaty — which experts say might be the most important environmental accord since the Paris Agreement on climate change in 2015 — by the end of 2024. However, **consensus on what it should entail has been hard to come by**.
- On one hand are fossil-fuel producing countries and industry groups, who view plastics pollution as a “waste management problem”, and want to focus on that instead of curbing production.
- On the other hand are countries in the European Union and Africa, who want to phase out single-use plastics and introduce production curbs.
- This “**High Ambition Coalition**” says that simply “managing” plastic waste to the point where there is no pollution at all is impossible, given the scale of plastic waste generation, and the economics and complexity of recycling.
- A study published in April in the journal Science Advances found a linear, direct relationship between increasing plastic production and plastic pollution — meaning a 1% increase in production resulted in a 1% release in pollution.
- Critics of the recent research say that the recent research plays into the plastic being a “waste management problem” narrative.
- It risks us losing our focus on the upstream and saying, hey now all we need to do is manage the waste better.

### National Mission for Clean Ganga approves Projects

**Context-** Recently 57<sup>th</sup> Executive Committee (EC) meeting of the National Mission for Clean Ganga (NMCG) approved projects amounting to ₹1,062 crore.

- These include key projects aimed towards the conservation and cleanliness of the Ganga River, and, for IEC activities during Mahakumbh 2025.

### Key Projects

- **Sewage treatment plants** - will be constructed in **Rojitpur, Sharifganj, Aligarh, etc**





- **IEC (Information, Education, and Communication) activity-based project** worth ₹30 crore has been approved.
- The project includes decorating the mela area and city through '**Paint My City**' and mural art.
- Various places such as flyovers, large buildings, railway stations, and bus stops will be adorned with wall paintings depicting themes related to the Ganga.
- Additionally, a 45-day exhibition will be held at a prominent location in the mela area to showcase the interventions and achievements made under the Namami Gange programme. During this initiative, **1,500 Ganga Seva Doots** will be deployed across the fairgrounds to raise awareness on cleanliness and Ganga conservation.
- **Pollution Inventory, Assessment, and Surveillance (PIAS) project** - to enhance its effectiveness. The revised organization structure includes 90 sanctioned posts, with a particular focus on strengthening technical capabilities. This will improve the environmental data collection, analysis, and monitoring mechanism, ensuring solid progress in pollution control and management.
- **Project for strengthening the online continuous monitoring of existing STPs in the Ganga River Basin** approved for a period of five years. The project includes the installation of an **Online Continuous Effluent Monitoring System (OCEMS)**. Under this project, **11 STPs in Uttar Pradesh and 40 STPs in West Bengal** will be covered, with a total project cost of ₹33 crore.

- **Smart Laboratory for Clean Rive (SLCR)** project, operated by NMCG in collaboration with IIT BHU, Denmark for the conservation of small rivers. With a total investment of ₹13 crore, this initiative aims to accelerate the rejuvenation of small rivers across the country, providing a significant boost to river conservation efforts.
- **Freshwater turtle and gharial conservation breeding program at the Kukrail Gharial Rehabilitation Center in Lucknow, Uttar Pradesh.**
- This programme will be operated under Namami Gange Mission-II at a cost of ₹2 crore.
- The centre plays a crucial role in restoring endangered species.
- The extended breeding programme aims to rejuvenate the viable breeding population of these species to re-establish them in the Ganga River and its tributaries.

### **National Mission for Clean Ganga (NMCG)**

- It was registered as a society on 12th August 2011 under the Societies Registration Act 1860.
- It acted as **implementation arm of National Ganga River Basin Authority (NGRBA)**

### **National Ganga River Basin Authority (NGRBA)**

- It was constituted under the provisions of the **Environment (Protection) Act (EPA), 1986.**



- NGRBA has since been dissolved with effect from the 7th October 2016, consequent to constitution of National Council for Rejuvenation, Protection and Management of River Ganga (referred as **National Ganga Council**) vide notification

The Act envisages five tier structure at national, state and district level to take measures for prevention, control and abatement of environmental pollution in river Ganga and to ensure continuous adequate flow of water so as to rejuvenate the river Ganga as below:

- National Ganga Council under chairmanship of Hon'ble Prime Minister of India.
- Empowered Task Force (ETF) on river Ganga under chairmanship of Hon'ble Union Minister of Jal Shakti (Department of Water Resources, River Development and Ganga Rejuvenation).
- National Mission for Clean Ganga(NMCG)

- State Ganga Committees and
- District Ganga Committees in every specified district abutting river Ganga and its tributaries in the states.
- NMCG has a **two tier management structure** and comprises of Governing Council and Executive Committee.
- Both of them are headed by Director General, NMCG. Executive Committee has been authorized to accord approval for all projects up to Rs.1000 crore.
- Similar to structure at national level, State Programme Management Groups (SPMGs) acts as implementing arm of State Ganga Committees.
- Thus the newly created structure attempts to bring all stakeholders on one platform to take a holistic approach towards the task of Ganga cleaning and rejuvenation.

## PROTECTED AREAS & BIODIVERSITY

### International Big Cat Alliance

**Context** - India has formally joined the International Big Cat Alliance (IBCA), which it launched in 2023.

- Four nations, including **India, Nicaragua, Eswatini and Somalia**, have become the IBCA members now.
- Among the seven big cats, five – **tiger, lion, leopard, snow leopard and cheetah** – are found in India, excluding puma and jaguar.

### About Big cat alliance

- The International Big Cat Alliance aims to be **multi-country, multi-agency coalition of 95 big cat range countries, non-range countries** interested in big cat conservation, conservation partners and scientific organizations working in the field of big cat conservation besides business groups and corporates willing to contribute to the cause of big cats, **to establish networks and develop synergies** in a focused manner so as to bring to a **common platform** a centralized repository of successful practices and personnel, backed by financial support which can be leveraged to strengthen the conservation agenda in the field to arrest decline in big cat population and reverse the trend.



- IBCA envisages synergy through a collaborative platform for increased dissemination of gold standard big cat conservation practices, provides access to a central common repository of technical know-how and corpus of funds, strengthens the existing species-specific intergovernmental platforms, networks and transnational initiatives on conservation and protection and assists securing our ecological future and mitigate adverse effects of climate change.
- All UN member countries are eligible for becoming the member of IBCA.
- Twenty-four (24) countries (including India) have consented to be members of IBCA.
- Nine International Organizations have also consented to be partner organization of IBCA.
- Framework Agreement has been approved by the Cabinet recently and India became a member of IBCA.
- So far 4 countries have become member of IBCA including **India, Nicaragua, Eswatini and Somalia.**

## Aralam Wildlife Sanctuary

**Context - Recently four monkeys found dead in Kerala's Aralam Wildlife Sanctuary**

### Aralam Wildlife Sanctuary

- Located on the western slopes of Western Ghats, Aralam is the **northern most wildlife sanctuary of Kerala.**
- Highest peak of this sanctuary is **Katti Betta.**

- It is 55 km<sup>2</sup> (21 sq mi) in area and located on the western slope of the Western Ghats.
- It was established in 1984.
- Aralam Wildlife Sanctuary is situated in the southeast part of Kannur District.



- **Bio diversity:** The major tree species are Artiocarpus heterophyllus, Bishofia javanica, Calophyllum elatum, Cannarium strictum, Cullenia exarillita, Dipterocarpus sp, Drypetes elata, Dysoxylum malabaricum, Elaeocarpus tuberculatus, Holigarna arnottiana, Mesua ferrea, Palanquium ellipticum Bombax ceiba, Dalbergia latifolia, Grewia tiliaefolia, Terminalia sp etc.
- **Drainage:** The Cheenkannipuzha forms the main drainage system on the southern side. Narikkadavu thodu, Kurukkathodu and Meenumuttithodu from the northern upper reaches flow southwards to join Cheenkannipuzha.
- **Forest Types:** The forest types include **West Coast tropical evergreen forest, West coast semi-evergreen forests, South Indian moist deciduous forest, Southern hilltop evergreen forest and plantations**

## Integrated Development of Wildlife Habitats

**Context** - Recently **Union cabinet** approved continuation of the **Centrally Sponsored Scheme of Integrated Development of Wildlife Habitats** for the 15<sup>th</sup> Finance Commission cycle for an overall outlay of Rs. 2602.98 crores.

### Integrated Development of Wildlife Habitats

- While strengthening the existing fundamental and core components of the scheme, the scheme envisages to boost technological interventions in different thematic areas over the current and next financial year in our tiger and wildlife bearing forests.

### Components

The said scheme includes:

- **Project Tiger**
- **Project Elephant**
- **Development of Wildlife Habitat.**

### Project Tiger

- It already has an inherent use of technology in day-to-day management practices such as the **M-STrIPES** (Monitoring System for Tigers, Intensive Protection and Ecological Status) mobile application.
- The latter is in sync with the Digital India initiative and was extensively used for collection of field level ecological data during the **5<sup>th</sup> cycle of the All-India Tiger Estimation in 2022.**
- The All-India Tiger Estimation itself is technologically intensive with the extensive deployment of camera traps across tiger habitats of the country.

- This exercise also makes use of **Artificial Intelligence (AI)** for species level identification.
- Conservation genetics has also been significantly used in the field of tiger conservation wherein a SOP for translocating tigers based on their genetic composition has been issued.
- Further, genetics has also been used to determine tiger numbers in low density landscapes as well as for determining the food ecology of the species.
- These interventions are proposed to be enhanced under the said scheme.
- The Project Tiger component also supports the ambitious **Project Cheetah** in the country which shall be continued under the umbrella scheme of Integrated Development of Wildlife Habitats.
- The areas for Cheetah introduction are proposed to be expanded as per the Cheetah Action Plan under the said scheme and efforts shall be made to strengthen monitoring protocols using advanced radio telemetry protocols.

### Development of Wildlife Habitat component

- The **Project Dolphin** under the Development of Wildlife Habitat component is proposed to be supported by provisioning equipment such as **Remotely Operated Vehicles (ROVs)** and **passive acoustic monitoring devices** for enumeration of dolphins as well as their habitat.



- **Project Lion**, also under the ambit of the Development of Wildlife Habitat shall be strengthened as per activities envisaged in the document titled “Lion @ 2047: A vision for Amrut Kaal”.
- Human-elephant conflict under the Project Elephant component is envisaged to leverage information and communication technology interventions.
- While these have been tested on an experimental basis, the same shall be deployed on a larger scale.

### **Project elephant (Launched in 1992)**

- Elephant is a **National Heritage animal** of India and has protected under Seclude I species of Indian Wild Life Protection Act, 1972.

The Project Elephant (PE) was launched with following objectives:

- To protect elephants, their habitat & corridors
- To address issues of man-animal conflict
- Welfare of captive elephants

### **New research rescues the dodo's reputation from confusion and myth**

**Context** - Researchers from the University of Southampton, the Oxford University Museum of Natural History, and the Natural History Museum combed through 400 years of research papers on the dodo and its sister species, the solitaire, and also examined the only existing soft tissue from the dodo.

### **Key points**

- Citing written records from their extensive review, the researchers have now **challenged the widely held view that the dodo was a slow, bloated animal doomed to extinction.**
- Instead, they have said, they may have been fast-moving birds that thrived in the forest
- The dodo and the solitaire went extinct because of our hubris.
- We just didn't care, and in the 17th century, we didn't believe we could affect “god's creation” and destroy species through our actions

### **Background**

- Late into the 18th century and for some part of the 19th, many naturalists believed the dodo was a fiction.
- Some even considered it mythical, like the phoenix.
- Thanks to the work of Victorian-era scientists, we know **dodos and solitaires were flightless birds endemic to the forests of Mauritius.** But how they got to the island wasn't clear.
- In a 2002 study, researchers examined dodo DNA and found they belonged to the family of doves and pigeons. The dodo's closest relative was the Nicobar pigeon.
- Dodos and solitaires weren't always flightless.
- Over hundreds of thousands of years, they became larger and lived closer to the ground.
- They also had little competition for their food sources.

- So when **Dutch settlers got to Mauritius in 1598**, they found a tall, big, and flightless bird.
- Its life changed for the worse then.
- Their numbers began to dwindle. In less than a century, the dodo and its relatives went extinct. The **paucity of natural predators** rendered the birds brave and they were less wary of humans than they should have been.
- Contrary to common belief, the dodo didn't go extinct because it was prized as food. Since the birds nested in the ground, pigs from the Dutch vessels ate their eggs, rats and cats preyed on their chicks, and goats trampled the nests.
- A hundred years after meeting the first humans, dodos and solitaires were wiped out.
- As a result, natural history collections have little material evidence of the birds' lives.
- Instead, most early scientific deliberations banked on artist's impressions and sailors' reports and were often confused.
- In their study, the team confirmed the dodo belonged to the *Columbidae* family of pigeons and doves.



- The dodo was a flightless bird about the size of a male turkey that had a long, hooked beak and the goofy charm of an emperor penguin.
- Its ancestor first appeared on Earth more than 25 million years ago, and by 1662, because of humans, it had vanished from Mauritius, a remote island in the Indian Ocean, the only place it ever existed.
- The dodo has since become fixed in society's imagination as the very emblem of ineptitude, an evolutionary clown – an impression greatly helped by the bird's appearance in "Alice's Adventures in Wonderland" in 1865.
- In 1941, the humorist Will Cuppy wrote that the dodo – with an ugly face, a misplaced tail, too-small wings and a prominent stomach – seemed to have been invented for the sole purpose of becoming extinct. "You can't look like that and survive," he mused. "Or can you?"
- Neil Gostling, a paleobiologist at the **University of Southampton** in England, listens to these aspersions and laughs.
- Eighty-three years later, the idea persists that dodos were slow, fat, useless balls of feathers that blundered into their own demise.
- The fact is that the **birds were fast, agile and**, before being wiped out, had been doing their thing and doing it incredibly well for about 12 million years.

## CLIMATE CHANGE

### FRAME to reduce GHG emissions

Context- Food banks can prevent GHG emissions equivalent to taking 900 cars off road for a year, according to estimates based on data from a new methodology termed as Food Recovery to Avoid Methane Emissions (FRAME).

#### Food Recovery to Avoid Methane Emissions (FRAME)

- Food banks are essentially **volunteer-driven initiatives** that recover surplus food from different parts of the food system and distribute it to those facing hunger through community organisations.
- Likewise, FRAME methodology quantifies the avoided emissions and co-benefits from redirecting food loss and waste to direct human consumption, through food recovery and redistribution operations.
- The methodology is developed by The **Global Food Banking Network (GFN)**, in partnership with the Global Methane Hub and the Carbon Trust.
- The FRAME initially began as a **pilot project in Mexico and Ecuador**, where six community-led food banks were analysed.
- It was found that the organisations prevented a total of 816 metric tonnes (MT) of methane over a year, or an average of 136 MT each, by redistributing food that would otherwise have been dumped in landfills.

- Hence, this was estimated to be equivalent to each food bank avoiding the annual emissions of 906 gasoline-powered cars or storing the same carbon as almost 63,000 tree seedlings grown for a decade.
- The food banks specifically address UN's Target 12.3, which calls for **halving per capita global food waste at the retail and consumer levels and reducing food losses along production and supply chains, including post-harvest losses, by 2030.**

#### Food waste

- Food and Agriculture Organization's estimations mention that **14 per cent of the world's food is lost after harvest before it reaches retailers.**
- The **United Nation Environment Programme's (UNEP) Food Waste Index Report** shows that an **additional 17 per cent is then wasted at retail and then by the consumers.**
- Food taken to **landfills mostly generates methane**, which traps more than 80 times more heat than CO<sub>2</sub> over the first 20 years, making it a more potent gas leading to global warming in the short-term.
- Emissions that occur due to this food loss and waste (FLW) reached up to 9.3 GtCO<sub>2</sub>e (gigatonnes of CO<sub>2</sub> equivalent per year) in 2017, according to a study published in journal *Nature Food* in 2023.



- On one hand, food systems were estimated to be responsible for around a third of the world's greenhouse gas emissions, half of which is caused by FLW, on the other, between 713 and 757 million people may have faced hunger in 2023, according to the *State of Food Security and Nutrition in the World* report published in July 2024.

## Methane threat

**Context** - While carbon dioxide (CO<sub>2</sub>) has been the main focus in climate discussions, **methane, a far more potent greenhouse gas (GHG)**, is gaining attention.

### Changing emphasis

- Carbon dioxide (CO<sub>2</sub>) is the most well-known greenhouse gas, for good reason.
- Emissions of CO<sub>2</sub> from human activity, principally from fossil fuels, is the key driver of climate change.
- But this often means overshadowing the role of methane, which is a more powerful greenhouse gas that has historically received much less attention.
- This change of emphasis reflects recent international agreements, such as the **Global Methane Pledge**, that involve over 150 nations pledging to reduce their anthropogenic methane emissions by **30% on 2020 values by 2030** as part of the Glasgow climate pact
- Methane is around **80 times more powerful** as a greenhouse gas than CO<sub>2</sub>.
- It has contributed around **30% of global warming** since the start of the industrial revolution.
- But it lasts for only **around 10 years** in the atmosphere.
- So any reductions in methane sources, or enhancements to methane sinks, can have a disproportionately important climate effect over the short-term, effectively buying time before the more challenging target of decoupling the world's economy from fossil fuels and associated CO<sub>2</sub> emissions is addressed

### Global Methane Pledge

- The **Global Methane Pledge (GMP)** was launched at COP26 by the European Union and the United States who have been joined by many countries.
- In March 2024, GMP counted 158 participants.
- Participants joining the Pledge agree to take voluntary actions to contribute to a collective effort to reduce global methane emissions at least 30 percent from 2020 levels by 2030. This is a global, not a national reduction target.
- With 158 country participants, representing a little over 50% of global anthropogenic methane emissions, we are well on our way to achieving the Pledge goal.
- Meeting the GMP would reduce methane emissions to a level consistent with 1.5°C pathways while delivering significant benefits for human and ecosystem health, food security and our economies. It has the potential to reduce warming by **at least 0.2 °C by 2050** and prevent annually 26 million tons of crop losses, 255,000 premature deaths, 775 thousand asthma-related hospitalizations and 73 billion hours of lost labour due to extreme heat.



## Ocean Acidification

**Context** -The world's oceans are close to becoming too acidic to properly sustain marine life or help stabilise the climate, a new report by the **Potsdam Institute for Climate Impact Research (PIK)** said recently.

### Key Highlights

- It details nine factors that are crucial for regulating the planet's ability to sustain life.
- In six of these areas, the safe limit has already been exceeded in recent years as a result of human activity.
- The crucial threshold for **ocean acidification could soon become the seventh to be breached**, according to the PIK's first Planetary Health Check.

### Crucial factors

- The safe boundaries that have already been crossed concern crucial factors including **climate change; the loss of natural species, natural habitat and freshwater; and a rise in pollutants, including plastics and chemical fertilisers used in agriculture.**
- The sustainable level of ocean acidification is now also set to be exceeded, largely as a result of ever-increasing emissions of carbon dioxide (CO<sub>2</sub>) created by burning fossil fuels like oil, coal and gas.

## Planetary boundaries

**The six PB processes that have breached safe PB levels are:**

- **Climate Change** - Atmospheric CO<sub>2</sub> levels are at a 15-million-year high, and global radiative forcing continues to rise, with a persistent warming trend that has accelerated since the late 20th century. Global mean temperatures are now higher than at any point since human civilizations emerged on Earth.
- **Change in Biosphere Integrity** - The **global loss of genetic diversity and the loss of functional integrity (measured as energy available to ecosystems)** are both exceeding safe levels and accelerating, particularly in regions experiencing intensive land use. The vast decrease in biosphere integrity raises concerns that Earth's biosphere is losing resilience, adaptability, and its capacity to mitigate various pressures, including those from transgressing other PBs.
- **Land System Change** - As a result of land use and increasingly due to climate change, global and regional forests have been steadily declining over the last few decades across all major forest biomes. Most regions are already in the High Risk Zone, well beyond their safe boundaries, while some areas have only recently breached safe levels (e.g., temperate and tropical America).



