

# Monthly Current Affairs (June 2024)

दिल्ली से भी बेहतर

# Patriotic IAS

## IAS/PCSwali Pathshala



**Now admission open for Offline Classroom Programme.**

Students can attend free demo classes before taking the admission for their satisfaction.

We are committed to providing the best preparation environment for the IAS/PCS at an affordable Fee (even better than those provided in the top institute of Delhi but at much lesser than their Fee)

### FOUNDATION COURSE (OFFLINE/LIVE)

1. Holistic coverage of all the syllabus of the IAS Prelims & Mains, UP-PCS Prelims & mains. Also Comprehensive Material for each topics.
2. Offline class (In addition Live Class & Recorded Videos of the same class).
3. IAS Prelims Test Series (25 Tests) & IAS Mains Test Series. (20 Tests)
4. UP-PCS Prelims Test Series. (20 Tests) & UP-PCS Mains Test Series. (20 Tests)
5. Mentoring Sessions & Interview Guidance.

Address : 3rd Floor, KV Tower, Padleyganj Road, Gorakhpur

Email Id : [info@patrioticias.in](mailto:info@patrioticias.in)

Contact Number : **9971932488**

Website : [patrioticias.in](http://patrioticias.in)

[Patrioticias.in](http://Patrioticias.in)

PATRIOTIC IAS Paidleyganj Gorakhpur

## Index

### History

- 1. Ancient History**
  - 1.1 Pottery – Northern Black Polished Ware (NBPW) 03
  - 1.2 Black and Red Ware (BRW) 03
  - 1.3 An ancient centre of learning (Nalanda Mahavihara) 03
  - 1.4 Ancient City – Rajgir 04
  - 1.5 Perumbalai Artefacts 05
  - 1.6 Chennakesava Temple at Somanathapur 05
- 2. Modern History**
  - 2.1 The Santhal Rebellion (1855-1856) 06
- 3. World History**
  - 3.1 The 1956 Suez Crisis 07
  - 3.2 The Tenggerese Hindus and the Yadnya Kasada Festival 08
- 4. News in Short**
  - 4.1 Vaishnav Pushtimarg Sect 09
  - 4.2 Sarod maestro Pandit Rajeev Taranath passes away 09

### Society

- 1. Vulnerable Section**
  - 1.1 Maternity leave for parents of child born through Surrogacy 13
  - 1.2 Global Gender Gap 13
  - 1.3 The Protection of Children from Sexual Offences (POCSO) Act, 2012 13
  - 1.4 Elderly People (A Survey report by HelpAge India Society) 14
  - 1.5 The vulnerabilities of India's elderly 15
- 2. Caste and Identity Issues**
  - 2.1 Justice K. Chandru Committee 17
  - 2.2 Maratha, Kunbi identities have changed over the course of history 19
- 3. High court on Marriage Act** 21
- 4. Tribes of India**
  - 4.1 Bhil Tribe 22
  - 4.2 Warli Tribe 23

### Geography

- 1. Geomorphology (Landforms, Volcanoes, etc.)**
  - 1.1 Glacial lakes 25
  - 1.2 Hindukush Himalayas 25
  - 1.3 Tonga Volcano 26
- 2. Climatology**
  - 2.1 Rain Shadow Region 27
  - 2.2 Blizzard 28
  - 2.3 Carnian Pluvial Episode 28

<b>3. Agriculture</b>	
3.1 Turmeric Cultivation	29
3.2 Soil and Water Conservation	29
<b>Polity</b>	
<b>1. Fundamental Rights</b>	
1.1 Human Dignity vs Religious Practices	31
1.2 Right to Constitutional Remedies	32
1.3 Patna High Court strikes down 65% quota in Bihar	33
1.4 Right to Property	33
<b>2. Parliament</b>	
2.1 Leader of opposition	34
2.2 Speaker and Speaker Pro tem	35
2.3 Parliamentary Procedure	37
<b>3. Centre-State Relation</b>	
3.1 Article 371F	38
3.2 Special Status to Bihar	38
3.3 Role of PESA on conservation Effort	38
<b>4. Constitutional/Non-Constitutional/Statutory/Regulatory Bodies</b>	
4.1 National Testing Agency	41
4.2 National Human Rights Commission	41
4.3 Election Commission of India	42
4.4 Central Drugs Standard Control Organization (CDSCO)	43
<b>International Relations</b>	
<b>1. India and its neighbours</b>	
1.1 India- Bangladesh	44
1.2 India-Pakistan	46
1.3 India-Maldives	46
<b>2. International and regional organizations</b>	
2.1. G7 and India	48
2.2 India-middle East Europe Corridor	49
2.3. Indo-Pacific Economic Framework	50
2.4. BIMSTEC	51
2.5 SAARC	51
2.6. UNRWA	52
<b>3. US's economic decoupling</b>	53
<b>4. India-US relations</b>	54
<b>5. News in Short</b>	
5.1 Missile test by N.Korea	56
5.2 Brahmos Deal between India and Singapore	56
5.3 Armenia recognizes Palestine	56
5.4 CECA negotiations between India and Australia	57
5.5 SIPRI report	57