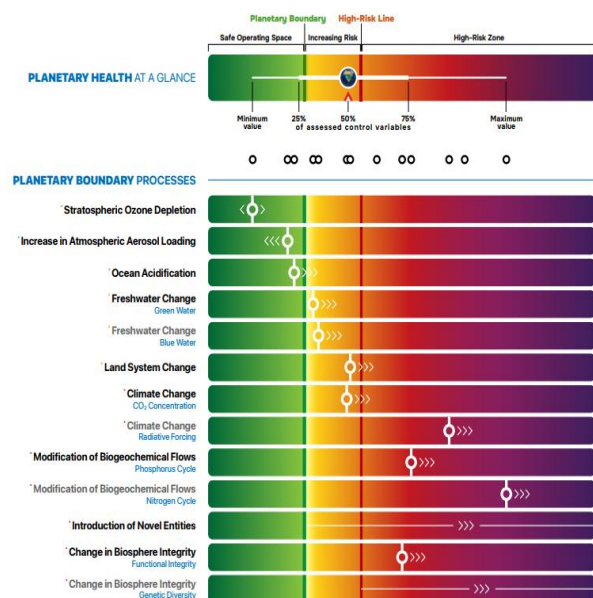


- **Freshwater Change** - Local streamflow and soil moisture deviations have significantly increased since the late 19th century, surpassing their respective PBs in the early 20th century. The increasing variability and instability in global freshwater and terrestrial water systems signal growing concerns for water resource management and environmental stability.
- **Modification of Biogeochemical Flows** - The use of phosphorus and nitrogen in agriculture has exceeded safe boundary levels, driving significant ecological change. Breaching this boundary has led to severe environmental impacts such as water pollution, eutrophication, harmful algal blooms, and "dead zones" in freshwater and marine ecosystems. This issue has been prevalent in industrialized countries for a long time and is increasingly becoming a concern in developing regions as well.
- **Introduction of Novel Entities** - The global introduction of novel entities – such as synthetic chemicals, plastics, and genetically modified organisms – is vast, yet a significant portion of these substances remains untested for their environmental impacts. This indicates that the boundary is likely exceeded, although exact figures are uncertain. Novel entities can disrupt critical Earth system processes (e.g., CFCs notably damaged the ozone layer), harm ecosystems (e.g., pesticides have caused significant declines in insect and pollinator populations), and lead to long-term, possibly irreversible changes in the environment, including the contamination of soil and water bodies and the alteration of natural habitats.

**Even though Ocean Acidification is close to transgressing its PB, the three PB processes that remain within the Safe Operating Space (2) are:**

- **Ocean Acidification** - Ocean acidification is approaching a critical threshold, with significant declines in surface aragonite saturation, particularly in high-latitude regions like the Arctic and Southern Ocean. These areas are vital for the marine carbon pump and global nutrient cycles, which support marine productivity, biodiversity, and global fisheries. The growing acidification poses an increasing threat to marine ecosystems, especially those reliant on calcium carbonate for shell formation.
- **Atmospheric Aerosol Loading**- The difference in aerosol optical depth between hemispheres is decreasing, indicating progress toward safer levels, though some regional patterns show opposing trends. Aerosols influence the Earth's energy balance by reflecting sunlight back into space and altering cloud formation. This impacts global and regional climate systems, including temperature regulation, precipitation patterns, and the distribution of solar energy. Managing aerosol levels is crucial for maintaining the stability of the Earth's climate system and preventing shifts that could disrupt weather patterns and ecosystems.

- **Stratospheric Ozone Depletion** - Ozone recovery has plateaued, with mixed trends and ongoing challenges in addressing the Antarctic ozone hole.
- The stratospheric ozone layer plays a vital role in shielding the Earth from excessive ultraviolet (UV) radiation.
- This protection is essential for maintaining the integrity of the Earth's biological systems, as UV radiation can harm phytoplankton, disrupt marine ecosystems, and alter terrestrial plant growth — elements that are foundational to the global food web and carbon cycle.
- Stabilizing and restoring the ozone layer is critical for preserving these interconnected Earth system processes.



## Teal carbon

**Context** - India's first study on 'teal carbon', undertaken at Keoladeo National Park (KNP) in Rajasthan's Bharatpur district, has highlighted the significance of wetland

conservation to address the challenges of climate adaptation and resilience.

The pilot project sought to develop **holistic nature-based solutions** to address climate change.

- The study, carried out in the form of the KNP's global review, has **depicted the potential of teal carbon as a tool to mitigate climate change** if the anthropogenic pollution in the wetlands can be controlled.

## Key Highlights

- Preliminary results from the research conducted at KNP revealed elevated levels of methane emissions, necessitating the reduction of these discharges through the use of a specialised type of biochar, which is a form of charcoal.
- Developing this specific biochar – a lightweight black residue comprising carbon and ashes – and its research would require sophisticated instruments, such as the **LI-COR device** for real-time ground-based greenhouse gas measurements.

## Teal Carbon

- The concept of teal carbon is a recent addition to the environmental science pertaining to **organic carbon in inland fresh wetlands**.
- Teal carbon refers to carbon stored in non-tidal freshwater wetlands, encompassing carbon sequestered in vegetation, microbial biomass, and dissolved and particulate organic matter.



- Though these wetlands play a crucial role in regulating greenhouse gases, they are vulnerable to degradation from pollution, land use changes, water extraction, and landscape modifications.
- Teal carbon' being a colour-based terminology reflects the classification of the organic carbon based on its functions and location rather than its physical properties.
- As opposed to teal carbon, **black and brown carbon** are primarily produced by incomplete combustion of organic matter from sources such as wild fires, fossil fuel combustion, and industrial activities.
- They contribute to global warming.

### Global levels

- At the global level, the storage of teal carbon across the ecosystems is estimated to be 500.21 petagrams of carbon (PgC), which is a unit to measure carbon.
- **Peatlands, freshwater swamps, and natural freshwater marshes** account for significant amount of this storage.

### Way Forward

- Ensuring availability of water and selecting suitable vegetation will ensure effective conservation of wetlands in the national park, which in turn will sustain the teal carbon pools.
- Teal carbon ecosystem would also contribute to an increase in the ground water level, flood mitigation and heat island reduction, supporting a sustainable urban adaptation.

## Loss and Damage Fund

**Context** - In the wake of the devastating landslides that recently struck Kerala's Wayanad district, a crucial conversation has emerged around whether **subnational entities can seek compensation through the United Nations Framework Convention on Climate Change (UNFCCC)'s Loss and Damage Fund (LDF).**

### Loss and Damage Fund (LDF)

- It was established at the 2022 UNFCCC Conference (COP27) in Egypt to provide financial support to regions suffering both **economic and non-economic losses** caused by climate change.
- These include extreme weather events and slow-onset processes, such as rising sea levels.
- The LDF is overseen by a **Governing Board** that determines how the Fund's resources are disbursed, with the World Bank serving as the interim trustee.
- The Board is currently developing mechanisms to facilitate access to the Fund's resources, including **direct access, small grants, and rapid disbursement options.**
- Despite its intended purpose, concerns persist that climate funds are often too slow to be accessible immediately after a disaster, particularly for local communities at the sub-national level. It is anticipated that the LDF may face similar challenges.

### India's role

- India has suffered over **\$56 billion in damages** from weather-related disasters between 2019 and 2023.

- Despite this, India has **prioritised mitigation activities** over adaptation in its National Climate Action Policy and budgets.
- This focus has led to a subdued participation in Loss and Damage dialogues at COP meetings.
- With certain regions in India being highly vulnerable to climate change, active engagement in these dialogues could bring substantial benefits.
- Within India, there is an **urgent need for a clear legal and policy framework** to streamline climate finance, particularly for adaptation and loss and damage, in line with the principles of locally led adaptation, which are crucial for vulnerable communities.
- The introduction of a **climate finance taxonomy in the Union Budget 2024** has raised expectations for increased international climate finance.
- However, without clear guidelines on accessing loss and damage funds within India, frontline communities will continue to be vulnerable.
- In international climate change negotiations, India should advocate for more decentralised methods of fund disbursement from the LDF, as opposed to the centralised systems used for other climate funds.

### Efforts by Kerala

- Adaptation and loss and damage needs are more acutely felt at the ground level by State governments.
- For instance, in Kerala, it is the State government that bore most of the financial burden for disaster recovery.

- A notable example is the **Rebuild Kerala Development Programme**, launched in the aftermath of the August 2018 floods.
- This initiative was funded through loans from the **World Bank and the KfW Development Bank**, a German institution, illustrating the critical role of international climate finance in post-disaster recovery.
- The program focused on reconstructing the State's infrastructure, including roads and bridges, all of which had been severely damaged by the floods.

### Issues

- However, the **absence of a standardised method** for conducting comprehensive assessments of disaster-related damages, particularly those from slow-onset events, means that significant loss and damage needs that could qualify for assistance from the LDF may go unassessed.
- This lack of a structured assessment process could **impede India's ability** to access the LDF in the future.
- The situation in Wayanad district underscores the broader challenges India faces in **accessing and managing climate finance**, particularly for loss and damage.
- By **establishing a more explicit domestic policy framework** that focuses on locally led adaptation and clearer guidelines for accessing loss and damage funds, India can better protect itself from the impacts of climate change.



## Economy

### **Inclusive Growth**

#### **Centralised Pension Payment System**

- The Union Labour Ministry has cleared a proposal for Centralised Pension Payment System (CPPS) for about 78 lakh pensioners under the Employees' Pension Scheme, 1995. The new system enables pension disbursement through any bank, any branch across the country.

#### **Centralised Pension Payment System**

- It is a facility launched as part of the Employee Provident Fund Organisation's (EPFO's) ongoing IT modernization project, the Centralised IT Enabled System (CITES 2.01), from January 1, 2025, which will enable pension disbursement throughout India.
- CPPS is a paradigm shift from the existing pension disbursement system that is decentralised, with each Zonal/Regional Office of EPFO maintaining separate agreements with only 3-4 banks.
- The next stage of CPPS will also include an easy switch to an Aadhaar-based payment system (ABPS).

#### **Who will the Centralized Pension Payment System (CPPS) benefit?**

- The CPPS is estimated to benefit more than 78 lakh EPFO EPS pensioners, and will particularly benefit retirees who relocate to their hometown after retirement.
- Pensioners also won't have to go to the branch for any kind of verification when their benefits start, and the pension will be credited right away after release.
- The EPFO also anticipates that switching to this new system will result in large cost savings in terms of pension payouts.

#### **Who is eligible for pension?**

- Individuals must fulfil the following criteria to be eligible for benefits under the Employees' Pension Scheme (EPS).
  - Should be a member of EPFO
  - Should have completed 10 years of service
  - Has reached the age of 58

#### **Relative Economic Performance of Indian States: FY61 to FY24**

- The Economic Advisory Council to the Prime Minister (EAC-PM) recently released a report titled 'Relative Economic Performance of Indian States: 1960-61 to 2023-24'.
- The report highlighted a significant disparity in the economic performance of Indian states from 1960-61 to 2023-24.

## Methodology

The two indicators used in this paper to capture relative economic performance are calculated as:

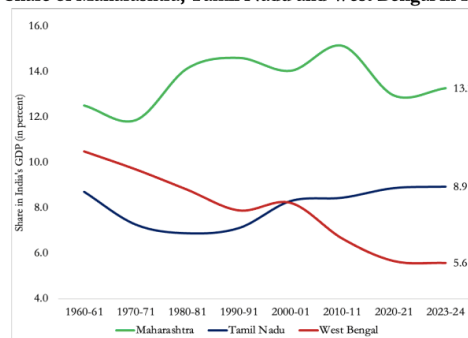
- **State share in national GDP:** It is defined as ratio of state's Gross State Domestic Product (GSDP) to sum of GSDP of all states. This gives an idea of relative economic importance of states.
- **Relative per capita income:** It is defined as percentage of per capita Net State Domestic Product (NSDP) of the state to the all-India per capita Net National Product (NNP) or per capita Net National Income (NNI).

## Key Findings

- **Southern States:** The southern states have emerged as top economic performers since liberalization in 1991. In 2023-24, states like Karnataka, Andhra Pradesh, Telangana, Kerala, and Tamil Nadu collectively contribute ~30% to India's GDP.
  - **Per Capita Income:** Southern states now have per capita incomes higher than the national average. For example, Telangana has a per capita income of 193.6% of the national average, while Karnataka stands at 181%.
- **Western States (Consistent Performers):** Maharashtra and Gujarat have maintained strong economic standings. Maharashtra has consistently held a significant share of India's GDP, with 13.3% in 2023-24, while Gujarat's share increased from 6.4% in 2000-01 to 8.1% in 2022-23.

- **High Per Capita Incomes:** Gujarat and Maharashtra have consistently surpassed the national average in per capita income. Gujarat's per capita income is 160.7% of the national average, while Maharashtra is 150%.

Figure 1: Share of Maharashtra, Tamil Nadu and West Bengal in India's GDP



Source: Authors' calculation based on MoSPI data

- **Northern States (Diverging Paths of Haryana and Punjab):** Despite sharing a similar starting point, Haryana's economic performance outpaced Punjab's. By 2023-24, Haryana's per capita income reached 176.8% of the national average, while Punjab's fell to 106.7%.
  - **Delhi's Economic Growth:** Delhi has a high per capita income, reaching 250.8% of the national average, significantly contributing to the region's economic power.
- **Eastern States (Decline in West Bengal):** Once an economic powerhouse, West Bengal's share in the GDP fell from 10.5% in 1960-61 to 5.6% in 2023-24. Its per capita income also dropped to 83.7% of the national average.

- **Odisha's Turnaround:** Historically a laggard, Odisha saw an improvement, with its relative per capita income rising from 54.3% in 1990-91 to 88.5% in 2023-24.
- **Central States (Decline in Uttar Pradesh and Bihar):** Undivided Uttar Pradesh held 14.4% of India's GDP in 1960-61, but this share decreased significantly over the decades. Bifurcated Uttar Pradesh's per capita income in 2023-24 is 50.8% of the national average, while Bihar remains the lowest at 33%.
- **Northeastern States (Remarkable Growth in Sikkim):** Sikkim's per capita income grew from 100% of the national average in 2000-01 to 320% in 2023-24, making it one of the wealthiest states per capita.
  - **Assam's Steady Improvement:** After a decline, Assam's per capita income rose to 73.7% of the national average by 2023-24.

### Overall Trends

- **Regional Disparities:** The report underscores stark contrasts in growth. Maritime states have performed exceptionally well, excluding West Bengal.
- **Policy Implications:** The study raises questions about regional focus in policy, especially regarding Punjab's agricultural emphasis potentially leading to an industrial growth slowdown.

- **Growth Trajectory of Southern and Western States:** Southern and Western states dominate India's economic landscape, driven by robust policies and industrial growth.

### Reasons for Southern and Western States' Steady Growth

- **Agricultural Advancements:** Maharashtra and Kerala have adopted sustainable agricultural practices like organic farming and crop diversification, boosting productivity and food security.
- **Strong Connectivity:** Western and Southern regions have excellent transport and logistics networks. Gujarat's ports and Tamil Nadu's roadways enhance trade, driving local demand and economic growth.
- **Robust Industrial Base:** Gujarat and Maharashtra have strong manufacturing sectors, attracting both domestic and foreign investments due to investment-friendly policies.
- **Thriving Service Sector:** States like Karnataka and Tamil Nadu benefit from rapid urbanization and robust infrastructure, fueling growth in IT and services. A skilled workforce has further enhanced productivity in these regions.

### Measures for Enhancing Economic Performance Across States

- **Decentralized Planning:** Empower local governments to create region-specific development plans.
- **Digital Transformation:** Use digital solutions to enhance transparency and efficiency in public services.



- **Sectoral Focus:** Boost agricultural productivity through technology while encouraging sector-specific policies for manufacturing (e.g., textiles, electronics) and services (e.g., IT, tourism).
- **Innovation Support:** Foster a culture of innovation through startup incubators, R&D funding, and collaborations among academia, industry, and government.

- **Collaborative Governance:** Foster inter-state collaboration to share resources and align central and state policies for development.
- **Skill Development:** Implement vocational training aligned with industry needs and improve education quality.

## Banking

### Slow Deposit Growth

- In the quarter ending June 2024, deposits in banks grew by 11.7%, whereas credit grew at 15%. This gap indicates a potential asset-liability mismatch for banks, as lending outpaces deposit growth.

### Factors Contributing to Slow Deposit Growth

- **Shift to Capital Markets:** Household Savings: Post-COVID, many households have shifted from traditional bank deposits to capital markets for better returns.
  - Demat accounts grew from 11.45 crore in FY23 to 15.14 crore in FY24, with mutual funds seeing net assets under management (AUM) rise by 6.23% to ₹64.97 lakh crore as of July 2024.
  - The mutual fund industry now has 9.33 crore SIP accounts, signaling steady retail participation.

### Concerns Over Slower Deposit Growth

- **RBI's Warning:** RBI Governor emphasized that while deposits are still the dominant household financial asset, their share is decreasing as more savings flow into mutual funds, insurance, and pension funds.
- **Structural Liquidity Issues:** RBI cautioned that lagging deposit growth compared to credit expansion could lead to liquidity problems for banks.
- **Finance Ministry's Position:** Finance Minister urged banks to refocus on mobilizing small deposits rather than just big deposits to combat the flagging deposit growth rate.

### Resilience of the NBFC Sector

The Non-Banking Financial Companies (NBFC) sector in India has demonstrated resilience and adaptability under the Scale-Based Regulations (SBR) framework, introduced in October 2022.

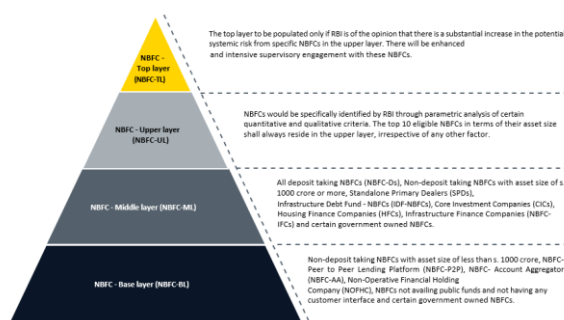


- **Asset Quality:** The gross NPA ratio for NBFCs has declined from 4.4% for Government NBFCs and 10.6% for Non-Government NBFCs in December 2021 to 2.4% and 6.3%, respectively, by December 2023.
- **Double-Digit Credit Growth:** As of December 2023, the sector maintained strong credit growth, bolstered by sectors like gold loans, vehicle loans, and housing loans.
- **Improved Profitability:** NBFCs have reported higher Return on Assets (RoA) and Return on Equity (RoE), indicating enhanced profitability.
- **Adequate Capital Levels:** NBFCs maintain adequate capital buffers, especially crucial for those in the upper layer of the SBR framework, such as LIC Housing Finance, Bajaj Finance, and L&T Finance.

## Funding Diversification Strategies

NBFCs are increasingly diversifying their funding base due to higher risk weights on bank lending:

- **Reduced Bank Dependency:** NBFCs are reducing reliance on bank borrowings, exploring alternative funding sources to maintain financial stability.
- **Sectoral Focus:** Strong growth in secured retail credit, particularly in gold loans, vehicle loans, and housing loans, alongside continued expansion in industrial and service sectors.



## Public Finance

### Corporate Tax Cuts in the U.S. and India

In the years prior to the pandemic, two of the largest economies in the world – the U.S. and India – cut corporate tax rates in an attempt to stimulate growth.

#### U.S. Corporate Tax Cuts (2017)

- **Policy Change:** In December 2017, the Tax Cuts and Jobs Act reduced the U.S. corporate tax rate from 35% to 21%.
- **Intended Impact:** Proponents argued it would drive investment, create jobs, and boost wages.

- **Outcomes:** Studies found investment rose by 8-14%, potentially avoiding a decline without the cuts.
  - Long-term GDP increase estimated at 0.9%, with annual wage gains under \$1,000 per worker – far below the predicted \$4,000 to \$9,000.
  - Fiscal Impact: Estimated tax revenue loss of 41%, leading to reduced fiscal health for the U.S. economy.

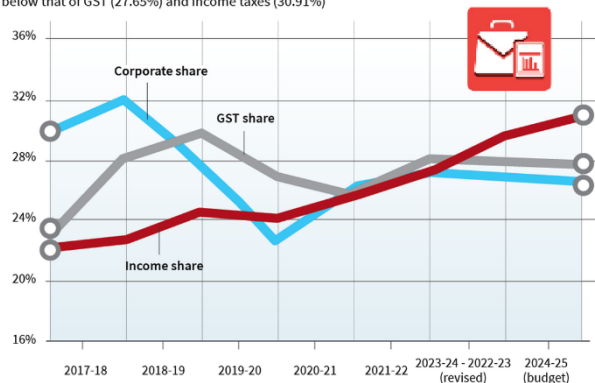
#### India's Corporate Tax Cuts (2019)

- **Policy Change:** In September 2019, India cut corporate tax rates from 30% to 22% for existing companies, and 25% to 15% for new companies.