5.6 Summit on Peace, Switzerland	57
<b>6. French territory New Caledonia</b>	<b>58</b>
<b>Economy</b>	
<b>1. Capital Market</b>	
1.1 MFIs to invest in Overseas UTs	60
1.2. Infrastructure bonds	60
<b>2. Taxation</b>	
2.1. GST council meet	61
2.2 Types of taxes – personal tax, corporate tax, etc.	61
<b>3. Banking System</b>	
3.1. Monetary Policy Committee	63
3.2 Instruments of Monetary Policy	64
<b>4. Agriculture</b>	
4.1 India's Coffee	65
4.2 Kharif crops and MSP	65
<b>5. Industrial production – 8 core industries</b>	<b>66</b>
<b>6. Critical Minerals</b>	<b>66</b>
<b>Environment</b>	
<b>1. Wild Life Sanctuaries and National Parks</b>	
1.1 Deepor Beel WLS	68
1.2 Pobitora WLS	68
1.3 Bannerghatta NP	68
1.4 Raimona NP	69
<b>2. Climate Change and Sustainable Development</b>	
2.1 SC Spells the way of Himalaya's development	69
2.2 India's Roof Top Solar Power Potential	70
2.3 46 <sup>th</sup> Antarctic Treaty Consultative Meeting	72
2.4 Solid Waste management	74
2.5 Climate Change and International Laws	74
2.6 Remoulding the Global Plastic Treaty	75
<b>3. Ecology Threats and Conservation</b>	
3.1 Marine Ecology	79
3.2 Flyash	80
3.3 Ele-Fence to eliminate man-animal conflict	81
3.4 Canopy Bridge in Assam Gibbon Habitat	81
<b>4. Species in News</b>	
4.1 Great Adjutant Stork	82
4.2 Great Indian Bustard	82
4.3 The Mainland Serow	83
<b>Science and Technology</b>	
<b>1. Space Technology</b>	

1.1 JWTS spot Old galaxy	84
1.2 Modified Newtonian Dynamics	84
1.3 ISRO releases of images of Sun	87
1.4 Three New Craters on Mars	87
1.5 PraVaHa software for aerodynamics Design by ISRO	88
<b>2. Diseases and control</b>	
2.1 Hydroxyurea to treat Sickle cell disease	89
2.2 Tussle over Covaxin IPR	91
2.3 Novel Biomarker	91
2.4 Methanol poisoning	92
2.5 H5N1 – Avian Influenza	94
<b>3. Defence Technology</b>	
3.1 Aircraft Career	96
3.2 Innovation for Defence Excellence	97
3.3 LCA Tejas	98
<b>Disaster Management</b>	
1. Heat wave	99
2. Forest Fires	101
3. IMD colour coding for Weather	102
4. Railway Accidents	103

## History

### 1. Ancient History

#### 1.1 Pottery – Northern Black Polished Ware (NBPW):

- **Time Period:** NBPW was prevalent during the later part of the Iron Age, around 700 BCE to 200 BCE, and is often associated with the Mauryan period.
- **Quality and Finish:** NBPW is characterized by its highly polished, glossy surface, which gives it a distinctive shiny appearance. The pottery is typically black or dark grey in color, though sometimes other shades are present.
- **Technological Advancement:** The high polish and fine finish of NBPW suggest a significant advancement in pottery-making techniques, including better control over firing processes and the use of finer clays.
- **Usage:** NBPW is often found in urban and affluent contexts, indicating its use by wealthier segments of society. It was likely used for both utilitarian and ceremonial purposes.



#### 1.2 Black and Red Ware (BRW)

- **Time Period:** BRW was prevalent during the Chalcolithic period and the early Iron Age, roughly spanning from 2700 BCE to 700 BCE.
- **Quality and Finish:** BRW features a dual color scheme, typically with a black interior and red exterior, achieved through specific firing techniques. While well-crafted, BRW does not have the same level of polish and finish as NBPW.
- **Technological Level:** The technology used to create BRW was advanced for its time, but it did not reach the sophistication seen in the production of NBPW.
- **Usage:** BRW was widely used in both rural and urban settings and is found in a variety of forms, indicating its use in everyday domestic activities.

#### 1.3. An ancient centre of learning (Nalanda Mahavihara):

- Nalanda University is located near Rajgir hills, 90 km east of Patna, Bihar.
- It is known as the first international residential school.
- Prime Minister Narendra Modi inaugurated its new campus on June 19.
- The original "Nalanda Mahavihara" was founded in the **5th century CE by Emperor Kumaragupta.**
- It flourished for 700 years, promoting syncretic learning.