- **Fiscal Impact:** This resulted in an annual tax revenue loss of around ₹1 lakh crore in 2020-21.
- **Employment & Wage Impact:**
  - Corporate tax cuts had minimal impact on formal employment. Regular wage employment fell from 22.8% in 2017-18 to 20.9% in 2022-23.
  - Nominal wage growth for regular workers showed a CAGR of 4.53% in rural areas and 5.75% in urban areas, barely above inflation, leading to real wage stagnation.
- **Shift in Tax Burden:** The share of corporate tax revenue fell from 32% in 2017-18 to 26.5% in 2024-25, while individual income tax and GST shares increased. The government compensated by increasing taxes on long-term capital gains.

**Fig 1: The share of different tax sources**

According to the budget estimates of 2024-25, the share of corporate taxes has fallen to 26.5%, below that of GST (27.65%) and income taxes (30.91%)



## **Broader Insights and Policy Considerations**

- **Investment vs. Income Distribution:** Both countries saw modest investment gains from tax cuts, but the benefits were primarily skewed towards corporate profits rather than employment or wage growth.

- **Policy Recommendation:** Economists suggest higher taxes on existing profits while offering incentives for new investments to ensure that tax policies stimulate growth without compromising income distribution.

## **India Imposes Import Tariffs on Steel**

- India will impose tariffs of between 12% and 30% on some steel products imported from China and Vietnam in a bid to safeguard and boost local industry.

### **Countervailing Duty (CVD)**

- The countervailing duty (CVD) ranges from 12% on imports from Vietnam to 30% on imports from China.
- CVD is imposed following investigations by the Directorate General of Trade Remedies (DGTR), which found that subsidies on these imports harm India's domestic steel industry.
- The DGTR conducted an investigation prompted by complaints from industry groups like the Stainless Steel Pipe and Tubes Manufacturer Association.
- Findings showed that steel pipes and tubes were exported to India at prices below production cost due to foreign subsidies, which posed a threat to local manufacturers.

## Impact of the Tariff Decision

- **Addressing Unfair Trade Practices:** This move aligns India with global practices aimed at mitigating the effects of foreign subsidies, reinforcing fair trade standards to protect the local economy.
- **Protecting Domestic Industry:** The tariffs shield Indian steel producers from subsidized imports that undercut local prices, helping sustain domestic production in vital sectors like infrastructure and manufacturing.
- **Encouraging Local Investment:** Reduced competition from unfairly priced imports can spur domestic investment, leading to expanded operations, technological upgrades, and job creation in the steel industry.
- **Promoting Fair Competition:** By raising the cost of imported steel, the tariffs level the playing field, allowing Indian manufacturers to compete more equitably.

## **Ammonium Nitrate Dumping**

- The sharp increase in import of ammonium nitrate (AN) from Russia has hit domestic fertilizer companies which are in the process of ramping up AN capacity with investment of over ₹4,000 crore.

## Importance of Ammonium Nitrate

- **Agricultural Use:** As a key ingredient in nitrogen-based fertilizers, ammonium nitrate boosts crop yields, enhancing food security. It's essential for growing staples like wheat and rice, supporting India's agricultural productivity.

- **Mining and Infrastructure:** Used in the form of ANFO, ammonium nitrate is crucial for blasting in mining operations and large-scale infrastructure projects, aiding efficient mineral extraction and construction.
- **Industrial Manufacturing:** It plays a role in producing various chemicals and industrial products, including explosives for defense, contributing to India's manufacturing sector and economic growth.

## Concerns of Industry

- The mining industry has expressed concerns about India's reliance on imports for Ammonium Nitrate (AN), a key component used in blasting for mining ores such as coal, iron ore, and limestone.
- Despite a domestic capacity of 10.96 lakh tonnes per annum, imports have increased, with 2.39 lakh tonnes imported last fiscal year, up from 91,236 tonnes in FY22.
- This dependence on imports has reduced domestic capacity utilization from 91% to 72%.

## Challenges with Imports

- **Price Disparity:** Imported AN is often cheaper due to subsidized natural gas in exporting countries, making it more competitive than domestically produced AN.
- **Geo-Political Risks:** Given the current geopolitical situation, relying on imports is risky, as supply disruptions could impact coal mining and power production.

To encourage local production, the Indian government has recently increased the customs duty on AN imports from 7.5% to 10%. However, industry experts believe the impact of this hike (estimated at \$8-9 per tonne) is too small to significantly reduce imports

### **Domestic Production Initiatives**

- India is investing in expanding AN production capacity to reduce import dependency.

- Major fertilizer companies, including Rashtriya Chemicals and Fertilizers, Gujarat National Fertilizer, and National Fertilizer, are setting up an additional 10.19 lakh tonnes per annum capacity.
- Coal India has signed a ₹11,782 crore joint venture with BHEL to establish an AN plant in Odisha using Pressurised Fluidised Bed Gasification technology. This plant is expected to produce 2,000 tonnes of AN per day.

## **Economically Relevant International Institutions**

### **Indo-Pacific Economic Framework (IPEF)**

India signed and exchanged the first-of-its-kind agreements focused on Clean Economy, Fair Economy, and the IPEF Overarching arrangement under Indo-Pacific Economic Framework (IPEF) for prosperity, on 21st September, 2024.

### **Indo-Pacific Economic Framework**

- IPEF was launched on 23 May 2022 at Tokyo, Japan, comprising 14 countries – Australia, Brunei, Fiji, India, Indonesia, Japan, Republic of Korea, Malaysia, New Zealand, Philippines, Singapore, Thailand, Vietnam and USA.
- The IPEF seeks to strengthen economic engagement and cooperation among partner countries with the goal of advancing growth, economic stability and prosperity in the region.

- The framework is structured around four pillars relating to Trade (Pillar I); Supply Chain Resilience (Pillar II); Clean Economy (Pillar III); and Fair Economy (Pillar IV).
- India has ratified Agreement on Supply Chain Resilience (Pillar II) in February 2024 and has maintained an observer status in Pillar-I.

### **IPEF Clean Economy Agreement (Pillar-III)**

- Objectives: Focuses on technical cooperation, capacity building, and clean energy development. This agreement aims to promote climate resilience, energy security, and GHG emission mitigation.
- Key Actions:
  - Supports MSMEs by facilitating project financing, including concessional financing, and provides workforce development.



- Initiatives like the IPEF Catalytic Capital Fund and IPEF Accelerator will drive investments in clean energy.

### **IPEF Fair Economy Agreement (Pillar-IV)**

- **Goals:** Establishes a transparent and predictable environment for trade and investment by combating corruption and enhancing tax transparency.
- **Key Focus Areas:**
  - Promotes cross-border investigations and information sharing to tackle money laundering and terror financing.
  - Strengthens anti-corruption efforts and improves tax administration through Technical Assistance and Capacity Building (TACB).

### **Overarching IPEF Agreement**

- **Purpose:** Provides a Ministerial-level oversight mechanism to ensure effective coordination and governance across all IPEF pillars.
- **Structure:**
  - Establishes a forum for Ministerial discussions on emerging economic issues and strengthens the IPEF partnership's identity and longevity.
  - Aims to promote integration into global supply chains and align with India's Atmanirbhar Bharat initiative.

### **Investment and Initiatives under IPEF**

- **Investment Catalyzation:** The IPEF Catalytic Capital Fund received an initial USD 33 million to attract USD 3.3 billion in private investments.
  - United States International Development Finance Corporation (DFC) committed USD 1.5 billion to support India's energy transition.
- **IPEF Upskilling Initiative:** Launched in 2022, this initiative provided 10.9 million digital upskilling opportunities, with 4 million availed by India, primarily benefiting women and girls.
- **Critical Mineral Dialogue:** Aims to strengthen mineral supply chains through mapping resources and enhancing trade flows across IPEF partners. This includes efforts in sustainable mining and mineral recovery.
- **Tech Council:** Focuses on digital infrastructure resilience and innovation in cybersecurity, undersea cables, and AI. It fosters collaboration and best practices among IPEF members.
- **Cooperative Work Program (CWP):** Supports joint efforts on clean energy and sustainable technologies. Projects include carbon markets, sustainable aviation fuel, and e-waste urban mining, a proposal led by India.

### **ASIA Power Index**

India has officially overtaken Japan to become the third most powerful country in Asia, according to the latest Asia Power Index released by the Lowy Institute.

## Asia Power Index and India's rise

- The Asia Power Index, an annual publication by the Lowy Institute, assesses the power dynamics of 26 countries and territories across the Asia-Pacific.
- It evaluates their capacity to influence their external environment based on various metrics, including military strength, economic resources, diplomatic influence, and cultural impact.
- India's rise to the third position reflects a resurgence following the COVID-19 pandemic, as its economy demonstrates strong recovery and growth.
- In contrast, China's power appears to have stabilised just below that of the United States, indicating a competitive but complex regional environment.

Country	Score
United States	81.7
China	72.7
India	39.1
Japan	38.9
Australia	31.9
Russia	31.1

## Factors Behind India's Ascent

- **Economic growth:** India's post-pandemic economic recovery has been robust, contributing significantly to its increased capability score. The country has demonstrated impressive GDP growth, driven by a combination of factors:

- **Domestic consumption:** With a large population, India's domestic market is a vital driver of economic activity.
- **Manufacturing initiatives:** Government initiatives like "Make in India" aim to boost local manufacturing and attract foreign investment.
- **Service sector:** The IT and services sectors continue to be strong contributors to economic growth.
- **Diplomatic influence:** India's diplomatic efforts have gained momentum, allowing it to play a more prominent role in international relations. This includes:
  - **Participation in global forums:** India's engagement in organisations such as the G20, BRICS, and the Quad enhances its visibility and influence.
  - **Non-aligned strategy:** India's non-aligned approach enables it to maintain relationships with diverse global powers without being tethered to formal alliances, allowing for flexibility in diplomacy.
- **Economic recovery:** The Lowy Institute points to India's remarkable post-pandemic economic recovery as a crucial factor for its rise in the Asia Power Index. The recovery is characterised by:
  - **Strong economic indicators:** Metrics such as GDP growth, inflation rates, and employment figures have shown positive trends.



- Investment in infrastructure: The government's focus on infrastructure development, including roads, ports, and digital services, is expected to further stimulate economic growth.
- Innovation and startups: India has become a hub for startups and technological innovation, further bolstering its economic prospects.
- Role in regional security: India's active participation in regional security dialogues and its leadership role in the Quad (comprising the US, Japan, Australia, and India) has positioned it as a crucial player in maintaining regional stability. This involvement includes:
  - Countering regional threats: Collaborating with Quad partners to address security challenges in the Indo-Pacific, particularly concerning maritime security and territorial disputes.
  - Humanitarian assistance: India has also engaged in humanitarian missions and disaster relief efforts, enhancing its reputation as a responsible power in the region.
- Educational and Skill Gaps: Despite progress, India still faces challenges in providing high-quality education and skill development to a large segment of its population. There is a mismatch between the skills taught in educational institutions and those needed in the workforce.
- Dependence on Imported Energy: India relies heavily on imports for its energy needs, particularly oil and gas, making it vulnerable to fluctuations in global energy prices and supply disruptions.
- Technological and Innovation Gaps: While India is a global leader in IT services, it lags in R&D spending, technological innovation, and manufacturing high-tech products.
- Healthcare Challenges: Access to quality healthcare remains uneven, particularly in rural areas, and the country has a relatively low health expenditure as a percentage of GDP.
- Infrastructure Needs: To capitalize on its demographic advantage, India must invest heavily in transportation, healthcare, and education infrastructure. Such investments are critical for sustaining economic momentum and enhancing quality of life.
- Geopolitical Tensions: India's complex relationships with neighboring countries, particularly China and Pakistan, pose challenges to regional stability. Navigating these delicate dynamics is crucial for India to maintain its ascent as a global power.

## **Challenges**

- Environmental and Climate Challenges: As India pursues rapid industrialization and urbanization, it faces environmental challenges, including air and water pollution, deforestation, and climate change impacts.

## Industry

### Rise of Q-Commerce

Quick commerce, altering India's retail and last-mile delivery landscape, stands out as a prominent trend in the country's e-commerce sector leveraging the widespread availability of mobile internet and the rise of e-commerce. Quick commerce is challenging traditional retail concepts with a focus on rapid deliveries.

- **Consumer Shift:** Consumers now rely on quick commerce for daily essentials, moving away from traditional shopping trips. Convenience and time-saving are prioritized over cost, especially for working professionals.
- **Market Size:** India's Q-commerce market was valued at \$2.8 billion in March 2024 and is projected to grow to \$40 billion by 2030 (Deloitte). Key players include Blinkit, Swiggy Instamart, Zepto, and BBNOW.

### Competitive Landscape and Expansion

- **Leading Companies:** Blinkit, acquired by Zomato, saw its Gross Order Value grow to ₹4,923 crore in Q1 FY25 from ₹2,140 crore in Q1 FY24. Zepto's revenue hit ₹10,000 crore in FY24, showing fivefold growth.
- **New Entrants:** Flipkart launched Flipkart Minutes, delivering within minutes in select cities, while BigBasket plans to phase out its slower delivery services for a 10-30 minute model.

- **Technology in Operations:** Companies use AI-driven demand forecasting and real-time inventory management to optimize delivery speed and cost, capitalizing on consumer demand for immediate delivery.

### The Driving Factors

- **Consumer Expectations:** Modern consumers demand speed and convenience in every aspect of life. Instant delivery has become a necessity, especially for essentials like groceries, food, and medications.
- **Expanded Product Range:** Beyond groceries, quick commerce now includes beauty products, electronics, home decor, and wellness items.
- **Technology:** Advanced logistics, AI, and data analytics have enabled companies to optimize delivery routes, manage inventory more effectively, and ensure seamless operations in real time.
- **Urbanization:** As more people move to cities, the demand for hyper-local delivery grows. Q-Commerce thrives in densely populated urban environments, where consumers prioritize speed and accessibility.
- **Tailored Offerings:** Quick commerce platforms cater to these events by providing relevant products, such as pooja essentials for Diwali, roses for Valentine's Day, and team jerseys for sporting events.



- **Shift in Shopping Habits:** Post-pandemic, consumers have developed a stronger preference for online shopping, increasing the need for faster and more efficient delivery services.

### Challenges for Traditional E-commerce Giants

- **Adaptation Struggles:** Traditional e-commerce giants like Amazon and Flipkart have struggled with Q-commerce due to their established business models. Flipkart's earlier attempts, like Flipkart Quick, were scaled down, while JioMart re-entered Q-commerce in June 2024 with 30-minute deliveries.
- **Disruptive Innovation:** Smaller Q-commerce players benefit from first-mover advantage and agility, allowing them to rapidly adapt and leverage technology, unlike larger firms constrained by existing business processes.

### Sustainability Concerns

- **Cost and Labor:** While quick commerce thrives on affordable labor, rising wages, infrastructure costs, and potential regulatory shifts may affect its long-term viability. Some experts predict a shift toward half-day or next-day delivery models as operational costs rise.
- **Environmental and Operational Pressures:** The model may face sustainability challenges due to urban congestion, labor costs, and environmental concerns. Investments in automation and AI are essential to maintaining efficiency as costs increase.

### Favourable government initiatives

The following initiatives by the government have contributed to the growth of quick commerce in the country:

- Digital India has transformed India's digital infrastructure, increased digital literacy, and promoted e-services.
- Start-up India has created a favourable environment to encourage innovation from new-age start-ups.
- Skill India has developed the talent by providing them with training in market-relevant skills and technology.
- Unified Payments Interface (UPI) and RuPay have made payments convenient and hassle-free by providing customers with banking services at their fingertips.
- BharatNet has improved broadband access, facilitating quick commerce and e-commerce expansion in previously underserved regions.
- Open Network for Digital Commerce (ONDC) has increased the reach of India's quick commerce and e-commerce ecosystem by onboarding smaller vendors onto digital platforms and promoting fair competition within the industry.
- 100% FDI is permitted through the automatic route in entities engaging in B2B models to encourage the participation of foreign players.



## RBI's Call for Increased Private Sector Investment

RBI Governor Shaktikanta Das has urged the private sector to increase investments, highlighting favorable conditions that support growth. At the annual banking conference by FICCI and IBA, Das noted that both the IMF and World Bank have raised India's growth forecast to 7% for the current fiscal year. RBI Gov emphasized that a "multi-pronged and multi-sectoral approach" is essential for India to achieve advanced economic status by 2047.

### Growth Trajectory and Economic Potential

- **Growth Projections:** Although India recorded a 6.7% GDP growth in the first quarter of FY2023-24—slightly lower due to pre-election spending constraints—the RBI projects a 7.2% GDP growth for FY2024-25.
- **Consumption and Investment:** With government spending set to pick up, consumption and investment demand are rising in tandem, supporting India's sustained growth.

- **Corporate Profits:** The private sector's strong performance is evident with corporate profits growing by 14.2% in the first quarter, bolstering the balance sheets of banks and corporates and creating favorable conditions for capital expenditure.

### Key Economic Growth Drivers

- **Consumption:** Increased domestic consumption can insulate India from global uncertainties.
- **Investment and Exports:** Investment, particularly from the private sector, and export growth are crucial for sustained economic momentum.
- **Manufacturing:** Initiatives like Make in India, Startup India, and Production-Linked Incentive (PLI) schemes are designed to boost manufacturing, which plays a pivotal role in generating employment and improving competitiveness.

### Reasons Behind the Decline in Private Investment

- **Low Private Consumption:** Economists suggest that low consumption discourages private investment by reducing expected demand. Historical data, however, shows an inverse trend where decreased consumption (e.g., from 90% to 54.7% of GDP between 1950-51 and 2010-11) correlated with rising investment, while consumption growth since 2011-12 coincided with declining investment.

- **Structural Issues and Policy Uncertainty:** Persistent structural challenges and inconsistent policies have deterred long-term private investment. The growth in private investment during the 1990s and 2000s reflected the impact of economic reforms, but a slowdown in reforms since then has discouraged private capital inflow.

### **Government Measures to Stimulate Private Investment**

- **Tax Reforms:** Corporate Tax Cuts: In 2019, corporate taxes were reduced from 30% to 22% to make investment more attractive.
  - **GST and Compliance:** The Goods and Services Tax (GST) and simplified compliance procedures create a more business-friendly environment.
- **Infrastructure and Regulatory Reforms:** National Infrastructure Pipeline (NIP) and Single Window Clearance aim to streamline infrastructure development and reduce bureaucratic hurdles.
  - **Digital Platforms:** Platforms like MCA21 simplify business registration and compliance processes.
- **Sector-Specific Support:** Incentives for renewable energy, manufacturing, and technology sectors encourage targeted investments.

- **Banking Sector Improvements:** Measures like public sector bank recapitalization and the Insolvency and Bankruptcy Code (IBC) enhance credit availability and reduce NPAs.
- **Liberalization:** Expanded Automatic Route: Simplified foreign direct investment (FDI) processes, especially in defense, retail, and aviation, increase foreign investment inflows.
  - **Special Economic Zones (SEZs):** SEZs provide tax breaks and regulatory incentives, attracting investments to specific regions.

### **BHASKAR Platform**

The Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry, is set to launch a groundbreaking digital platform aimed at strengthening India's startup ecosystem.

### **Need**

- India, currently home to over 1,46,000 DPIIT-recognized startups, is rapidly evolving into a dynamic global startup hub.
- BHASKAR is set to enhance this momentum by offering a one-stop digital platform that provides startups with the resources they need from ideation to execution.
- By serving as a centralized registry, BHASKAR will make resources, tools, and collaboration opportunities readily accessible to startups, thereby fostering growth and innovation.