- The university was sustained by learned monks and teachers like **Nagarjuna, Aryabhata, and Dharmakirti**.
- At its peak, Nalanda had 2,000 teachers and 10,000 students.
- **Chinese traveler Hiuen-Tsang**, who studied there for five years, mentioned a rigorous oral entrance test with only 20% of applicants qualifying.
- Subjects taught included **Buddhist scriptures, philosophy, theology, metaphysics, logic, grammar, astronomy, and medicine**.
- Scholars from China, Korea, Japan, Tibet, Mongolia, Sri Lanka, and Southeast Asia came to study at Nalanda.
- These scholars documented the university's ambience, architecture, and the profound knowledge of its teachers.
- The ruins of Nalanda were first **rediscovered in 1812 by Scottish surveyor Francis Buchanan-Hamilton**.
- **Sir Alexander Cunningham** officially identified the ruins as the ancient university in 1861.
- In March 2006, Dr. A.P.J. Abdul Kalam proposed reviving Nalanda University during a speech to the Bihar State Legislative Assembly.
- Ideas for re-establishing Nalanda came from the Singapore government, the East Asia Summit (EAS) leaders in 2007, and the fourth EAS in 2009.
- The Parliament of India passed the **Nalanda University Act in 2010**.
- The first batch of students was enrolled in September 2014.
- **Causes of Decline of Nalanda University:**
  - Nalanda University faced decline due to **funding cuts** and persecution by the Brahminical kings of the Sena dynasty.
  - Many monks had already left for southern regions before **Bakhtiyar Khilji's** time.
  - Instead of a sudden end, Nalanda slowly decayed and depopulated over decades after Khilji's death in 1206.
  - Even in 1234-36, it survived with support from King Buddasena of Bodh Gaya, and Dharmasvamin, a Tibetan monk, studied there during this period.

## Do you Know?

### Nalanda University Act:

**2007:** Bihar Legislative Assembly passed a bill for the creation of a new university.

**2010:** The Nalanda University Bill passed in Rajya Sabha (21 August) and Lok Sabha (26 August).

The bill received Presidential assent on 21 September 2010 thereby becoming an Act.

The university came into existence on 25 November 2010, when the Act was implemented.

#### 1.4. Ancient City - Rajgir:

- Rajgir is located in the district of Nalanda, Bihar, India.
- Known as "**The City of Kings**", it served as the ancient capital of the Haryanka, Pradyota, Brihadratha, and Mauryan dynasties.
- It holds prominence in Hindu, Buddhist, and Jain scriptures.
- Rajgir was **the first capital of Magadha**, which later evolved into the Mauryan Empire.
- Ceramic artefacts dating back to about 1000 BC have been discovered in the city.
- The region boasts a **2,500-year-old cyclopean wall**, showcasing its ancient heritage.
- **Religious Significance:**
- **Rajgir is significant in Jainism** as the birthplace of the **20<sup>th</sup> Jain Tirthankar, Munisuvrata**.

- It holds a profound connection with Buddhism, being associated with both Mahavira and Gautama Buddha.
- **Buddha and Mahavira** preached their teachings in Rajgir during the 6<sup>th</sup> and 5<sup>th</sup> centuries BC.
- **King Bimbisara** offered a forest monastery to Buddha here, making it one of the Buddha's key preaching locations.

**1.5. Perumbalai Artefacts:**

## Sherds with geometric symbols unearthed during excavations at Perumbalai in T.N.

**Dennis S. Jesudasan**  
CHENNAI

Graffiti marks “resembling geometric symbols” were among the potsherds discovered during the archaeological excavations undertaken by the Tamil Nadu government’s Department of Archaeology at Perumbalai in Dharmapuri district.

The report – titled ‘Excavations at Perumbalai 2022’, by S. Paranthaman and R. Venkata Guru Prasanna, published by the Department of Archaeology – was released by Tamil Nadu Chief Minister M.K. Stalin last week. *The Hindu* perused a copy of the report.

“As per the AMS dates, the lower-most level of the site dates back to the 6th Century BCE. Most of the excavated early historic sites such as Vallam, Kodumanal, Keeladi, Uraiyyur, Karur and many other sites always found Tamil (Tamil-Brahmi)-inscribed potsherds and graffiti-bearing



**Slices of history:** Some of the artefacts that were unearthed during the excavations at Perumbalai. SPECIAL ARRANGEMENT

potsherds together,” it said.

**Pottery assemblage**

“The potteries unearthed from the site at various stratum demonstrate the proper chronological sequences of pottery assemblage. The pottery occurring from the lower-most level is very thin and the fine BRW and black ware are the more dominating types,” it said.

“The clay used for making the potteries was fine

and well-levigated clay. Undoubtedly, from the shapes and size of the pottery, it belongs to the Iron Age. The graffiti obtained at this level and above this layer yielded more in number,” it said.

A total of 1,028 inscribed potsherds were recovered during the excavations. The most common graffiti marks were geometrical symbols.