## Key Features

- **Networking and Collaboration:** BHASKAR will bridge the gap between startups, investors, mentors, and other stakeholders, allowing for seamless interaction across sectors.
- **Providing Centralized Access to Resources:** By consolidating resources, the platform will provide startups with immediate access to critical tools and knowledge, enabling faster decision-making and more efficient scaling.
- **Creating Personalized Identification:** Every stakeholder will be assigned a unique BHASKAR ID, ensuring personalized interactions and tailored experiences across the platform.
- **Enhancing Discoverability:** Through powerful search features, users can easily locate relevant resources, collaborators, and opportunities, ensuring faster decision-making and action.
- **Supporting India's Global Brand:** BHASKAR will serve as a vehicle for promoting India's global reputation as a hub for innovation, making cross-border collaborations more accessible to startups and investors alike.

## Infrastructure

### Ethanol Blending and Maize Imports

India appears set to become a permanent net importer of corn with the government promoting ethanol in gasoline to reduce carbon emissions.

### Ethanol Policy Change

- In January 2024, India raised the procurement price of corn-based ethanol to reduce reliance on sugarcane for ethanol production, targeting a 20% ethanol blending in gasoline by 2025-26.
- **Impact:** India's corn imports surged as ethanol demand grew, with imports expected to reach 1 million tons in 2024, mainly from Myanmar and Ukraine.

- Ethanol distilleries now require 6-7 million tons of corn annually, increasing demand and driving local prices above global levels, adversely affecting poultry producers who rely on corn for feed.

### Impact of this Change

- **Impact on Poultry Industry:** Local poultry producers, facing rising feed costs, have requested duty-free corn imports and permission to use genetically modified (GM) corn.
  - Corn prices constitute 75% of production costs, pushing poultry farmers into losses.
  - Broiler production costs have reached 90 rupees, against a sale price of 75 rupees per bird.

- **Trade Reversal:** India, traditionally an exporter of 2-4 million tons of corn, has seen exports drop 87% in 2024, from 1.8 million tons to 241,889 tons. Imports rose to 531,703 tons, up from 4,981 tons the previous year.
- **Pressure on Global Corn Markets:** As India shifts from a net exporter to an importer, global corn prices may rise, especially as India continues to import corn to meet ethanol production goals.
- **Adaptations by Farmers:** Encouraged by high corn prices, Indian farmers expanded corn cultivation by 7% to 8.7 million hectares. Some poultry farmers are substituting corn with alternatives like broken rice to reduce costs.

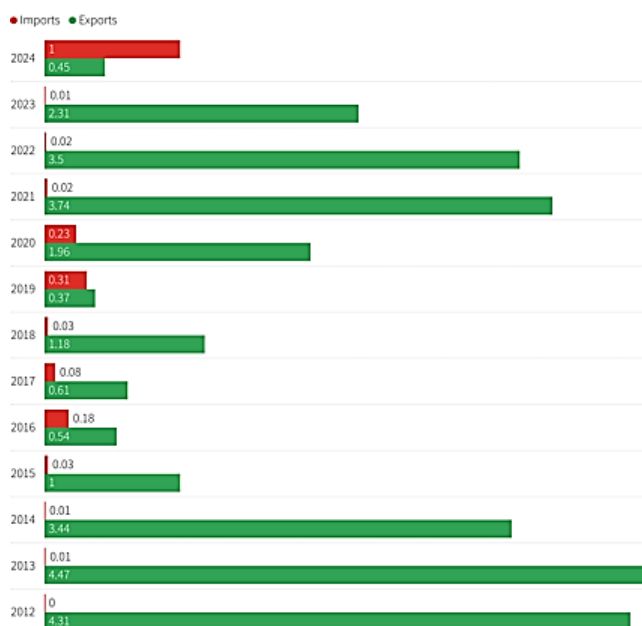
- **Poultry and Animal Feed:** Maize can play a crucial role in meeting the growing demand for poultry and animal feed. By producing high-protein distiller's dried grains with soluble (DDGS) as a byproduct of ethanol, India can support food, feed, and fuel security.
- **Technological Adoption:** Use biotech traits resistant to pests like Fall Armyworm and expand high-yielding single-cross hybrids to increase maize productivity. This can potentially double India's yield, which currently lags behind global standards.

## Steps to Enhance Maize Production in India

- **Diversification and Intensification:** Shift from water-intensive rice to maize in regions like Punjab and Haryana. Maize requires 70% less water and 90% less power, making it more sustainable and reducing government subsidy costs on water and power.
- **Government Support:** To meet ethanol blending targets, boost maize production through MSP incentives, procurement assurances, and transportation concessions. Engage mega cooperatives for assured procurement, similar to the White Revolution in the dairy sector.

### India's corn imports and exports

Ethanol push turns India into corn importer, makes exports unviable



Note: Exports, imports in million metric tons in calendar year; By Rajendra Jadhav  
Source: Commerce Ministry, traders' estimate



## Agriculture

### New Scheme for Crop Diversification

The Centre and Punjab government have launched a scheme offering ₹17,500 per hectare for farmers to shift from paddy to less water-intensive crops during the kharif season. The scheme is funded 60:40 by the Centre and Punjab and will cost ₹289.87 crore for 2024-25. The aim is to promote sustainable agriculture, but further actions are needed to ensure long-term success.

#### Benefits of Diversification

- **Water Conservation:** Paddy requires 20-25 irrigations, whereas pulses, oilseeds, and millets need less than four. This could address Punjab's groundwater depletion, where 87% of blocks are over-exploited.
- **GHG Emissions:** Paddy cultivation emits 5 tonnes of CO<sub>2</sub> equivalent per hectare. Diversification can reduce greenhouse gas emissions, benefiting climate health and reducing pollution from stubble burning.
- **Economic Stability:** Diversification could earn farmers up to four carbon credits per hectare, opening carbon market opportunities.

#### Challenges of Current Incentive Structure

- **Profitability Gap:** In Haryana, a similar scheme showed limited success due to the profitability gap between paddy and alternative crops like pulses, oilseeds, and millets, which is larger than the incentive offered.

- **Data:** Paddy farmers in Punjab received ₹38,973/ha in subsidies in 2023-24, making paddy much more profitable. Experts suggest a minimum of ₹35,000/ha would be needed to make other crops competitive.
- **Assured Procurement Issues:** Unlike paddy, which benefits from guaranteed procurement by the Food Corporation of India (FCI), alternative crops lack similar support.
  - The Centre could involve NAFED to procure pulses and oilseeds at MSP to minimize farmers' market risks.

#### Way Forward

- **Increased Financial Support:** Redirect existing subsidies (power, canal water, fertilizers) to support crop-neutral incentives, with an increased amount of ₹35,000/ha for at least five years.
- **Support for Alternative Crop Purchases:** Transitioning 1 million hectares away from paddy could free up ₹13,150 crore in procurement funds, which can be redirected for NAFED and other agencies to buy alternative crops at MSP.
- **Horticulture and Exports:** A cluster-based approach for high-value horticulture, supported by FPOs, could improve income. FPOs can handle grading, packaging, and branding, targeting export markets like West Asia.

## Monsoon Impact on Agri Policies

- India received 7.5% above-average rainfall from June, with 9% and 15.3% surplus in July and August, respectively. This strong monsoon has led to government policy changes in food production.

### Impact on Agri Policies

- **Policy Shifts:** On August 29, the government lifted the ban on using sugarcane juice and B-heavy molasses for ethanol production.
  - Additionally, 2.3 million tonnes of rice from the Food Corporation of India's stocks can now be used for ethanol, reflecting confidence in food availability for both consumption and biofuel.
- **Rice:** With 45.5 million tonnes of rice in storage (highest for August 1) and increased paddy planting, the government is considering lifting the non-basmati rice export ban from July 2023.
  - Removing the 20% duty on parboiled non-basmati and \$950/tonne minimum price on basmati is recommended to prevent oversupply issues.
- **Sugar:** Sugar exports have been halted since May 2023. However, with 9 million tonnes of stocks expected by October (up from 5.6 million tonnes the previous year), export resumption is advisable to avoid a surplus.

## Challenge of Govt Policy

- **Producer vs. Consumer Focus:** India's trade policy often prioritizes consumer interests over producer welfare, leading to volatile cycles where low supply results in high prices, followed by oversupply and price drops.
- **Need for Balanced Approach:** The government is urged to avoid export restrictions during high-supply periods to prevent price collapses. For example, export bans on soybean and pulses during high-yield seasons can harm farmers and reduce incentives for future cultivation.

## Digital Agriculture Mission

The Union Cabinet Committee chaired by the Prime Minister approved the Digital Agriculture Mission.

- The Digital Agriculture Mission is designed as an umbrella scheme to support various digital agriculture initiatives.
- These include creating Digital Public Infrastructure (DPI), implementing the Digital General Crop Estimation Survey (DGCES), and supporting IT initiatives by the Central Government, State Governments, and Academic and Research Institutions.
- The scheme is built on two foundational pillars:
  - Agri Stack
  - Krishi Decision Support System.

- Additionally, the mission includes 'Soil Profile Mapping' and aims to enable farmer-centric digital services to provide timely and reliable information for the agriculture sector.

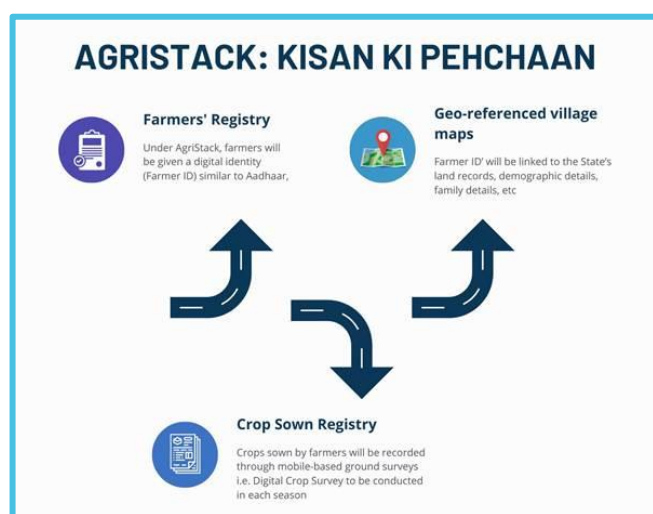
### **Some of the key benefits of the mission include:**

- Digital authentication for accessing services and benefits, reducing paperwork and the need for physical visits.
- Enhanced efficiency and transparency in government schemes, crop insurance, and loan systems through accurate data on crop area and yield.
- Crop map generation and monitoring for better disaster response and insurance claims.
- Development of digital infrastructure to optimize value chains and provide tailored advisory services for crop planning, health, pest management, and irrigation.

### **AgriStack: Kisan ki Pehchaan**

- AgriStack is designed as a farmer-centric Digital Public Infrastructure to streamline services and scheme delivery to farmers. It comprises three key components:
  - Farmers' Registry
  - Geo-referenced village maps
  - Crop Sown Registry
- A crucial feature of AgriStack is the introduction of a 'Farmer ID', similar to Aadhaar card, serving as a trusted digital identity for farmers.

- These IDs, created and maintained by the State Governments/ Union Territories, will be linked to various farmer-related data, including land records, livestock ownership, crops sown, and benefits availed.
- The implementation of AgriStack is progressing through partnerships between the Central and State Governments, with 19 states having signed MoUs with the Ministry of Agriculture. Pilot projects have been conducted in six states to test the creation of Farmer IDs and the Digital Crop Survey.
- The six states include Uttar Pradesh, Gujarat, Maharashtra, Haryana, Punjab, and Tamil Nadu.
- Key targets include:
  - Creating digital identities for 11 crore farmers over three years.
  - Launching the Digital Crop Survey nationwide within two years, covering 400 districts in FY 2024-25 and all districts in FY 2025-26.

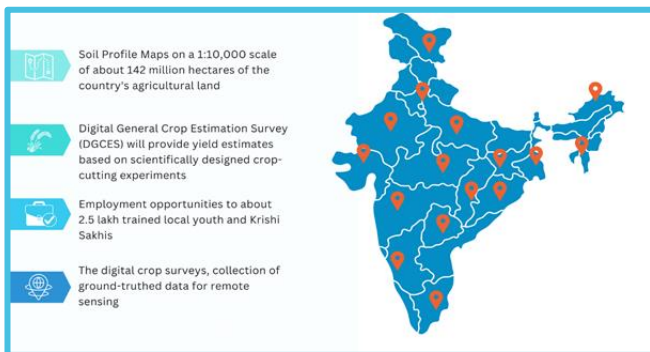


## Krishi Decision Support System

- The Krishi Decision Support System (DSS) will integrate remote sensing data on crops, soil, weather, and water resources into a comprehensive geospatial system.

## Soil Profile Mapping

- Under the mission, detailed soil profile maps on a 1:10,000 scale for approximately 142 million hectares of agricultural land have been envisaged, with 29 million hectares of soil profile inventory already being mapped.



## Impact and Benefits for Farmers

- **Digital Authentication:** Reduces paperwork and physical visits, enabling seamless access to government schemes and crop loans.
- **Efficiency and Transparency:** Improves crop insurance and loan systems through precise data on crop yield and area.

- **Disaster Response and Insurance:** Crop mapping enhances response to natural disasters, aiding in insurance claims.
- **Customized Advisory Services:** Provides guidance on crop planning, pest management, and irrigation through digital infrastructure.

## Union Budget and Digital Public Infrastructure (DPI) for Agriculture

- Union Budget 2024-25: Announced DPI implementation for agriculture, aiming to cover 6 crore farmers and conduct a digital crop survey in 400 districts.
- DPI integrates state and central digital systems, offering data on land holdings, livestock, soil health, and more.

## **AgriSURE Fund & Krishi Nivesh Portal**

A Rs. 750 crore fund called AgriSure has been introduced to support agriculture startups. A portal called Krishi Nivesh Portal has also been launched to speed up investment approval.

## About AgriSURE

- Announced in Budget 2022-23.
- AgriSure is an innovative fund for startups and rural enterprises that will transform Indian agriculture.
- Agriculture accounts for 16% of GDP and is the backbone of India's economy, with farmers being central to its success.
- Therefore the AgriSURE initiative aims to foster investment in agriculture startups, thereby creating numerous employment opportunities in the sector.



- The fund will be established as a Rs 750 crore Category-II Alternative Investment Fund (AIF), offering both equity and debt support.
- It aims to target high-risk, high-impact activities across the agriculture value chain.
- The fund will be launched with an initial corpus of ₹750 Crore.
- Contributions include ₹250 Crores each from NABARD and the Ministry of Agriculture, and ₹250 Crores from other institutions.

The objectives of AgriSURE are as follows:

- The AgriSure Fund aims to support start-ups & Rural Enterprises that work on ideas and plans to promote agriculture.
- The fund will operate for 10 years, with the possibility of extension for two or more years.
- The main goals of AgriSURE are to enhance agricultural value chains, develop rural infrastructure, and support Farmer Producer Organizations (FPOs). By doing so, the fund will assist start-ups and agricultural entrepreneurs.

### **Krishi Nivesh Portal**

- The portal will serve as a comprehensive platform providing detailed information on investment opportunities in agriculture and allied sectors, aimed at supporting farmers, investors, and the government.

- **Centralized Information Access:** Provides easy access to a variety of government schemes and investment opportunities.
- **Krishi Mitra Chatbot:** An interactive chatbot offers real-time assistance, helping users navigate the platform and find relevant information quickly.
- **User-Friendly Interface:** Designed for farmers and investors, the portal simplifies the process of identifying and applying for suitable schemes, enhancing the overall user experience.

### **Need for the Portal**

- **Challenges in Agriculture:** India's agricultural sector has struggled with fragmented information, limited access to government schemes, and slow loan disbursement. These issues have hindered sector growth.
- **Integrated Solution:** The portal addresses these challenges by offering a one-stop platform for agri-investors to access consolidated information on schemes and programs, speeding up application processes and making information more accessible.

### **Haryana's Sustainable Agriculture**

- Haryana and Punjab are seen to embody the best and worst of the Green Revolution, helping India turn self-sufficient, if not surplus, in rice and wheat production and also paying a steep environmental price through mono-cropping of the two cereals.



## Rice-Wheat Monoculture in Punjab

- Punjab heavily relies on a rice-wheat monoculture, with rice occupying 86.8% of the total kharif crop area and wheat covering 97.9% during rabi season.
- Rice requires 25 irrigations, contributing significantly to the state's water crisis. Wheat, while less water-intensive, still has environmental costs.
- The state's area under rice cultivation has increased from 28.9 lakh hectares (lh) in 2014-15 to 31.9 lh in 2023-24.

**TABLE 1**

### **PUNJAB CROPPING PROFILE**

#### **KHARIF**

Kharif	Area*	% share
Rice	30.20	86.78
Cotton	2.43	6.98
Maize	1.03	2.97
Sugarcane	0.89	2.57
Guarseed	0.10	0.29
Total***	34.81	100.00

#### **RABI**

Rabi	Area*	% share
Wheat	35.24	97.86
Mustard	0.43	1.19
Moong**	0.22	0.62
Barley	0.05	0.15
Total***	36.01	100.00

**TABLE 2**

### **HARYANA CROPPING PROFILE**

#### **KHARIF**

Kharif	Area*	% share
Rice	14.28	49.39
Cotton	6.50	22.50
Bajra	5.20	17.98
Guarseed	1.08	3.74
Sugarcane	1.00	3.45
Moong	0.40	1.40
Jowar	0.26	0.90
Groundnut	0.07	0.26
Maize	0.06	0.19
Total***	28.9	100.00

#### **RABI**

Rabi	Area*	% share
Wheat	24.25	75.78
Mustard	7.04	22.01
Chana	0.35	1.09
Sunflower	0.13	0.39
Moong**	0.10	0.32
Barley	0.10	0.30
Total***	32.00	100.00

## Haryana's Pattern

- Haryana exhibits more crop diversification, with rice occupying less than 50% of kharif acreage and wheat taking over 75% in rabi.

- In Haryana, 56.2% of the rice area is planted with basmati varieties, compared to only 16.5% in Punjab, which consumes less water and is mostly sold at a premium in domestic and international markets.
- Farmers also grow crops like cotton, bajra, guar, and mustard.
- The Bhavantar Bharpai Yojana (BBY) encourages crop diversification by offering MSP procurement and price deficiency payments for bajra, mustard, and sunflower seed.

## District Agro-Meteorology Units

- The India Meteorological Department (IMD) is planning to revive District Agro-Meteorology Units (DAMUs) under the Gramin Krishi Mausam Sewa (GKMS) scheme.

## District Agro-Meteorology Units

- Initially established in 2018 in collaboration with the Indian Council of Agricultural Research, these 199 units were designed to deliver localized agricultural advisories using weather data.
- However, in March 2024, DAMUs were shut down by the IMD, reportedly due to recommendations from NITI Aayog.

## Importance of Agro-Meteorology Units

- Support for Small and Marginal Farmers: With about 80% of Indian farmers relying on rain-fed agriculture, agro-met units are essential to help farmers cope with climate variability.

- Changing monsoon patterns, with extended dry and wet spells, have increased the need for timely weather information to manage crops.
- Local and Practical Advisories: DAMU staff, trained in both meteorology and agriculture, use IMD data (e.g., rainfall, temperature) to create advisories on sowing, fertilizer use, irrigation, and pest management.
- Wide Dissemination: These advisories are sent twice a week through multiple channels, such as text messages, WhatsApp, and local languages, reaching millions of farmers and providing early warnings for extreme events like droughts and heavy rainfall.

### **Reasons for Shutting Down DAMUs**

- NITI Aayog's Position: NITI Aayog reportedly recommended shutting down DAMUs, suggesting that the data was automated and supporting a shift towards privatization. This misrepresented the DAMU staff's role in delivering personalized, block-level advisories.
- Concerns of Monetization: The Aayog proposed that agro-met services be monetized, which would limit access for many farmers who previously received the services free of charge.

- Advocacy for Continuation: Organizations like the Association of Agrometeorologists and individuals like Union Minister Nitin Gadkari have voiced concerns over the shutdown, emphasizing the role DAMUs play in building climate resilience and supporting higher yields and incomes.

### **Challenges with Private Weather Advisory Services**

- High Costs for Farmers: Private advisory services charge rates that are often unaffordable for small and marginal farmers.
  - Some companies charge ₹10,000 per crop annually, which can amount to ₹20,000-40,000 for diverse crops, with other services reaching up to ₹60,000-80,000.
- Potential Bias: There are concerns that private services might have biases, particularly in recommending specific brands of fertilizers and pesticides, prioritizing profit motives over the best interests of farmers.