“Swastik-like symbols were also collected. Interestingly, a fully shaped



Most of the excavated early historic sites such as Vallam, Kodumanal, Keeladi, Uraiyyur, Karur and many other sites always showed Tamil (Tamil-Brahmi)-inscribed potsherds and graffiti-bearing potsherds together

**REPORT ON ‘EXCAVATIONS AT PERUMBALAI 2022’**

black-and-red ware bowl containing the swastik sign is exposed. These graffiti marks are confined to the Iron Age and early historic period,” the report said. Of the 1,028 inscribed potsherds, only 297 carry recognisable signs.

Burnished ware, black and red ware, russet-coated black and red ware, russet-coated red ware, red ware and black ware were unearthed. Among them, russet-coated ware served as table ware, and may be

considered the elite ware of the site.

**351 antiquities**

The excavations yielded a total of 351 antiquities from various levels. The initiative unearthed more than 200 terracotta objects representing human and bird figurines, beads, wheels, sling balls, spindle whorls, lamps and hopscotches.

“An unidentified copper coin and a copper bell containing an upper projection were also unearthed,” the excavation report said.

Perumbalai is located on the bank of the Naga-vathi (ancient Palar), one of the tributaries of Cauvery river.

Kongumandala Satakam, a 13th Century literary work by Karmegakaviyaray of Vijayamangalam, referred to Perumbalai as the northern boundary of the Kongu region, comprising present-day Coimbatore, Erode, Tiruppur and parts of Dharmapuri and Salem districts.

**1.6. Temple Architecture:**

- **Chennakesava Temple at Somanathapur**
- **Construction:** The Chennakesava Temple was built in 1268 CE by Somanatha Dandanayaka, a general of the Hoysala King Narasimha III.
- **Architecture:** It is an exemplary piece of Hoysala architecture, known for its intricate and detailed carvings.
- **Architectural Features:**
- **Layout:** The temple is designed in the Trikuta style, featuring three sanctums (garbhagrihas) dedicated to the deities Keshava, Janardhana, and Venugopala.
- **Sculptures:** The temple is adorned with elaborate sculptures depicting scenes from Hindu epics like the Ramayana and Mahabharata, along with various deities, sages, and celestial beings.



- **Carvings:** The exterior walls are covered with intricate carvings, including depictions of gods, goddesses, dancers, musicians, and animals.

## 2. Modern Indian History:

### 2.1 The Santhal Rebellion (1855-1856):

- The Santhal Rebellion, also known as the **Santhal Hool or Hul**, was a major uprising by the Santhal tribal community against the exploitative practices of the British East India Company (EIC) and the oppressive Zamindari system in present-day Jharkhand and West Bengal, India.
- It erupted in June 1855 and continued for nearly a year before being quelled by the British.

#### Roots of Discontent:

- The Santhals, an **indigenous Austroasiatic people**, have traditionally practiced shifting cultivation, relying on the land for their livelihood and cultural identity.
- The arrival of the British East India Company in the late 18th century disrupted their way of life:
- **The Permanent Land Settlement of 1793** imposed by the British led to:
  - **Land Alienation:** Santhal lands were declared wastelands and subsequently acquired by the EIC and moneylenders, depriving them of their traditional territories.
  - **Zamindari System:** The British implemented the Zamindari system, where intermediaries collected land revenue from farmers. These zamindars often resorted to unfair practices, imposing high taxes and exploiting the Santhals through debt bondage.
- **Leadership and Mobilization:**
- The rebellion was spearheaded by four Santhal brothers - **Sidhu, Kanhu, Chand, and Bhairav Murmu** - who emerged as charismatic leaders known for their courage and strategic planning.
- They galvanized the Santhal community through powerful oratory, emphasizing the need to reclaim their land, traditions, and autonomy.
- **Course of the Rebellion (June 1855 - Early 1856):**
- On June 30, 1855, a large gathering of Santhals (estimated at around 10,000) at **Bhognadih village in present-day Sahibganj district** marked the start of the rebellion.
- The Santhals employed guerrilla warfare tactics, targeting:
  - Police stations and outposts symbolizing British authority.
  - Moneylenders' houses, aiming to break free from crippling debt burdens.
  - They disrupted communication and transportation networks, hindering British efforts to suppress the rebellion.
- The uprising spread to neighboring districts, posing a significant challenge to the British administration.



- **British Response and Suppression:**

- The British responded with overwhelming military force.
- Martial law was declared in November 1855, further escalating the violence.
- The rebellion was ruthlessly suppressed by early 1856. Though the Santhals fought valiantly, their lack of advanced weaponry compared to the British military ultimately led to their defeat

### **3. World History:**

#### **3.1 The 1956 Suez Crisis:**

- Following World War II, **Egypt emerged as an independent nation** seeking greater control over its resources.
- The Suez Canal, a vital **waterway built by French and British companies** in the 19th century, remained under foreign control.
- In 1952, a revolution led by **Gamal Abdel Nasser** overthrew the Egyptian monarchy.
- Nasser sought to nationalize the Suez Canal Company (SCC) and end foreign control.

#### **Key Events:**

- On July 26, 1956, President Nasser announced the **nationalization of the SCC**, offering compensation to shareholders.
- This move angered the British and French governments, who held significant financial interests in the SCC.
- The United States, while initially critical of Nasser's actions, disapproved of using military force.
- In secret, Britain, France, and Israel devised a plan to regain control of the canal.

#### **The Invasion:**

- On October 29, **1956, Israel launched a surprise attack on Egypt's Sinai Peninsula**, claiming it was a pre-emptive strike against Egyptian aggression.
- Britain and France then intervened, issuing an ultimatum to both Egypt and Israel to withdraw from the canal zone. When Egypt refused, they launched a joint military operation to capture the canal.

#### **International Pressure and Resolution:**

- The invasion sparked international outrage. The United States and the Soviet Union condemned the action and pressured the Western powers to withdraw.
- The United Nations Security Council passed a resolution demanding a ceasefire and the withdrawal of all foreign troops from Egyptian territory.
- Facing international isolation and economic sanctions, Britain, France, and Israel eventually agreed to withdraw

### 3.2 The Tenggerese Hindus and the Yadnya Kasada Festival:

#### The Tenggerese People:

- **Location:** The Tenggerese people are an indigenous community inhabiting the mountainous regions around **Mount Bromo in East Java, Indonesia.**
- **Religion:** They predominantly practice a form of Hinduism known as Tengger Hinduism, which blends elements of **Shiva-Buddha Hinduism with ancestral worship traditions.**
- **Population:** Estimates suggest there are around 600,000 Tenggerese people living in villages scattered across the slopes of **Mount Bromo, Mount Semeru, and other peaks in the Tengger caldera.**



Tenggerese Hindu worshippers and villagers climb Mount Bromo and gather at its top during the Yadnya Kasada festival in Probolinggo, East Java, Indonesia. The festival is held to express their devotion and gratitude to their ancestors and gods. REUTERS

#### Tengger Hinduism:

- **Origins:** The exact origins of Tengger Hinduism are unclear, but it likely **emerged from the fusion of Hinduism brought by Indian traders and the existing animistic beliefs** of the indigenous mountain people.
- **Deities:** Tenggerese Hindus revere a pantheon of deities including:
  - Sang Hyang Widi Wasa - The supreme God.
  - Brahma, Vishnu, and Shiva - The Hindu trinity.
  - Dewi Sri - The rice goddess.
  - Ancestral spirits - Revered and offered prayers and offerings.
- **Practices:** Daily prayers, offerings, and ceremonies are central to their religious life.

#### The Yadnya Kasada Festival:

- It is a **ceremony of thanksgiving and offering to the mountain deities**, particularly Sang Hyang Widi Wasa and Yadnya Kasada is a ceremony of thanksgiving and offering to the mountain deities, particularly Sang Hyang Widi Wasa and Mahadeva (the God of Mount Semeru).
- The festival takes place annually **on the full moon of the Kasada month in the Hindu calendar**, which usually falls in July or August.
- The ceremony involves a series of rituals and offerings, including:
  - **Purification rituals:** Participants cleanse themselves before the main ceremony.
  - **Processions:** Villagers carry offerings of fruits, vegetables, and livestock up Mount Bromo.
  - **Animal sacrifice:** Symbolic offerings of livestock (chickens, goats) are thrown into the crater. **[Important Note: While some sources mention animal sacrifice, it's important to consult the latest information on festival practices. Reliable sources may not explicitly mention animal sacrifice as a current practice.]**
  - **Prayers and chants:** Prayers for prosperity, good harvest, and protection from volcanic eruptions are offered.

**Cultural Importance:**

- **Community bond:** The Yadnya Kasada festival strengthens the social fabric of Tenggerese communities and reaffirms their connection to their ancestors and the land.
- **Tourism:** The festival has become a popular tourist attraction, drawing visitors from around the world to witness this unique cultural celebration.

**4. News in Short:**

**4.1. Vaishnav Pushtimarg Sect:**

- Founded in the early **16th century** by **Vallabhacharya** (1479–1531).
- Follows the **Śuddhadvaita** (Pure Monism) philosophy, which posits Krishna as the supreme being and the source of all existence.
- The human soul is considered imbued with Krishna's divine light, and liberation comes through his grace (Pushti).

**4.2. Sarod maestro Pandit Rajeev Taranath passes away**

- **Pandit Rajeev Taranath**, a famous Sarod maestro, passed away at the age of **92** in **Mysuru** while undergoing treatment at a private hospital.
- He received several prestigious awards in his lifetime, including **the Padma Shri in 2019** and **the Sangeet Natak Akademi award in 2000**.
- **In Karnataka, he was honored with the Rajyotsava Award in 1996**, Chowdaiah Memorial Award in 1998, Sangeet Vidwan Award in 2018, and the Nadoja Award in 2019.
- Pandit Rajeev Taranath **composed music for many Kannada films such as "Samskara" and "Agunthaka,"** and Malayalam films like **"Kadavu" and "Kanchanaseetha."**
- He was widely recognized for his contributions to Indian classical music, especially on the Sarod, both nationally and internationally.
- His death is a significant loss to the world of Indian classical music, and he leaves behind a legacy of exceptional musical talent and cultural contribution.