### **Future Considerations**

- The IMD's plan to revive DAMUs underscores the need for publicly-funded, accessible, and unbiased agricultural advisories.
- By reinstating DAMUs, the IMD aims to enhance the resilience of India's farming community against climate challenges, particularly benefiting small-scale farmers who rely on affordable weather information to optimize their practices.

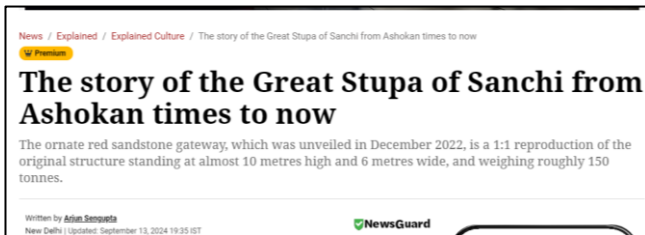
## History

### Art and Culture

#### Architecture, Mauryan Period

#### Stupa

#### Why in News?



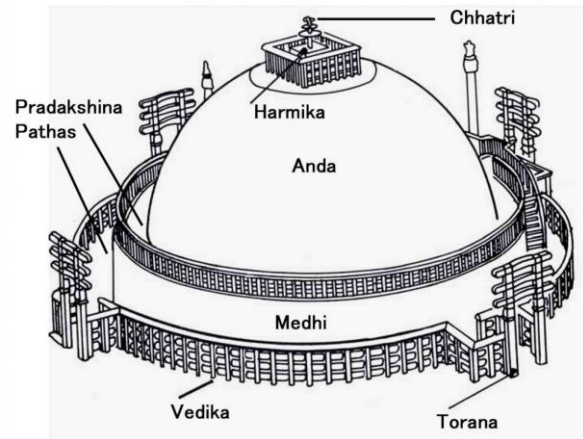
- External Affairs Minister S Jaishankar on Wednesday visited the replica of the East Gate of Sanchi's Great Stupa standing in front of Humboldt Forum museum in Berlin.



Great Stupa, Sanchi, Madhya Pradesh

- A stupa is a Buddhist commemorative monument usually containing sacred relics of the Buddha or other venerable saints.
- The archetypal stupa is a hemispherical structure, whose origins can be traced to pre-Buddhist burial mounds found in India.

#### Plan of a Stupa with two pradakshinapathas



#### The Great Stupa Sanchi, Madhya Pradesh

- The Great Stupa at Sanchi, commissioned by Ashoka in the 3rd century BCE, enshrines Buddha's relics.
- The four toranas, oriented to the four cardinal directions, were constructed in the first century BCE, likely within a few decades of each other during the reign of the Satavahana dynasty.
- British officer Henry Taylor first discovered the site in 1818.
- Alexander Cunningham, who established the Archaeological Survey of India (ASI), conducted the initial formal survey and excavation in 1851.
- Significant restoration efforts were led by John Marshall in the early 1900s, with financial backing from the Begums of Bhopal.
- The Great Stupa of Sanchi was declared a UNESCO World Heritage Site in 1989, acknowledging its global cultural significance.



- The term *Manushi Buddhas* refers to Buddhas who have manifested in the human realm, as opposed to celestial or transcendent Buddhas.
- In Buddhist tradition, *Manushi Buddhas* are those who attain enlightenment as human beings and then share their teachings to help others achieve liberation.
- The most well-known *Manushi Buddha* is Siddhartha Gautama, also known as the historical Buddha or Shakyamuni Buddha.
- According to early Pali Buddhist texts, there are seven Manushi Buddhas:

Vipasyin, Sikhi, Vishvabhu, Krakucchanda, Kanakamuni, Kasyapa, and Shakyamuni (Gautama)

Shalabhanjika, a fertility emblem represented by a yakshi grasping the branch of a tree.



## Miscellaneous

### Origins of Port Blair:

**Port Blair renamed as Sri Vijaya Puram:  
How the city got its name — and its connection with imperial Cholas**

The city of Port Blair is the entry point of the Andaman and Nicobar Islands. It was named after Archibald Blair, a naval surveyor and lieutenant in the Bombay Marine



### Colonial Legacy:

- Port Blair was named after **Archibald Blair**, a British naval officer who conducted surveys of the Andaman Islands in the late 18th century.
- The East India Company (EIC) later colonized the islands to combat Malay pirates and as a **penal colony** for convicts, especially after the **Revolt of 1857**.

### Battle of Aberdeen:

- Due to the constant deforestation and damage to their natural resources, the **Great Andamanese**, one of the tribal groups of the Island, **started resisting the British rule** in the region to claim their ancestral land.



## Colonial Legacy:

- This caused a series of **3 raids on 6th April, 14th April, and a final one on 17th May 1859**, which later became known as the Battle of Aberdeen.
- The battle was well-organized and marked a significant show of force by the indigenous tribes. Although the British retaliated with gunfire, one party of tribes managed to reach the convict station and occupy it.
- The **Great Andamanese fought valiantly** with their spears and arrows against the superior firepower of the British.
- However, **the battle resulted in heavy casualties among the tribes**, causing huge devastation to their population.



Pictorial Depiction Battle of Aberdeen

By 1906, the infamous **Cellular Jail (Kaala Paani)** housed many freedom fighters, including **Veer Savarkar**.

## Azad Hind Government and Netaji Subhas Chandra Bose:

- The Japanese forces captured the islands on 23rd March 1942, during World War II.

- During this period a branch of the Indian Independence League was formed in Port Blair in April 1942. The league included many leaders such as L. Daulat Ram and Chander Bhan Singh and together, they organized patriotic shows, and public meetings, to raise the nationalistic spirit of the people.
- It was at this period, the Island witnessed the arrival of Subash Chandra Bose on 29th December 1943.
- On 30th December 1943, he unfurled the tricolor flag in Port Blair, marking the first time ever, the Indian flag was hoisted on Indian soil during British rule.
- After this historic event, the Azad Hind Government was formed in Andaman to create a parallel civil administration under the leadership of Major General Arcot Doraiswamy Loganadhan, who was appointed as its chief commissioner by Netaji.
- With the end of World War II, the British reoccupied the region in 1945.

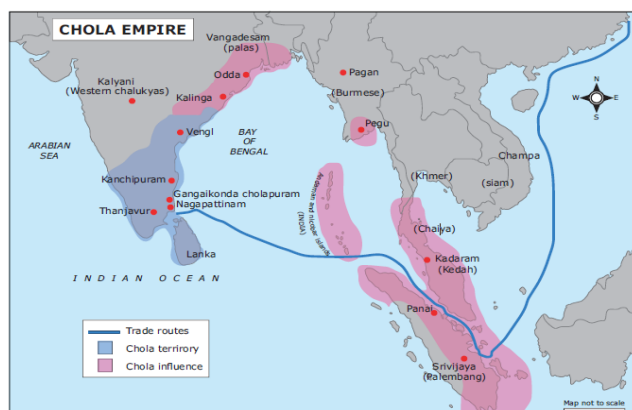
## **Historical Significance: Cholas and Srivijaya**

- Some historical records suggest that the **Chola emperor Rajendra I** used the **Andaman Islands as a strategic base** for his **11th-century naval expeditions**.
- The Cholas attacked the **Srivijaya Empire** (modern-day Indonesia), marking an important **military expedition**.





- Scholars debate the motive, with some suggesting it was to extend Chola dominance (**Chola Expansionism**) and **safeguard trade routes**.



## Theatre

### Koodiyattom

A collective for young artists to learn nuances of different Koodiyattom styles



- Koodiyattom, a pan-Indian **Sanskrit theatre tradition** practiced for over **two thousand years**, received worldwide attention in **2001** when UNESCO announced it a '**masterpiece of oral and intangible heritage of humanity**'.
- It was later inscribed on the **Representative List of the Intangible Cultural Heritage of Humanity** in **2008**. This list was established under the **2003 Convention for the Safeguarding of the Intangible Cultural Heritage**.

- The term '**Koodiyattam**' means '**combined act**' in Malayalam.
- Fuses **ancient Sanskrit theatre** with elements of **Koothu** from the **Sangam era**.
- **Koothu** is a Traditional folk art from Tamil Nadu. It combines **music, dance, and storytelling**, performed in Tamil.
  - Draws from epics like the **Ramayana and Mahabharata**.
  - *Notably, there is no spoken dialogue in the performances-only songs are used to convey the narrative.*
- **Traditional Venue:** Performed in temple theatres called **koothambalams**.
- **Unique Art Form:** The only surviving art form incorporating **ancient Sanskrit theatre**.
- **Integral to Worship:** Accompanied by devotional hymns like **Tevaram** and **Prabandam**.
- **Historical Contributions:**
  - **Pallava king Rajasimha** authored works like **Kailasodharanam**.
  - **Kulasekhara Varma**, a medieval **Chera Perumal king**, reformed Koodiyattam.
- **Performers:**
  - Traditionally performed by **Chakyars** (a subcaste of Kerala Hindus) and **Nangyaramma** (women of the **Ambalavasi Nambiar** caste).
  - Main actor is a **Chakyar** performing ritualistic koothu and koodiyattam.
  - Female roles are played by **Nangyaramma**, as **Chakyar women (Illotammas)** do not participate.

S.No.	Intangible Cultural Heritage Element	Year of Inscription
1.	Kutiyattam, Sanskrit Theater	2008
2.	Tradition of Vedic Chanting	2008
3.	Ramlila, the Traditional Performance of the Ramayana	2008
4.	Ramman, Religious Festival and Ritual Theatre of the Garhwal Himalayas, India	2009
5.	Chhau Dance	2010
6.	Kalbelia Folk Songs and Dances of Rajasthan	2010
7.	Mudiyettu, Ritual Theatre and Dance Drama of Kerala	2010
8.	Buddhist Chanting of Ladakh: Recitation of Sacred Buddhist Texts in the Trans-Himalayan Ladakh region, Jammu and Kashmir, India	2012
9.	Sankirtana, ritual singing, drumming and dancing of Manipur	2013
10.	Traditional Brass and Copper Craft of Utensil Making among the Thatheras	2014

	of Jandiala Guru, Punjab, India	
11.	Nowruz	2016
12.	Yoga	2016
13.	Kumbh Mela	2017
14.	Durga Puja in Kolkata	2021
15.	Garba of Gujarat	2023

## Sangam Age

### Thiruvalluvar Day

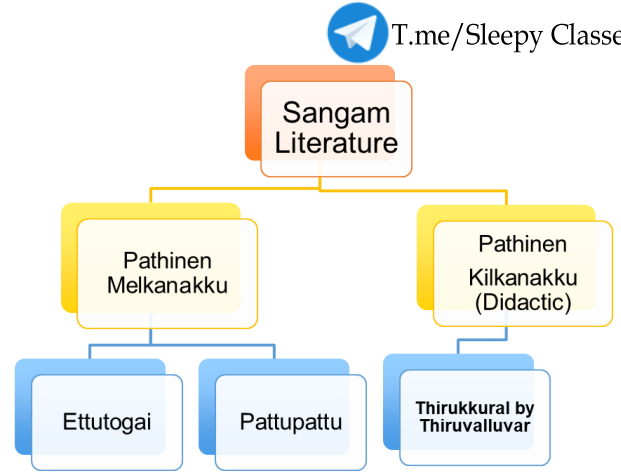
Madras High Court junks plea to declare Tamil saint-poet's birthday on Vaikasi Anusham



- **Thiruvalluvar composed the "Thirukkural,"** which is often referred to as the **"Universal Veda"** due to its universal teachings and ethical guidance.
- It is divided into **three main sections** or books: **Aram (Virtue), Porul (Wealth), and Inbam (Love).**
- It is a **collection of 1,330 couplets (kurals)** that offer timeless wisdom on various aspects of life, including **ethics, governance, love, and spirituality.**



- 'Tiruvalluvar day' is observed annually on the second day of Tamil month *Thai* to celebrate the literary works of the saint-poet.



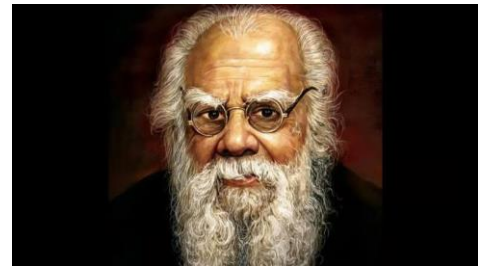
## Modern Indian History

### Socio - Religious Reform Movements

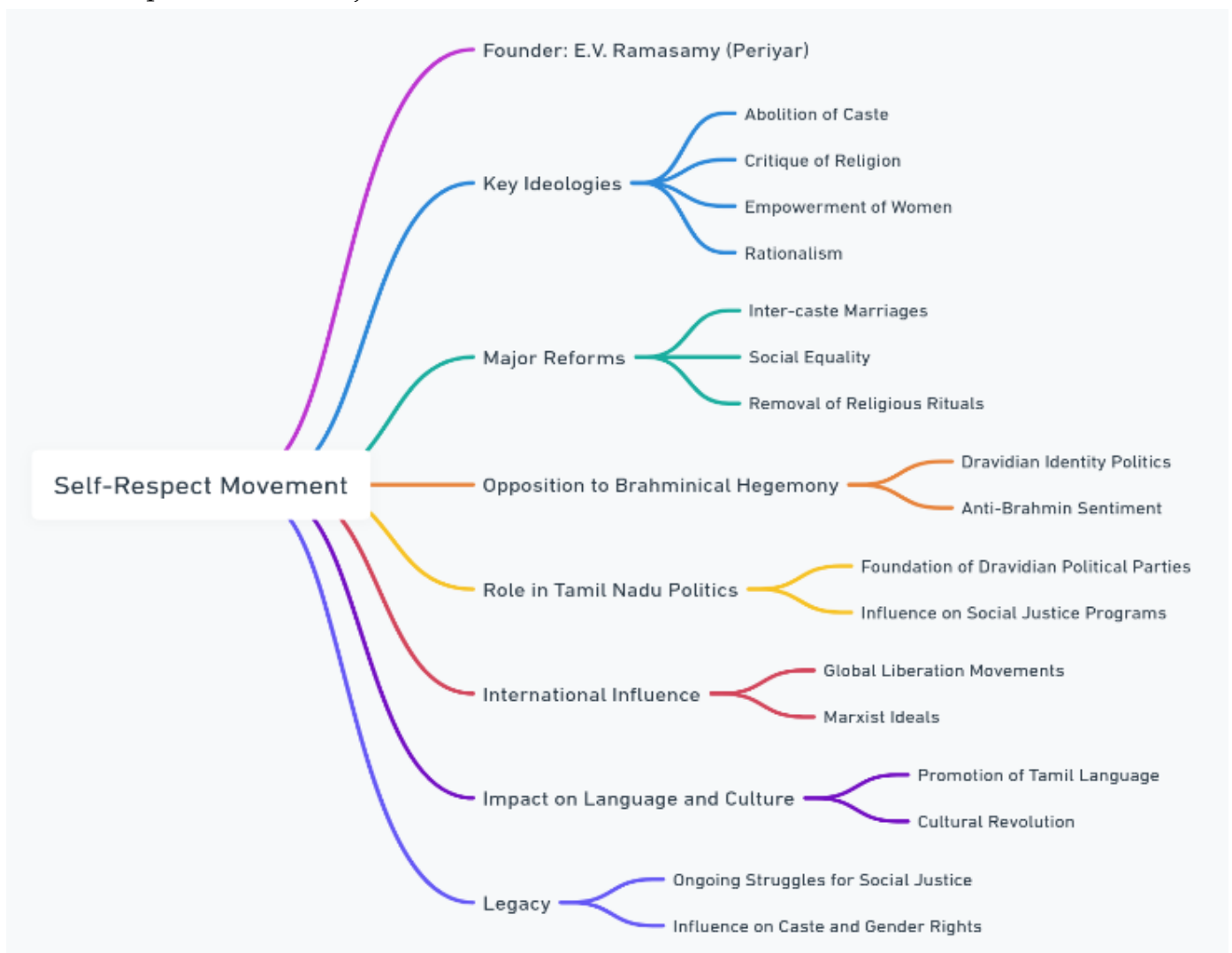
Keep the fire of the self-respect movement going

- This year (2024) marks the hundredth year of the Self-Respect Movement.
- **AIM:** Empower individuals and communities to challenge and overthrow hierarchical structures.
- **BROADER IMPACT:** Nurtured rational thinking, inspired subaltern politics, advocated women's rights, and promoted social justice.

- **Significant Year - 1925:**
  - **Kudi Arasu:** Launch of the Tamil weekly in May.
  - **Periyar's Departure from INC:** Marked the formal beginning of the Self-Respect Movement in November.



E.V. Ramasamy (Periyar)





## Key Points and Facts about the Self-Respect Movement:

- **Foundation and Leadership**
  - **Founder:** E.V. Ramasamy (Periyar) in 1925.
  - **Primary Goal:** To promote equality and self-respect for all individuals, especially for those from lower castes (Dalits) and marginalized groups.
  - **Focus:** The movement challenged the domination of Brahminical (upper-caste) values, rituals, and beliefs in Hindu society.
- **Key Ideologies**
  - **Abolition of Caste:** The movement sought to end the caste-based hierarchy that marginalized lower-caste communities.
  - **Critique of Religion:** Periyar was critical of organized religion, particularly Hinduism, which he argued perpetuated caste discrimination.
  - **Empowerment of Women:** The movement advocated for women's rights, including the right to education, equality in marriage, and freedom from oppressive customs like child marriage and dowry.
  - **Rationalism:** Periyar encouraged rational thinking and opposed blind faith, superstition, and religious orthodoxy.
- **Major Reforms Advocated**
  - **Inter-caste Marriages:** The Self-Respect Movement promoted inter-caste marriages as a way to break down caste barriers. Periyar himself officiated several such weddings.
  - **Social Equality:** It advocated for equal rights in access to education, employment, and public spaces, regardless of caste or religion.
  - **Removal of Religious Rituals:** Periyar and his followers discouraged traditional Hindu rituals such as religious ceremonies, as they believed these practices enforced caste divisions.
- **Opposition to Brahminical Hegemony**
  - The movement criticized the socio-political dominance of Brahmins in Tamil Nadu and fought against their disproportionate representation in administration, education, and other sectors.
  - It contributed to the rise of **Dravidian identity politics** by emphasizing the cultural, linguistic, and social distinctiveness of the Dravidian people (non-Brahmin Tamil-speaking populations).
- **Role in Tamil Nadu Politics**
  - The Self-Respect Movement laid the foundation for the **Dravidian political parties**, such as the **Dravidar Kazhagam (DK)** and later the **Dravida Munnetra Kazhagam (DMK)**.
  - Periyar's ideals influenced political policies that led to social justice programs, including reservations (affirmative action) in education and employment for backward castes.

- **International Influence**
  - The movement was inspired by other global liberation movements, including the **Buddhist revival in Sri Lanka**, the works of **Karl Marx**, and the **anti-colonial struggle**.
- **Impact on Language and Culture**
  - **Promotion of Tamil language:** The movement also played a role in the **Tamil language purity movement**, promoting Tamil over Sanskrit, which was seen as a language of the Brahmins.
  - **Cultural Revolution:** It sought to instill pride in Tamil heritage and questioned the influence of northern Indian, Sanskritic, and Aryan culture.
- **Legacy**
  - The Self-Respect Movement's principles continue to **influence social and political discourse** in Tamil Nadu.
  - Its impact is evident in the ongoing **struggles for social justice, caste equality, and gender rights** in the region.

## Indian Freedom Struggle, Important Personalities

### Bhagat Singh's Major Works:



- **The Problem of Punjab's Language and Script (1923):** Discussed the Gurmukhi script and Punjabi language.
- **Vishwa Prem (Universal Love, 1924):** Advocated for universal brotherhood and equality.

### Social and Political Commentary

- **Article, "Communal Riots and their Solution" (1928):** Criticized sensationalist journalism for inciting communal violence.
- **Article, "Students and Politics" (1928):** Argued for student involvement in politics, criticizing education that only prepared for clerical jobs.
- **Article, "The Problem of Untouchability" (1928):** Urged the so-called untouchables to challenge societal norms and start a social revolution.
- **What is Revolution? (1929):** Emphasized the need for continuous change to prevent reactionary forces from halting progress. Advocated for the spirit of revolution to always be present.

### Anarchism and Critique of Religion

- **What is Anarchism? (1928):** Criticized God and religion as roots of mental slavery and the State as the root of physical slavery. Advocated for motivating people without fear or temptation.

- **Religion and our Freedom Struggle (1928):** Viewed organized religion as an obstacle to freedom and social progress. Called for the elimination of religious divisions.
- **Why I am an Atheist:** Argued that progress requires challenging and questioning old faiths. Advocated for a rational and critical approach to beliefs.

## Important Battles

### Battle of Saragarhi, 12 Sept, 1897

News / Explained / Explained History / Why September 12 is observed as Saragarhi Day

#### Why September 12 is observed as Saragarhi Day

The Battle of Saragarhi is considered one of the finest last stands in the military history of the world. On this day 21 soldiers held down the fort against 8,000 Orakzai and Afridi tribal militants. We explain

A shining moment in Indian military history, the **Battle of Saragarhi** took place on September 12, 1897

## THE FORGOTTEN BATTLE

Fought between 21 soldiers of the 36th Sikhs - now 4th Battalion of the Sikh Regiment - & 10,000 Afghan tribesmen

Saragarhi was a post midway between Fort Gulistan & Fort Lockhart in the Hindukush mountains, in NWFP, Pakistan

Total casualties on the Afghan side: **600 dead**

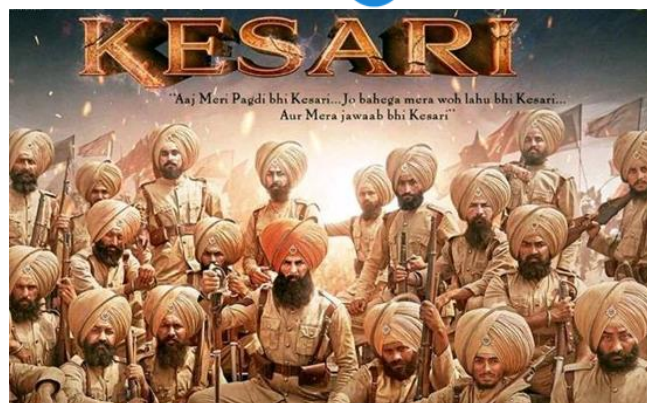
The day is commemorated as the **Regimental Battle Honours Day** by the Sikh Regiment



All 21 Indian soldiers were awarded the Indian Order of Merit



**1897** In the Battle of Saragarhi, 21 Sikh soldiers chose to fight till death to defend their outpost from 10,000 Afghans.



- Saragarhi was the communication tower between Fort Lockhart and Fort Gulistan.
- The two forts in the rugged North West Frontier Province (NWFP), now in Pakistan, were built by Maharaja Ranjit Singh but renamed by the British.
- Twenty-one soldiers of 36<sup>th</sup> Sikh Regiment of British Indian Army were pitted against over 8,000 Afridi and Orakzai tribals but they managed to hold the fort for seven hours.
- Though heavily outnumbered, the soldiers of 36<sup>th</sup> Sikhs, led by Havildar Ishar Singh, fought till their last breath, killing 200 tribals and injuring around 600.
- Queen Victoria awarded the 21 dead soldiers – leaving out the non-combatant – of the 36th Sikh the Indian Order of Merit (comparable with the Victoria Cross) along with two 'marabas' (50 acres) and Rs 500 each.



## Ancient Indian History

### Sindhu - Sarasvati/ Harappan Civilisation

Harappan civilisation: enigma remains even after 100 years of exploration



Marks of a civilisation: Bathing platforms, a well, drains, and the remains of a curved drainage wall at Harappa. - Photo: N. RAM

T.S. SUBRAMANIAN

Exactly 100 years ago, on September 20, 1924, *The Illustrated London News* published an article containing explosive news which has reverberated down the decades and continues to cast a long shadow in South Asia even a century later. Headlined "First Light on a Long-forgotten Civilisation: New Discoveries of an Unknown Prehistoric Past", the article authored by John Marshall, then Director-General of the Archaeological Survey of India (ASI), announced the discovery of what he called the "civilisation of the Indus Valley".

#### Some Facts:

- **Daya Ram Sahni:** Excavated Harappa in 1921-22.
- **Rakhal Das Banerji:** Excavated Mohenjo-daro in 1922.
- **R.S. Bisht,** excavated Dholavira in Gujarat from 1989-90 to 2004-05.

Mohenjo-daro, Harappa, and Ganweriwala, all now in Pakistan, and Rakhigarhi and Dholavira, both in India, are the five of the biggest Harappan sites out of nearly 2,000 in the civilisational area, which is spread over 1.5 million sq.km in India, Pakistan, and Afghanistan.

- **Technological Achievements:** Excelled in town planning, water management, construction, metallurgy, and crafts, including seals, beadmaking and pottery, building seafaring boats.
- **Other Key Features:** Indus script, standardised measures, burnt brick construction (standardised in size, with the ratio 1:2:4), and advanced bead-making techniques (featuring highly developed micro-drilling of very long beads made of hard carnelian, decorated with chemically stained motifs).



## Geography

### Climatology

#### Heatwave in Antarctica

What's causing Antarctica's deep-winter heatwave, what could be its fallout?



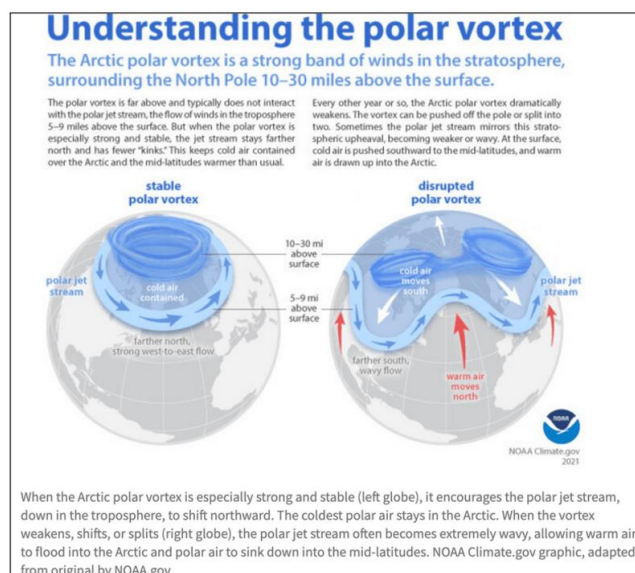
#### Details:

- For the second time in two years, a record-breaking heatwave is sweeping through Antarctica at the height of its winter season.
- Ground temperatures have been 10 degrees Celsius higher than normal on average since mid-July, and up to 28 degrees higher on certain days.

#### Reasons :

- Scientists believe that the higher temperatures are mainly a consequence of the weakening of the polar vortex, the band of cold air and low pressure systems that spins around the poles of the Earth in the stratosphere.
- The vortex usually remains strong and stable during winter in the southern hemisphere – keeping cold air trapped over Antarctica and not letting hot air come in – but it has been disturbed this year by large-scale atmospheric waves (periodic disturbances in the fields of atmospheric variables).

- Due to this, the vortex released trapped cold air, and opened the door for warmer air to enter the region. As this warmer air travelled downwards from the upper atmosphere, it caused an increase in temperatures.
- A weakened southern hemisphere vortex is a rare event that is only expected to occur once every two decades on average.



#### Reasons:

- Several other factors – including the reduction of the extent of the Antarctic sea ice – could also be at play.
- In June, the extent of Antarctic sea ice was the second-lowest ever for that time of year
- Sea ice plays a crucial role in keeping temperatures down in the polar regions, as its bright, white surface reflects more sunlight (solar energy) back to space than liquid water.

- Sea ice also ensures that the air remains cool by acting as a barrier between the cold air and the relatively warmer water below

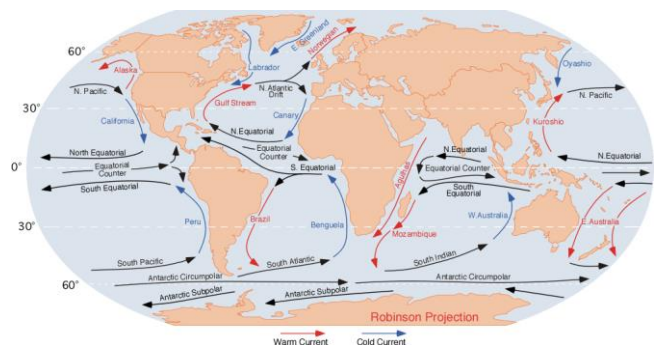
### Overall Global Warming:

- According to a 2023 study published in the journal Nature Climate Change, the continent is likely warming at a rate of 0.22 degrees Celsius to 0.32 degrees Celsius per decade – almost twice as fast as the rest of the world.
- As per IPCC, the Earth as a whole is warming at the rate of 0.14-0.18 degrees Celsius per decade.

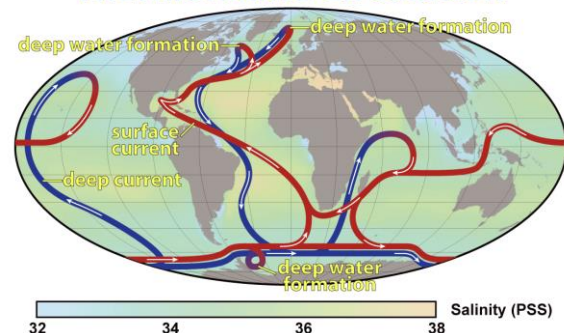
### Consequences :

- Ice Sheet Loss: Further losses of the Antarctic Ice Sheet (the world's other major ice sheet is the Greenland Ice Sheet) that can potentially raise global sea levels by hundreds of feet. Antarctica has already lost 280% more ice mass in the 2000s and 2010s than it lost in the 1980s and 1990s, according to a 2019 study published in the journal PNAS.
- The Antarctic Ice Sheet, a glacier covering 98% of the Antarctic continent, holds more than 60% of the world's total freshwater.
- If entirely melted, it can submerge coastal cities and reshape the world's map.
- Ocean Circulation : Rising temperatures will also impact the global ocean circulation system, which regulates climate by storing and transporting heat, carbon, nutrients, and freshwater around the world

- 2023 study published in the journal Nature showed that the melting ice in Antarctica is slowing down this circulation. The freshwater from melting ice reduces the salinity and density of the surface water and diminishes the downward flow to the ocean's bottom, the analysis said.
- Increased extreme weather events : A slower global ocean circulation system will lead to oceans absorbing less heat and CO<sub>2</sub>, intensify global warming, and increase the frequency and intensity of extreme weather events like floods and droughts



### Thermohaline Circulation



### India generates highest plastic pollution in world: what a new study found

In 2022, the UN Environmental Assembly agreed to develop such a treaty — which experts say might be the most important environmental accord since the Paris Agreement on climate change in 2015 — by the end of 2024.



## Introduction

- India contributes to a fifth of global plastic pollution, a study published in the journal Nature last week found.
- India burns roughly 5.8 million tonnes (mt) of plastic each year, and releases another 3.5 mt of plastics into the environment (land, air, water) as debris.
- Cumulatively, India contributes to 9.3 mt of plastic pollution in the world annually, significantly more than the countries next in this list – Nigeria (3.5 mt), Indonesia (3.4 mt) and China (2.8 mt) – and exceeding previous estimates.

## Problem of ‘unmanaged’ waste

- The authors define “managed” waste as what is collected by municipal bodies, and either recycled or sent to a landfill.
- “Unmanaged” waste refers to plastic which is burnt in open, uncontrolled fires producing fine particulates and toxic gases like carbon monoxide which have been linked to heart disease, respiratory disorders, cancer, and neurological problems. Of the unmanaged waste, roughly 43% or 22.2 mt is the form of unburned debris and the rest, some 29.9 mt, is burnt either in dumpsites or locally.

## Global North-South divide

- A trend that the study identified was that there is a notable Global North and Global South divide when it comes to plastic pollution.
- “On an absolute basis, we find that plastic waste emissions are highest across countries in Southern Asia, Sub-Saharan Africa and South-eastern Asia.

- In fact, approximately 69% (or 35.7 mt per year) of the world’s plastic pollution comes from 20 nations, none of which are High Income Countries (those with a gross national income per capita of \$13,846 or more, according to the World Bank).



- This is despite these HICs – which are all in the so-called Global North – having higher plastic waste generation rates than countries in the South.
- Not a single HIC is “ranked in the top 90 polluters, because most have 100% collection coverage and controlled disposal,” the study said.
- However, “we shouldn’t put the blame, any blame, on the Global South... [or] praise ourselves about what we do in the Global North in any way,” researcher Costas Velis told The Associated Press, adding that people’s ability to dispose of waste depends largely on their government’s power to provide the necessary services.

## Points to Know

- On one hand are fossil-fuel producing countries and industry groups, who view plastics pollution as a “waste management problem”, and want to focus on that instead of curbing production.



- On the other hand are countries in the European Union and Africa, who want to phase out single-use plastics and introduce production curbs.
- A study published in April in the journal Science Advances found a linear, direct relationship between increasing plastic production and plastic pollution – meaning a 1% increase in production resulted in a 1% release in pollution. (Win Cowger et al, “Global producer responsibility for plastic pollution.
- Critics of the recent research say that the recent research plays into the plastic being a “waste management problem” narrative. “It risks us losing our focus on the upstream and saying, hey now all we need to do is manage the waste better.

## Climate Change and Extreme floods around the world

- Context : Severe flooding has forced tens of thousands to evacuate their homes as wide regions of Austria, the Czech Republic, Poland and Romania have been hit by days of heavy rainfall.
- Climate change is impacting the frequency of heavy downpours during storms and sudden outbursts through its influence on complex atmospheric and weather patterns.
- Rising global temperatures, caused by burning fossil fuels, is making rainfall more frequent and severe across most parts of the world.



## Other flooding events

- Europe - thousands were forced to evacuate this summer in southern Germany.
- UAE and Oman - the United Arab Emirates and Oman experienced the heaviest rainfall since records began.
- Brazil - floods damaged an area equivalent in size to the UK and displaced over half a million people.

## Points to Know

- Greenhouse gases released into the atmosphere act like a blanket on the earth, trapping heat and causing temperatures to rise.
- This leads to a more rapid evaporation of water on land and at sea, meaning that when it rains, there is more water to release.
- And when a huge amount of rain is dumped onto earth in a short space of time, this can lead to flooding.
- Air's capacity to hold moisture rises by 7% with every rise of 1 degree Celsius.
- Since the pre-industrial era, global air temperatures have increased by around 1.3 degrees Celsius.
- Temperature rises also make more precipitation fall as rain instead of snow which can make high altitude regions vulnerable to flooding and landslides



- A 2022 study published in the science journal Nature found that in snowy, high-elevation parts of the Northern Hemisphere, rainfall extremes increased by an average of 15% per 1 degree Celsius of warming.
- Climate change is impacting the frequency of heavy downpours during storms and sudden outbursts through its influence on complex atmospheric and weather patterns.
- Globally, at a 1.5C temperature rise, which the world is increasingly close to hitting, heavy precipitation that would have been a once in a 10-year rainfall event will occur 1.5 times every decade and be over 10% wetter, according to the UN's International Panel on Climate Change (IPCC).
- **Last year, Europe was around 7% rainier than normal, with most of the continent experiencing wetter-than-average conditions.** Heavy or record-breaking precipitation triggered floods in Italy, Norway, Sweden and Slovenia.
- Advances in attribution science are allowing experts to pinpoint the causal relationship between climate change and extreme weather events more accurately. According to one estimate, on average, 1 in 4 record rainfall extremes in the last decade can be attributed to climate change.
- While no attribution studies are yet available for the recent **German floods**, heavy rainfall is becoming more frequent. Last year the average rainfall was 20% higher than the average for 1991-2020.
- And the floods that devastated western parts of Germany, as well as Belgium and the Netherlands, in 2021 have been directly linked to climate change.
- According to scientists from World Weather Attribution, a UK-based academic institution, it made rainfall between 3% and 19% stronger and 1.2 to nine times more likely.
- More recently, Brazil's floods in April and May are believed to have been made twice as likely to occur and up to 9% heavier due to the burning of fossil fuels.
- **Flood affected population**
- Since 2000 the proportion of people exposed to floods is estimated to have increased by 24%.
- Today, 1.8 billion people – just under a quarter of the global population – are directly exposed to one-in-100-year floods, a term used to describe a flood that is so severe it will likely only be equaled or exceeded on average once a century.
- In Europe, Germany has the highest number of people at risk of flooding, followed by France and the Netherlands. In 2023, one-third of the continent's river network saw flows exceeding the 'high' flood thresholds and 16% exceeding the "severe" levels. December levels were the highest on record, with 'exceptionally' high flows in a quarter of the continent's rivers.
- While flooding is a global threat, certain regions are much more impacted than others.

- An estimated 89% of people exposed to high flood risk live in low- and middle-income countries. Most live in South and East Asia, with 395 million exposed people in China and 390 million in India

### **Additional Information - Climate change contributes to flooding through several interconnected factors:**

- **Increased Precipitation:** Warmer temperatures can lead to more intense and frequent rainfall, overwhelming drainage systems and increasing the likelihood of flooding.
- **Rising Sea Levels:** Melting polar ice caps and glaciers, combined with thermal expansion of seawater, cause sea levels to rise. This can lead to coastal flooding, particularly during storms or high tides.
- **Storm Intensity:** Climate change can intensify storms, making hurricanes and typhoons stronger. These storms can bring heavy rainfall and storm surges, significantly increasing flood risks.
- **Glacial Melt:** In regions dependent on glacial meltwater, **accelerated melting can lead to sudden floods known as glacial lake outburst floods (GLOFs)** as lakes formed by meltwater overflow.
- **Changes in Land Use:** Urbanization often increases impervious surfaces, such as roads and buildings, which prevent water absorption and can lead to flash floods. **Poor land management can also exacerbate flooding risks.**

- **Drought and Flood Cycles:** Climate change can alter weather patterns, leading to prolonged droughts followed by intense rainfall, creating conditions ripe for flooding.
- **Altered River Flow Patterns:** Changes in precipitation and temperature can affect river flows, leading to increased flooding in certain areas and reduced flow in others.
- **Soil Saturation:** Increased rainfall can saturate soil, making it less capable of absorbing additional water, which can lead to surface runoff and flooding.

**Mitigating these factors requires a combination of climate action, sustainable land management, and improved infrastructure to manage water effectively.**

### **Additional Information - Strategies to address this:**

- **Improved Urban Planning**
  - **Green Infrastructure:** Implement green roofs and permeable pavements to absorb rainwater and reduce runoff.
- **Flood Defense Systems**
  - **Levees and Dikes:** Construct barriers to protect vulnerable areas from floodwaters.
- **Natural Solutions**
  - **Wetland Restoration:** Restore wetlands to absorb excess water and act as natural buffers.
- **Water Management Practices**
  - **Rainwater Harvesting:** Encourage systems that collect and store rainwater for later use.

- **Community Preparedness**
  - **Emergency Plans:** Develop and update community emergency response plans for flood scenarios.
- **Climate Action**
  - **Reduce Greenhouse Gas Emissions:** Implement policies to lower emissions and transition to renewable energy.
- **Policy and Regulation**
  - **Building Codes:** Enforce strict codes that require flood-resistant designs in at-risk areas.
- **Data and Monitoring**
  - **Flood Risk Assessment:** Use technology to identify flood-prone areas and monitor environmental changes.

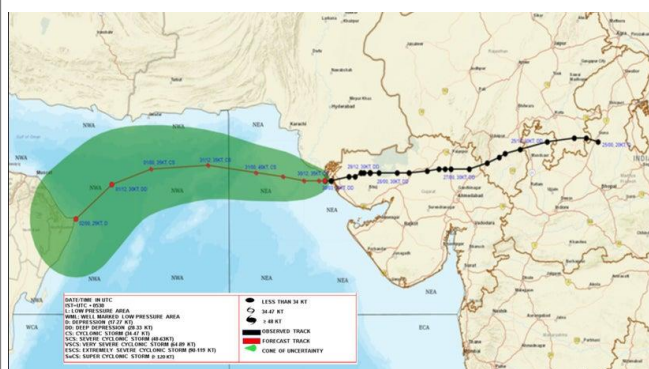
- **The name "Asna," meaning "the one to be acknowledged or praised," was assigned by Pakistan.**
- Between 1891 and 2023, only three cyclonic storms formed in the Arabian Sea in August, occurring in 1976, 1964, and 1944.
- **Definition:** Cyclones are atmospheric disturbances around low-pressure areas, characterized by fast-moving air. In the Northern Hemisphere, the air circulates inward in an anticlockwise direction, while in the Southern Hemisphere, it moves clockwise.