**GS Paper I: Art and Culture**



**Gujarat HC allows Netflix to release movie *Maharaj***

The Gujarat High Court on Friday allowed the release of Hindi film *Maharaj* on Netflix. The court concluded that it does not hurt the sentiments of the followers of **Vaishnav Pushtimarg sect** as the petitioners had claimed. The film, starring Junaid Khan, produced by Yash Raj Films, based on an **1862 libel case involving social reformer Karsandas Mulji**, was earlier slated to be released on the OTT platform on June 18 but the court had granted an interim stay after concerns were raised that the film may hurt religious sentiments of the followers of Vaishnav Pushtimarg sect, an influential group in Gujarat.



**Do You Know?**

**The sarod** is a stringed instrument from the **lute family**, widely regarded as one of the most prominent instruments in Hindustani classical music, which is the major genre of classical music in North India, Pakistan, Bangladesh, and Nepal.

**Characteristics:**

- **Material:** Made of wood, with a skin belly and a broad neck with a wide fretless fingerboard.

- **Sound:** Known for its deep, rich, and introspective sound, in contrast to the sweeter brighter sound of the sitar, another prominent instrument in Hindustani music.
- **Sympathetic Strings:** Features sympathetic which create a resonant and reverberant quality.
- **Sliding Pitches:** Distinguished by its characteristic sliding pitches, called meend or which are a vital aspect of Indian music.

**History and Development:**

- **Origins:** Believed to be derived from the Afghan which arrived in India during the 16th century.
- **Evolution:** Evolved into its modern form around century.
- **Modern Sarod:** Attributed to the Seni brothers, musicians from Afghanistan who settled in India.

**Playing Technique:**

- **Position:** Played while sitting on the floor. The instrument is placed on the lap at an angle.
- **Plectrum:** A plectrum called a jawa is used to pluck the strings.
- **Techniques:** The player uses various techniques to produce the characteristic sound of the sarod, including meend (sliding pitches), gamak (ornamentation), and rhythmic patterns.

**Importance in Hindustani Music:**

- **Solo and Ensemble:** The sarod is a solo instrument, but it is also often played in ensembles with other instruments like the tabla (drums) and the tambura (drone lute).

**Expressiveness:** Renowned for its expressiveness and versatility, the sarod is used to perform a wide range of musical compositions in Hindustani music.



A 19th century sarod, at the Metropolitan Museum of Art.

and strings, glissando, rubāb, the 19th a family of pluck the

# दिल्ली से भी बेहतर

## आपके शहर गोरखपुर में

# Patriotic IAS

## IAS/PCSwali Pathshala

पैडलेगंज, गोरखपुर    Mob. 9971932488



**Team Led by:**  
**Amit Kumar**

(More than 4 Years of Teaching Experience In Vision IAS Delhi & Qualified 4 Times For The IAS Mains).



**Piyush Gambhir Sir**

(More than 5 years of teaching experience in Vision IAS Delhi & qualified 3 times for the IAS mains & 2 times IAS Interview)



**Sonal Choudhary Ma'am**

More than two years of experience in Vision IAS and qualified 3 Times for IAS mains.



**Tanya Sehgal Ma'am**

More than four years of experience in Vision IAS and qualified 2 times for IAS mains.



**Manohar Pandey Sir**

(More than 5 years of experience in Vision IAS Delhi & qualified 3 times for the IAS mains & 2 times for PCS Interview).



**Piyush Kannaujya Sir**

(More than 4 years of teaching experience in Vision IAS Delhi & qualified 6 times for the IAS Mains & 2 IAS Interview)



**Abhishek A. Singh Sir**

(More than 3 years of experience in Vision IAS Delhi & qualified 2 times for the IAS Mains).



**Divyansh Srivastava sir**

More than 3 years Working experience with Vision IAS Delhi and Qualified 2 times for IAS mains and 2 times for CAPF Interview.

## Society

### 1. Vulnerable Section:

#### 1.1 Maternity leave for parents of child born through Surrogacy:

- The Centre has amended rules to **allow women government employees 180 days of maternity leave** in cases of **children born through surrogacy**.
- The term "**commissioning mother**" refers to the intending mother of the child born through surrogacy.
- Commissioning mothers with less than two surviving children are eligible for maternity leave.
- Surrogates involved in the process are also eligible for maternity leave under these rules.
- **Previously, there were no specific provisions** for maternity leave in cases of surrogacy for women government employees.
- The **amended rules also grant paternity leave of 15 days to "commissioning fathers"** who are male government servants with less than two surviving children.
- Paternity leave must be **taken within six months from the date of delivery** of the child born through surrogacy.
- These changes are part of the **Central Civil Services (Leave) Rules, 1972**, as notified by the Union Personnel Ministry.
- The Central Civil Services (Leave) (Amendment) Rules, 2024, were notified on June 18.
- According to these rules, commissioning mothers with less than two surviving children can be granted child care leave.
- Child care leave under existing rules allows a female government servant and single male government servant to take a maximum of 730 days during their entire service.
- The term "**surrogate mother**" refers to the woman who bears the child on behalf of the commissioning mother.
- "**Commissioning father**" refers to the intending father of the child born through surrogacy, as clarified by the Personnel Ministry in the amended rules.