**Global Terminology:** Cyclones are known by different names in various regions:

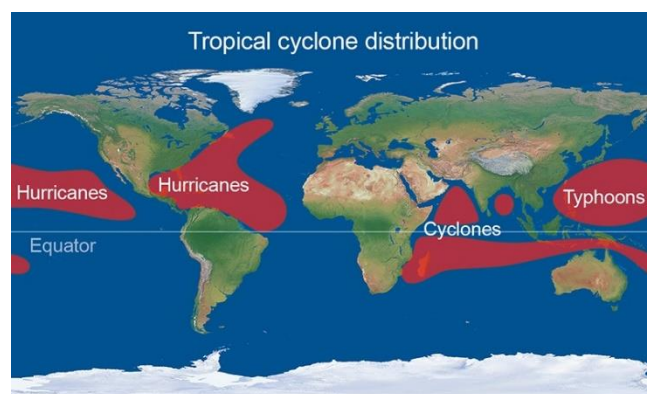
- Typhoons in the China Sea and Pacific Ocean
- Hurricanes in the Caribbean and Atlantic
- Tornadoes in West Africa and the southern U.S.
- Willy-willies in northwestern Australia
- Tropical cyclones in the Indian Ocean

## Cyclone Asna

- **Context : According to the India Meteorological Department (IMD), Cyclone Asna developed over the Kutch coast in Gujarat and adjacent areas of Pakistan.**



- **According to the India Meteorological Department (IMD), Cyclone Asna developed over the Kutch coast in Gujarat and adjacent areas of Pakistan.**
- **It is the first cyclone in the Arabian Sea during August since 1976.**



## Formation of Cyclone

- **Warm Ocean Waters:** Cyclones form over warm waters, which provide heat and moisture for fuel.
- **Low-Pressure System:** Warm, moist air rises, creating low pressure at the ocean surface, pulling in surrounding air.

- **Cyclonic Circulation:** The Earth's rotation (Coriolis effect) causes the rising air to spin, forming cyclonic circulation.
- **Eye Formation:** As wind speeds increase, a calm, low-pressure eye forms in the center.

The Arabian Sea is emerging as a new cyclonic hotbed in recent times. Discuss the reasons behind it.

- **Global warming:** Sea surface temperatures in the Arabian Sea have increased rapidly during the past century due to global warming. For instance, the temperature now is 1.2-1.4 °C higher than the temperature witnessed four decades ago.
- **Increase in Anthropogenic Aerosols:** leading to changes in sea surface temperatures distribution that in turn changes monsoon circulation, resulting in more active storms.
- **Energy for cyclones:** The rising temperature is also enabling the Arabian Sea to supply ample energy for the intensification of cyclones.
- **Conductive wind shear:** The Arabian Sea is also providing conducive wind shear for cyclones. For instance, a higher-level easterly wind drove the depression of Cyclone Ockhi from the Bay of Bengal to the Arabian Sea.
- **Impact of La nina :** Onset of Winter Monsoon is delaying leading to a longer storm season .
- **Greater occurrence of El Niño Modoki :** It has been noticed that the frequency of tropical cyclones are more over Arabian Sea and less over Bay of Bengal during the El Niño.

## Grading of Cyclones

- Tropical cyclones in the Bay of Bengal are graded according to maximum wind speeds at their centre.
- At the lower end are depressions that generate wind speeds of 30 to 60 km per hour, followed by:
  - cyclonic storms (61 to 88 kmph)
  - severe cyclonic storms (89 to 117 kmph)
  - very severe cyclonic storms (118 to 166 kmph)
  - extremely severe cyclonic storms (167 to 221 kmph) and
  - super cyclones (222 kmph or higher)

## 4-stage warning system for Tropical Cyclones.

- The cyclone warnings are issued to state government officials in four stages. The First Stage warning known as "**PRE CYCLONE WATCH**" issued 72 hours in advance contains early warning about the development of a cyclonic disturbance in the north Indian Ocean, its likely intensification into a tropical cyclone and the coastal belt likely to experience adverse weather. This early warning bulletin is issued by the Director General of Meteorology himself and is addressed to the Cabinet Secretary and other senior officers of the Government of India including the Chief Secretaries of concerned maritime states.
- The Second Stage warning known as "**CYCLONE ALERT**" is issued at least 48 hrs. in advance of the expected commencement of adverse weather over the coastal areas. It contains information on the location and intensity of the storm likely direction of its movement, intensification, coastal districts likely to experience adverse weather and advice to fishermen, general public, media and disaster managers. This is issued by the concerned ACWCs/CWCs and CWD at HQ.



- The Third Stage warning known as "**CYCLONE WARNING**" issued at least 24 hours in advance of the expected commencement of adverse weather over the coastal areas. Landfall point is forecast at this stage. These warnings are issued by ACWCs/CWCs/and CWD at HQ at 3 hourly interval giving the latest position of cyclone and its intensity, likely point and time of landfall, associated heavy rainfall, strong wind and storm surge alongwith their impact and advice to general public, media, fishermen and disaster managers.
- The Fourth Stage of warning known as "**POST LANDFALL OUTLOOK**" is issued by the concerned ACWCs/CWCs/and CWD at HQ at least 12 hours in advance of expected time of landfall. It gives likely direction of movement of the cyclone after its landfall and adverse weather likely to be experienced in the interior areas.

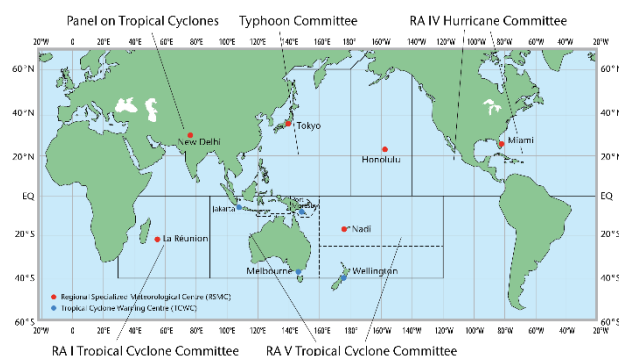
### **Color Coded Weather Warning**

- It is issued by the IMD with the intention of warning people in advance of severe or dangerous weather that could result in widespread damage , disruption or potential for death. Depending on how much water is rising over land or in a river as a result of severe rain, these universal signals are also sent out during floods.
- The four color codes that the IMD uses are:
  - **Green (all is well)** :No advisory is sent out.

- **Yellow (Be Aware):** Yellow denotes really harsh weather that lasts for a number of days.
- **Orange/Amber (Be Prepared):** The orange alert is a warning of exceptionally harsh weather with a possibility of disrupting travel due to road and rail closures, as well as interruptions in power supplies.
- **Red (Take Action):** The red alert is issued when exceptionally unfavourable weather conditions are likely to interrupt travel and power and pose a serious risk to life.

### **How are cyclones named around the world**

- WMO maintains rotating lists of names which are appropriate for each Tropical Cyclone basin.
- There is a strict procedure to determine a list of tropical cyclone names in an ocean basin by the Tropical Cyclone Regional Body responsible for that basin at its annual/biennial meeting. **There are five tropical cyclone regional bodies, i.e. ESCAP/WMO Typhoon Committee, WMO/ESCAP Panel on Tropical Cyclones, RA I Tropical Cyclone Committee, RA IV Hurricane Committee, and RA V Tropical Cyclone Committee.**

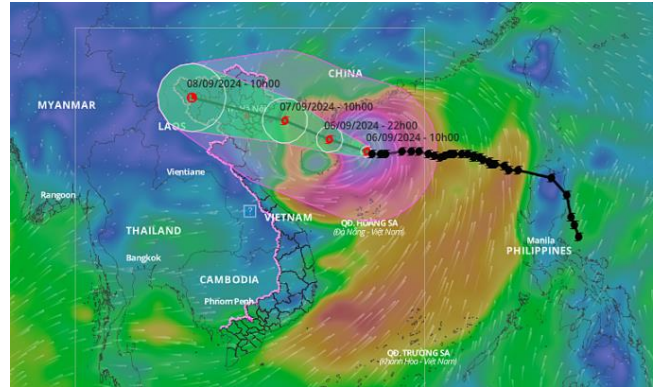


## Northern Indian Ocean Names - Arabian Sea and the Bay of Bengal

- The WMO/ESCAP Panel on Tropical Cyclones (hereafter the Panel) at its twenty-seventh Session held in 2000 in Muscat, Sultanate of Oman, agreed in principal to assign names to the tropical cyclones in the Bay of Bengal and Arabian Sea.
- The naming of the tropical cyclones over north Indian Ocean commenced from September **2004, with names provided by eight Members. Since then, five countries have joined the Panel.**
- The Panel Member's names **are listed alphabetically country wise.**
- The names will be used **sequentially** column wise.
- The first name will **start from the first row of column one and continue sequentially to the last row in the column thirteen.**
- The names of tropical cyclones over the north Indian Ocean will not be repeated, once used it will cease to be used again. The name should be new. It should not be there in the already existing list of any of the RSMCs worldwide including RSMC New Delhi.
- The name of a tropical cyclone from south China Sea which crosses Thailand and emerge into the Bay of Bengal as a Tropical cyclone will not be changed. If a cyclonic storm moves into the basin from the Western Pacific, then it will keep its original name. However, if the system weakens into a deep depression and subsequently reintensifies after moving into the region, then it will be assigned a new name.

## Typhoon Yagi

### Context :



- Typhoon Yagi has severely impacted multiple countries, including the Philippines, China, Laos, Myanmar, and Thailand, it has hit Vietnam the hardest, where the death toll stands at around 233.
- The overall toll across these countries has crossed 300 as of last week. As many people are still missing, it is expected to rise further.

### Basics :

- Tropical cyclones form over warm ocean waters near the equator. When the warm, moist air from the ocean surface rises upward, a lower air pressure area is formed below.
- Air from surrounding areas with higher air pressure rushes into this low pressure area, eventually rising, after it also becomes warm and moist.
- As warm, moist air rises, it cools down, and the water in the air forms clouds and thunderstorms.
- This whole system of clouds and winds gains strength and momentum using the ocean's heat, and the water that evaporates from its surface

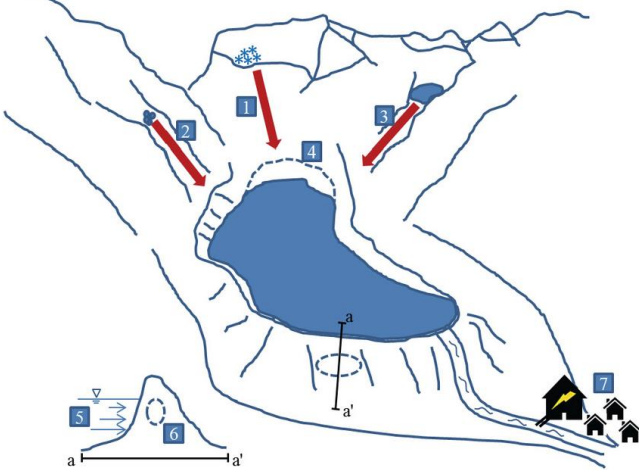
- The weakest tropical cyclones are called tropical depressions. If a depression intensifies such that its maximum sustained winds reach 39 miles per hour [63 kmph], the tropical cyclone becomes a tropical storm.
- Storm systems with wind speeds of 119 kmph and above are classified as hurricanes, typhoons, or tropical cyclones.
- The category of a tropical cyclone is determined by its sustained wind speed, as measured by the Saffir-Simpson Hurricane Wind Scale.
- It is classified into five categories – Category 1 to Category 5. While Category 1 tropical cyclones bring winds of 119 to 153 kmph, Category 5 tropical cyclones, which are the strongest, have winds of 252 kmph or higher.
- Storms that reach Category 3 and higher are considered major tropical cyclones due to their potential to inflict significant damage.
- Scientists are yet to reach an agreement over how exactly climate change is impacting tropical cyclones. That is because there are a lot of factors that determine whether a storm forms, how it develops, its strength, duration and overall characteristics.
- However, there is a consensus that with rising global temperatures, tropical cyclones are becoming more intense. For instance, a study published in the journal Climate and Atmospheric Science in July this year showed that tropical cyclones in Southeast Asia are now forming closer to coastlines, intensifying more rapidly, and lingering longer over land.

- This could be happening primarily because of warmer surface temperatures of the ocean – global mean sea surface temperature has gone up by close to 0.9 degree Celsius since 1850 and around 0.6 degree Celsius over the last four decades.

## GLOF

**Context:** Centre to launch a comprehensive national GLOF risk mitigation programme, targeting 190 high-risk Glacial lakes.

- The NDMA (National Disaster Management Authority) has identified critical lakes across the Indian Himalayan Region, vulnerable to GLOF events, and is working with state governments and experts, including ISRO scientists, to implement early warning systems and risk mitigation strategies.
- Glacial lakes are large bodies of water formed by meltwater from glaciers, located in front of, on top of, or beneath melting glaciers.
- They develop near the glacier's snout as meltwater accumulates.
- Hazard: As these lakes grow, they are often dammed by unstable ice or loose sediment, making them dangerous.
- GLOF (Glacial Lake Outburst Flood): This occurs when the dam or boundary around a glacial lake fails, causing a sudden release of water that can flood downstream areas.
- Triggers: GLOFs can be caused by earthquakes, heavy rains, or ice avalanches.



## National Glacial Lake Outburst Floods Risk Mitigation Programme (NGRMP)

- **Overview:** The NGRMP is an initiative by the Indian government to tackle the dangers posed by GLOFs.
- **Expedition Status:** Of 16 planned expeditions, 15 have been completed. These included 6 expeditions in Sikkim, 6 in Ladakh, 1 in Himachal Pradesh, and 2 in Jammu and Kashmir. Another 7 expeditions are currently ongoing.
- **Objective:** The expeditions aim to evaluate the structural stability of glacial lakes, identify possible breach points, collect geological and hydrological data, measure water quality and flow rates, and increase awareness among downstream communities.

### Key Actions:

- Hazard assessment
- Installation of automated monitoring systems and early warning systems
- Implementation of lake-lowering measures to reduce the risk of GLOF
- Preventive Methodology for GLOF

## Three activities will be undertaken simultaneously:

- Installation of automated weather and water level monitoring systems, along with early warning systems.
- Conducting digital elevation modeling and bathymetric studies.
- Identifying the most effective methods to mitigate the risks, including lake-lowering techniques, to reduce water volume.

## Previous GLOF Incidents

- **Nepal:** A recent flash flood struck Thame village in the Khumbu region due to an outburst from the Thyanbo glacial lake.
- **Sikkim:** In October 2023, a devastating GLOF occurred at South Lhonak Lake in Sikkim.
- **Uttarakhand:** In February 2021, a glacier burst caused severe flooding in the Rishi Ganga valley, resulting in over 200 deaths and significant damage to hydropower plants and the village of Raini.

## **Additional Information - GLOFs - Glacial Lake Outburst Floods**

### Introduction

- In recent years, there has been a rise in GLOF events in the Himalayan region as soaring global temperatures have increased glacier melting. Rapid infrastructure development in vulnerable areas has also contributed to the spike in such incidents.



## Define Glacial Lake outburst flood

- Glacial lake outburst flood (GLOF) is a sudden release of a significant amount of water retained in a glacial lake, irrespective of the cause.
- The formation of moraine-dammed glacial lakes and glacial lake outburst flood (GLOF) is a major concern in the Himalayan states of India.

## Factors triggering GLOFs include the following:

- **Rapid slope movement into the lake:** Fast slope movement (slides, falls and avalanches) into the lake produces displacement waves which, in turn, overtop the dam or cause direct rupture of the dam.
- **Increased water inflow into a lake** due to heavy rainfall/snowmelt (flood from a lake situated upstream)
- **Earthquake:** The direct mechanism of earthquake-triggered lake outburst floods is dam rupture and failure.
- **Long-term dam degradation:** Successive changes in the internal structure of the dam leading to increased hydrostatic pressure induced by basal ice melting that results in dam failure.
- **Black carbon:** Due to incomplete combustion of fossil fuels, wood and other fuels, the amount of black carbon is increasing, which reduces the albedo of earth and melts the glaciers.
- **Anthropogenic activities:** Mass tourism, developmental interventions such as roads and hydropower projects and the practice of slash and burn type of farming in certain pockets of the Indian Himalayan region.

## Impact:

- GLOFs can unleash large volumes of water, sediment, and debris downstream with formidable force and velocity.
- The floodwaters can submerge valleys, obliterate infrastructure such as roads, bridges, and buildings, and result in significant loss of life and livelihoods.

## Example:

- Uttarakhand has 13 glacial lakes which are prone to GLOF.
- Uttarakhand has witnessed two major GLOF events in the past few years.
- The first took place in June 2013, which affected large parts of the state – Kedarnath valley was the worst hit, where thousands of people died.
- The second occurred in February 2021, when Chamoli district was hit by flash floods due to the bursting of a glacier lake.
- Sikkim GLOF

## Conclusion

- **Increasing glacial melting because of climate change, alongside other environmental effects of climate change mean that regions with glaciers are likely to see increased flooding risks from GLOFs. This is especially true in the Himalayas where geologies are more active.**

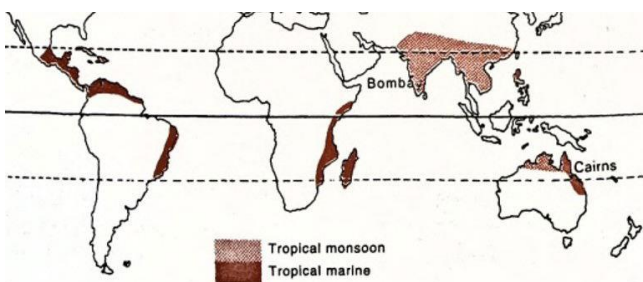
## Arctic sea ice can change monsoon patterns

- **Context :** In a study published in the journal Remote Sensing of Environment in June, researchers from India's National Centre for Polar and Ocean Research (NCPOR), under the Ministry of Earth Sciences, and South Korea's Korea Polar Research Institute have found that seasonal changes in the Arctic sea ice affect the Indian monsoon as well.

## Incessant rainfall has wreaked havoc in India's southeast, leaving at least 17 dead in Andhra Pradesh and thousands homeless and at the mercy of floods in Telangana

### What is the Indian Summer Monsoon Rainfall?

- The Indian summer monsoon rainfall (ISMR) over the Indian subcontinent, from July to September, and with most of the rains recorded in July and August, is one of the most prominent monsoon systems in the world.
- In summer months, sunlight warms the Central Asian and Indian landmass more and faster than the surrounding ocean. This creates a low pressure band at the Tropic of Cancer called the intertropical convergence zone.



### What is the Indian Summer Monsoon Rainfall?

- Trade winds blowing from the southeast are subsequently deflected towards the Indian landmass due to the Coriolis force and the low pressure after they cross the equator. As they blow over the Arabian Sea, the winds pick up moisture and deposit that as rain over India.
- Over the landmass itself, this southwest monsoon splits into two.
- The Arabian Sea arm brings rain to the west coast while the other arm travels to the Bay of Bengal and brings rain to India's eastern and northeastern parts.
- The arms finally converge over Punjab and Himachal Pradesh as the Arabian Sea arm moves inward and the Bay of Bengal arm moves along the Himalaya.
- In the last two decades, climate models have shown that the surface temperatures of the Indian, the Atlantic, and the Pacific Oceans affect the ISMR. The circum-global teleconnection (CGT), a large-scale atmospheric wave flowing at the mid-latitudes, seemed to significantly influence the monsoon as well.

In recent years, scientists have suggested that declining levels of Arctic sea ice, due to climate change, could influence the monsoon's temperament, too.

In the new study, researchers used observational data from 1980 to 2020 and climate models (specifically Coupled Model Intercomparison Project Phases 5 and 6) to check how the Arctic sea ice levels affect atmospheric circulations that in turn influence the ISMR.

- The results revealed distinct and at times contrasting patterns.
- According to the paper, less sea ice in the central Arctic leads to lower rain in western and peninsular India but more rain in central and northern India.
- On the other hand, lower sea ice levels in the upper latitudes, particularly in the Barents-Kara Sea region encompassing the Hudson Bay, the Gulf of St. Lawrence and the Sea of Okhotsk, delay the monsoon's onset and render it more unpredictable.



## La Nina predictions

- **Context:** All leading global agencies were significantly off the mark in their La Niña predictions this year
- India had expected the influential climate phenomenon to drive enhanced rainfall during August-September..

### Predictions :

- One of the strongest El Niño events of all time ended this June, following which ENSO entered the neutral phase.

- Initial projections made by multiple global weather models suggested that the onset of La Niña conditions would occur around July.
- But by mid-July, it was clear that La Niña would be delayed.
- The US-based National Oceanic and Atmospheric Administration (NOAA) had said that the transition from neutral to positive sea surface temperature, suggesting ENSO neutral giving way for La Niña, would take place between August and October.
- The Bureau of Meteorology (BoM), Australia, too, maintained the La Niña 'watch' stage in July, predicting the emergence of cooler-than-usual sea surface conditions in the latter half of this year.
- The India Meteorological Department (IMD) had, since the first stage Long Range Forecast issued in mid-April, maintained that La Niña conditions would emerge during the later half of the June – September monsoon season.
- And most importantly, La Niña could enhance rainfall in the months of August and September.

A primary reason cited by weather modellers and meteorologists for the error in predicting La Niña's onset is its severity.

Weather models are likely to better pick up signals in cases of strong La Niña (or El Niño) phases, rather than weak ones.

Other factors impact surface and subsurface conditions across the Pacific Ocean.

In particular, these include the inter-seasonal variability in the atmosphere, wind and pressure, directly linked to the movement of the Madden

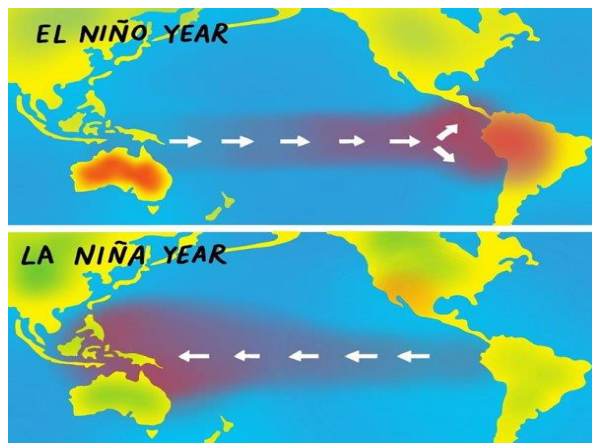
Julian Oscillation (MJO), an eastward moving band of rain-bearing winds and clouds.

The interplay of different weather systems makes predictions harder.

### **Impact on India :**

- Supposing La Niña's onset begins by late September-October, it could still influence India's weather later in the year.
- Notably, it could influence rainfall during the northeast monsoon season (October - December).
- Also known as the winter monsoon, this is limited to Tamil Nadu, coastal Andhra Pradesh, Rayalaseema, southern interior Karnataka and Kerala.
- Climatologically, La Niña does not favour northeast monsoon rainfall.
- That said, there have been exceptions in the past.
- Moreover, since all these meteorological subdivisions have received either normal or surplus rainfall during the ongoing southwest monsoon, the possibility of lower rainfall later in the year should not be a worry at present.
- The north Indian Ocean basin – which covers the Bay of Bengal and the Arabian Sea – sees cyclone development during March to May, and October to December, with peak activity during May and November.
- During La Niña years, climatologically there are high chances of frequent cyclogenesis, with storms having above-average intensity, and longer-than-average life.

- This will be something that Met officials and administrators will be watching out for.
- Lastly, La Niña years in the past have typically seen harsher, colder winters.



### **Methane and climate change**

- Context : An article in the Indian Express explained how methane impacts Global warming
- Definition : Is a colourless odourless gas that traps massive amount of heat in the atmosphere

#### **Points to Know:**

- Global Warming Potential: Methane has a global warming potential (GWP) that is approximately 25 times greater than carbon dioxide (CO<sub>2</sub>) over a 100-year period.



- **Atmospheric Lifetime:** Methane has a shorter atmospheric lifetime (about 12 years) compared to CO<sub>2</sub> (which can persist for centuries), meaning that reducing methane emissions can have a more immediate effect on climate change.
- **Feedback Loops:** As the planet warms, thawing permafrost can release additional methane, creating a feedback loop that exacerbates climate change.
- **Mitigation Strategies:** Effective strategies to reduce methane emissions include improving livestock management, capturing methane from landfills, upgrading natural gas infrastructure, and enhancing wetland management practices.

Over a 20-year timescale, methane traps around 84 times as much heat as carbon dioxide (CO<sub>2</sub>), which is released by burning fossil fuels and is probably the most famous greenhouse gas of all.

### Sources

- Methane sometimes comes from non-human sources like wetlands.
- These habitats contain things like permafrost, which is frozen ground that's also filled with carbon from animals and plants that have been dead for hundreds of thousands of years. As temperatures rise with global warming, wetland permafrost thaws. That unleashes carbon, previously locked in the ice, in the form of CO<sub>2</sub> and methane.

- 60% of the methane that makes it into the atmosphere comes from human activities. That can be from agriculture – think cows' burps and farts and manure fertilizer – but also from decomposing waste in landfills and the energy sector.
- Most energy consumed by humans comes from burning fossil fuels like coal, oil and gas. Oil and gas are responsible for most energy sector methane emissions.
- The greenhouse gas pours out when companies produce, transport and store these fossil fuels.
- **Gas flaring :** When operators burn off natural gas linked to oil production. Flaring turns methane into CO<sub>2</sub> that then goes into the atmosphere, but raw methane can still escape during the process.
- **Venting :** Sometimes companies release small amounts of natural gas directly into the atmosphere. Operators flare and vent because it can be expensive to process and transport the relatively small amount of gas that comes out of the ground during oil extraction. Or they do it for safety reasons, such as to reduce dangerous pressure increases.

### Steps taken by EU

- Oil and gas companies could slash their methane emissions by 75% if they spotted and fixed leaks, according to the International Energy Agency.

- Recently European Union passed a new regulation in May that will force fossil fuel companies to routinely measure, report and reduce how much methane they are emitting. If they spot a leak, they need to fix it within 15 working days.
- The regulation also bans flaring and venting in most cases.

- Venting is only allowed if there is a safety emergency.
- Flaring can only happen if it's not technically possible to reinject the natural gas into the ground on-site or transport it somewhere else.

## Economic Geography

### Jute production declines

- Context: Jute production is expected to drop by 20% this financial year, said Shashi Bhushan Singh, secretary of the National Jute Board.
- **Cultivation was affected in West Bengal and Assam because of natural calamities this year. Floods had damaged the crop in some areas, impacting production.**

### Potential of the Jute Industry:

- The jute industry plays a significant role in India's national economy, particularly in the eastern region, with West Bengal as a hub.
- Jute, often referred to as the "**golden fibre**," is a natural, renewable, biodegradable, and eco-friendly material, making it ideal for safe packaging

### India's Major Role in Global Jute Production:

- India accounts **for 70% of the world's jute production.**
- The jute industry employs about 3.7 lakh workers, with 90% of its production used domestically.
- West Bengal houses 73% of the jute industry, with 79 out of 108 jute mills located in the state.

### Production and Export Data (2022-23):

- In 2022-23, jute goods production reached 1,246,500 metric tons (MT).
- Exports increased to 177,270 MT, about 14% of total production, marking a 56% rise from 2019-20, driven by growing demand for eco-friendly products.
- India imported 121.26 thousand MT of raw jute, mainly from Bangladesh, due to its superior quality for manufacturing value-added products.
- Major export destinations include the USA, France, Ghana, the UK, Germany, the Netherlands, Belgium, Côte d'Ivoire, Australia, and Spain.

### Challenges Faced by the Jute Industry:

- **High Procurement Costs:** Mills face high raw jute procurement costs, often exceeding selling prices after processing, worsened by a complex supply chain involving intermediaries.
- **Raw Material Shortages:** Despite efforts to increase jute cultivation, India continues to face raw material shortages, affecting production capacity.

- **Outdated Machinery:** The industry struggles with outdated mills and equipment, needing technological upgrades to improve efficiency.
- **Competition from Synthetic Materials:** Jute competes with cheaper synthetic packaging materials, and alternatives like Mesta have reduced demand for jute products.

- **Labor and Infrastructure Issues:** Labor problems, particularly in West Bengal, including frequent strikes and disputes, disrupt the industry. Additionally, infrastructural challenges like poor power supply, transport issues, and limited access to capital hinder the industry's growth and sustainability efforts.

## Human Geography

### Irula Community

- Irula, also known as Iruliga, are a Dravidian ethnic group inhabiting the Indian states of Tamil Nadu, Kerala and Karnataka.
- People of Irula ethnicity are called Irular, and speak Irula, which belongs to the Dravidian languages family.
- Traditionally, the main occupation of the Irulas has been snake and rat catching, and honey collection. They also work as labourers (coolies) in the fields of the landlords during the sowing and harvesting seasons or in the rice mills. Fishing and cattle farm is also a major occupation.

### PVTG

- Tribal communities are often identified by some specific signs such as primitive traits, distinctive culture, geographical isolation, shyness to contact with the community at large and backwardness. Along with these, some tribal groups have some specific features such as dependency on hunting, gathering for food, having pre-agriculture level of technology, zero or negative growth of population and extremely low level of literacy. These groups are called Particularly Vulnerable Tribal Groups.

#### The need for identification

PVTGs are more vulnerable among the tribal groups. Due to this factor, more developed and assertive tribal groups take a major chunk of the tribal development funds, because of which PVTGs need more funds directed for their development. In this context, in 1975, the Government of India initiated to identify the most vulnerable tribal groups as a separate category called PVTGs and declared 52 such groups, while in 1993 an additional 23 groups were added to the category, making it a total of 75 PVTGs out of 705 Scheduled Tribes, spread over 17 states and one Union Territory (UT), in the country (2011 census).

#### How they are identified

Government of India follows the following criteria for identification of PVTGs.

- Pre-agricultural level of technology
- Low level of literacy
- Economic backwardness
- A declining or stagnant population.

Accordingly 75 PVTGs have been identified in the country.

Tamil Nadu 59. Kattu Nayakans 60. Kotas 61. Kurumbas 62. **Irulas** 63. Paniyans 64. Todas

#### The characteristics of PVTGs

In 1973, the Dhebar Commission created Primitive Tribal Groups (PTGs) as a separate category, who are less developed among the tribal groups. In 2006, the Government of India renamed the PTGs as Particularly Vulnerable Tribal Groups (PVTGs). PVTGs have some basic characteristics - they are mostly homogenous, with a small population, relatively physically isolated, social institutions cast in a simple mould, absence of written language, relatively simple technology and a slower rate of change etc.

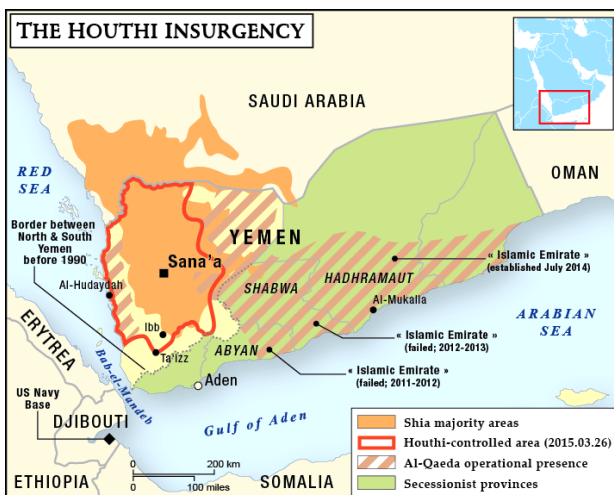
### Konrak Tribe

- The Konyaks are a major Naga ethnic group native to the Northeast Indian state of Nagaland.
- The Konyaks are of Mongoloid in origin. Before the advent of Christianity into Nagaland, the Konyaks were the believers of "Animism" worshipping different objects of nature.
- The Konyaks were the last among the Naga ethnic groups to accept Christianity.
- In the past, they were infamous for attacking nearby villages, often resulting in killings and decapitation of opposing warriors.
- The Konyak society is obviously a patriarchal society and is dominated by male chauvinism. The eldest son of the family usually inherits the paternal property.

## Places in News

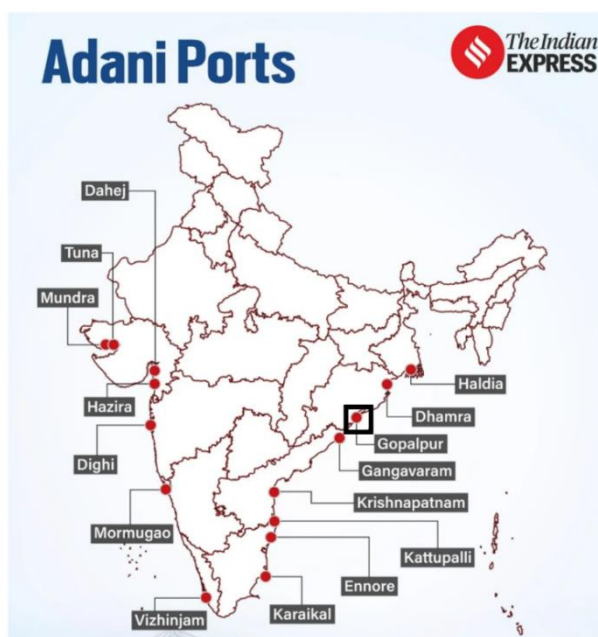
### Yemen

- Israel's military says it has launched a series of air raids on Houthi targets in Yemen, further heightening fears of a wider regional conflict in the wake of intensified Israeli attacks on Gaza and Lebanon.



### Gopalpur port

- Adani Ports and Special Economic Zone Limited (APSEZ) has received approval from the Odisha government to acquire a 95% stake in Gopalpur Port.

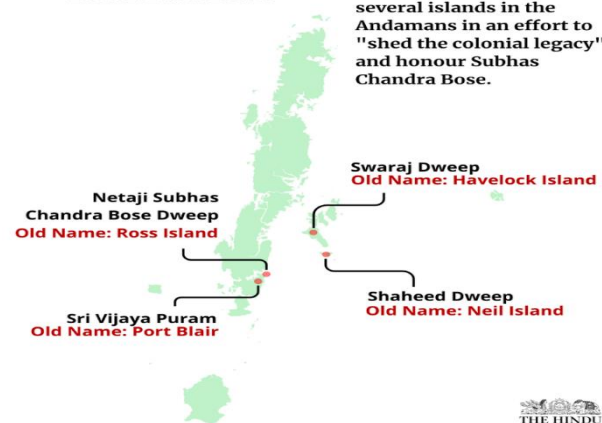


### Sri Vijayapuram

- Port Blair, the capital of the Andaman and Nicobar Islands, has been renamed Sri Vijaya Puram as part of the Indian government's effort to remove colonial legacies.

#### Renaming Islands in Andaman

In recent years, the Narendra Modi government has renamed several islands in the Andamans in an effort to "shed the colonial legacy" and honour Subhas Chandra Bose.



### Keoladeo National Park

- Recently India's first 'teal carbon' study, conducted at Keoladeo National Park in Rajasthan, focuses on using freshwater wetlands to address climate adaptation and resilience challenges.

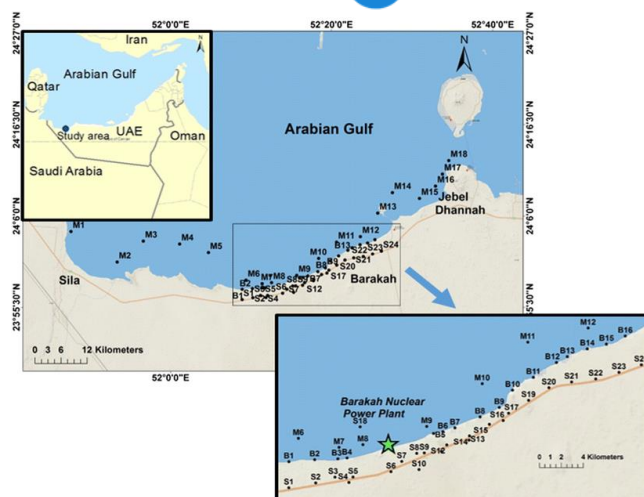






## Barakah

- The United Arab Emirates has successfully completed the Arab world's first nuclear power plant, the Barakah Nuclear Energy Plant.



## Miscellaneous

### Clean energy Manufacturing

#### Context :

- India's clean energy manufacturing is feeling the impact of Chinese predatory pricing, which is affecting the country's ability to promote its ambitious domestic manufacturing under the Production Linked Incentive (PLI) scheme.
- India's clean energy manufacturing is struggling due to aggressive price cuts by Chinese companies, particularly in the solar sector, which hinders the growth of domestic manufacturing under India's Production Linked Incentive (PLI) scheme.
- Anti-dumping duties have not been effective in addressing this issue, prompting India to explore collaboration with Western countries, like Germany, that are facing similar challenges.
- The US recently advised India to expand and safeguard its clean energy manufacturing.
- India has invested over \$4.5 billion in its PLI schemes to foster clean energy manufacturing, but additional policies are needed to protect these investments in the face of global market pressures and slim profit margins.
- The Economic Survey 2023-24 highlighted China's expanding trade surplus due to overcapacity and weak domestic demand, leading Chinese companies to seek foreign markets, including India.
- China has been blocking India's access to solar equipment in response to anti-dumping probes, which further complicates domestic manufacturing efforts.
- To protect domestic solar photovoltaic (PV) manufacturing, the Ministry of New and Renewable Energy (MNRE) reinstated the Approved List of Models and Manufacturers (ALMM) order, effective from April 1.

- This order prevents domestic solar projects from using cheaper imported modules, mainly from China. Plans are in place to extend the ALMM order to solar cells by April 2026.
- In June 2024, imported modules were priced at 9.1 cents per watt (CIF basis), while domestic modules averaged 18 cents per watt, highlighting the pricing challenge.
- Arizona-based First Solar, one of the largest module manufacturers in India, has benefited from the PLI scheme and is listed in the ALMM.
- China's solar manufacturers are dumping their products at prices below production cost due to systemic overcapacity, distorting the market and hurting domestic manufacturing.
- The Advanced Chemistry Cell (ACC) PLI scheme, with a Rs 18,100 crore budget, has allocated 40 GWh of battery manufacturing, including to companies like Ola Electric and Reliance Industries.
- The scheme supports manufacturing for both electric vehicle (EV) batteries and energy storage systems.
- India is seeking a critical minerals agreement with the US, similar to the US-Japan deal, to help Indian products comply with the US Inflation Reduction Act (IRA).
- Such an agreement would attract investments in technology, capital, and raw materials. India has also joined the US-led Minerals Security Finance Network, a coalition focused on securing supply chains for minerals like graphite, copper, lithium, and silicon.

## Smart Laboratory on Clean Rivers (SLCR)

- The SLCR aims to leverage the expertise of both nations to rejuvenate the river Varuna using sustainable approaches.
- Its objectives include creating a collaborative platform for government bodies, knowledge institutions and local communities to share insights and develop solutions for clean river water.
- The initiative features a hybrid lab model at the IIT-BHU and an on-field living lab at the Varuna River to test and scale solutions in real-world settings.
- The SLCR has a robust institutional and appraisal mechanism built into it to ensure the necessary due diligence, rigor in its functioning and for ensuring excellence in river management.
- The SLCR Secretariat will receive initial funding of Rs. 16.80 crore from the Ministry of Jal Shakti and an additional 5 crore INR grant from Denmark to support long-term sustainability and project development.

### Components:

- The commitment includes developing a Decision Support System (DSS) for water management to analyse basin water dynamics through hydrological models, scenario generation, forecasting and data analytics.

- The second project focuses on the characterization of emerging pollutants and fingerprint analysis. Over the next 18 months, this initiative will use advanced analytical techniques, such as chromatography and mass spectrometry, to identify and quantify contaminants.
- The final project in the series, the Hydrogeological Model of the Varuna Basin for Recharge Sites, aims to enhance base flow through Managed Aquifer Recharge (MAR).
- Over the next 24 months, the project will use advanced geophysical techniques and mathematical modelling to identify optimal recharge sites and rates.