#### 1.2. Global Gender Gap:

- The **global gender gap stood at 68.5% closed in 2024**, a slight increase from 68.4% in 2023.
- At the current rate of progress, it will take 134 years to achieve full gender parity, according to the **Global Gender Gap report by the World Economic Forum**.
- **Iceland continues to lead globally** with the highest gender gap closure at 93.5%.
- **India has slipped two places to rank 129 out of 146 countries**, compared to its 2023 ranking of 127.
- India has closed 64.1% of its gender gap in 2024, which represents a slight regression mainly due to declines in education and political empowerment.
- Despite slight improvements in economic participation and opportunity in recent years, India needs to **increase its score by 6.2 percentage points to match its 2012 score of 46%**.
- **Labour Force Participation Rate:**
  - India's current labour force participation rate for women is 45.9%.
  - Measures needed to bridge this gender gap include:
  - Ensuring girls do not drop out of higher education.

- Providing job skills training.
- Ensuring workplace safety.
- Encouraging equal sharing of household chores to help women keep their jobs after marriage.
- **Education:**
  - India ranks 124th globally in the gap between men and women's literacy rates, which is currently 17.2 percentage points wide.
- **Political Empowerment:**
  - Despite improvements in political empowerment, women's representation in Parliament remains low.
  - In the newly elected Lok Sabha, the number of women Members of Parliament has decreased to 74 from 78 in 2019, representing 13.6% of the total.
- **Women's Reservation Bill, 2023:**
  - The Women's Reservation Bill, which aims to reserve one-third of seats in the Lok Sabha and State legislative Assemblies for women, has not yet been implemented.
  - The current under-performance in this area is a concern.
- **WEF Recommendations:**
  - Saadia Zahidi, Managing Director of the WEF, emphasizes the need for governments to strengthen framework conditions.
  - These conditions are essential for business and civil society to collaborate effectively to achieve gender parity as an economic imperative.

## Chargesheet filed against Yediyurappa in POCSO case

GS Paper II:  
Vulnerable Section of Society

### 1.3. The Protection of Children from Sexual Offences (POCSO) Act, 2012

The primary purpose of the POCSO Act is to provide a comprehensive legal framework for the protection of children from sexual assault, sexual harassment, and pornography.

- It defines various forms of sexual abuse and prescribes stringent punishments for offenders.
- The Act also emphasizes the need for a child-friendly approach during investigations, trials, and rehabilitation processes.

#### Key Provisions:

- **Definition of Child:** The Act defines a "child" as anyone below the age of 18 years. This ensures all minors are protected under the Act.
- **Offences Covered:** The Act defines various offenses against children, including:
  - Penetrative sexual assault
  - Sexual assault

The Criminal Investigation Department filed a chargesheet against BJP leader and former Karnataka Chief Minister B.S. Yediyurappa, charging him under Section 8 (sexual assault) of the **Protection of Children from Sexual Offences (POCSO) Act, 2012** and Section 354A (sexual harassment) and 214 (offering gift or restoration of property in consideration of screening offender) of the Indian Penal Code, on Thursday.

The chargesheet lists 74 individuals as witnesses, including the minor who has been the victim in the case.

- Sexual harassment
- Using a child for pornographic purposes
- Trafficking children for sexual purposes
- **Punishments:** The severity of punishment varies depending on the nature of the offense, age of the victim, and the offender's relationship with the victim. Punishments can range from imprisonment for a few years to life imprisonment, with or without a fine.
- **Special Courts:** The Act mandates the establishment of Special Courts for the speedy trial of offenses under POCSO. These courts prioritize cases involving child sexual abuse and ensure a faster resolution process.
- **Child Protection Mechanism:** The Act outlines a child protection mechanism that includes:
  - Reporting obligations for those suspecting child sexual abuse
  - Procedures for recording children's statements in a child-friendly manner
  - Provisions for medical aid and rehabilitation for victims

#### Importance of POCSO Act:

- The POCSO Act has been a significant step towards safeguarding children in India.
- It has empowered victims to come forward and report abuse, deterring potential offenders through stricter penalties.
- The Act also promotes a more sensitive approach towards child victims, ensuring their well-being throughout the legal proceedings.

#### Challenges and Further Developments:

- Despite the Act's positive impact, challenges such as underreporting of cases, societal stigma, and ensuring proper implementation in all parts of the country remain.
- There have been amendments to the POCSO Act over the years to address some of these challenges and strengthen its effectiveness
- The POCSO Act is a crucial piece of legislation in India's fight against child sexual abuse. It empowers children, protects their rights, and holds perpetrators accountable.

#### 1.4. Elderly People (A Survey report by HelpAge India Society):

- **A HelpAge India study** across India revealed that only 15% of elders have a source of income.
- Among those with income, 24% were men and 7% were women.
- Approximately 29% of elders rely on financial support from their children.
- The majority (79%) of elders surveyed use government hospitals for healthcare.
- Only 31% of the elders surveyed have health insurance.
- A mere 15% of those surveyed were aware of the existence of exclusive geriatric facilities.
- The study was released in Chennai on June 15, coinciding with World Elder Abuse Awareness Day.

#### Unsecured lives

- HelpAge India surveyed 5,169 elders across 10 states and 20 cities.
- The survey also included 1,333 caregivers aged 18 to 49 who provide care to these elders.
- Gender and age representation in the survey was balanced, with efforts made to include older age groups.

- Only 29% of elders reported having access to social security schemes like pensions or provident funds.
- One-third of the surveyed elders reported no income in the past year, regardless of their city of residence.
- Health insurance coverage was limited, with only 31% of elders having active health insurance.
- 54% of elders surveyed had two or more non-communicable diseases (NCDs), while 20% had none and 26% had at least one NCD.

### Chronic ailments

- Most respondents aged over 80 had two or more non-communicable diseases (NCDs).
- 48% of respondents had high blood pressure, and 43% were diabetic.
- Over a third of the respondents had arthritis, osteoporosis, or other bone and joint diseases.
- 19% of respondents had high cholesterol.
- The average cost of an outpatient visit for an elderly person was ₹1,973.
- Men spent an average of ₹2,110 per visit, while women spent ₹1,913.
- 29% of caregivers faced physical challenges while providing care to the elderly.
- Only 7% of respondents were part of any social organization, with more men than women being involved.
- V. Rama Rao, an 83-year-old participant in the survey release, advocated for state-specific elder policies in India, with input from Tamil Nadu's elderly associations.

### 1.5. The vulnerabilities of India's elderly:

- The ageing phenomenon is notable this century due to increased human longevity and low reproduction rates.
- Efforts are being made to redefine ageing in terms of functionality, considering longevity and vulnerabilities.
- In India, four key vulnerabilities for the elderly are:
  - Restrictions in daily activities
  - Multi-morbidity
  - Poverty
  - Absence of income
- **The Longitudinal Ageing Survey of India (LASI, 2017-18)** reports about 20% of the elderly experience each of these vulnerabilities.
- Addressing these issues requires a multi-pronged approach involving inclusion and social security measures.
- Promotion of life preparatory measures is necessary, ensuring not just financial independence but also healthy, active, and productive years.
- Evaluations of ageing often focus on individual attributes rather than the circumstances of later life.
- The rising count of the elderly should be considered alongside familial transitions.
- Familial transitions include changes in household compositions and the accommodation pattern of the elderly.
- Instances of elderly living with other elderly within households are becoming more frequent.
- **Households with elderly members often exhibit:**
  - Dependence

- Care provision
- Social security concerns
- Financial protection needs
- Vulnerabilities in elderly individuals often stem from household features rather than individual characteristics.
- Future elderly may have advantages in education, life preparation, and economic dependence.
- However, they may face health and quality of living adversities due to increased longevity and chronic ailments.
- Healthy ageing should focus not only on the current elderly population but also on prospective elderly.
- **Limitations in activities of daily living (ADL)** worsen with age among the elderly.
- **The elderly population is projected to reach 319 million by mid-century, growing at 3% annually.**
- The elderly population will be predominantly female, with a sex ratio of 1,065 females per 1,000 males.
- 54% of elderly women will be widows.
- 6% of elderly men and 9% of elderly women will live alone.
- 70% of the elderly population will reside in rural areas.
- These statistics are useful for targeting welfare measures for the elderly.
- A quarter of the elderly report poor health status, compared to about 20% among those aged 45 and above.
- 75% of the elderly suffer from one or more chronic diseases.
- 40% of those aged 45 and above have some form of disability.
- Diabetes and cancer are major health threats among the elderly in India.
- **Mental health is an emerging concern**, with 20% of those aged above 45 self-reporting ailments, mainly depression, which is higher compared to the elderly.
- **Food insecurity affects India's elderly:**
  - 6% of those over 45 ate smaller portions or skipped meals.
  - 5.3% did not eat despite being hungry.
  - This impacts nutrition and health.
- **Protection measures for the elderly:**
  - Welfare provisioning, legal recourse, and concessions exist.
  - Low awareness: 12% know about the Maintenance and Welfare of Parents and Senior Citizens Act, 2007.
  - 28% are aware of concessions offered to the elderly.
- **Vulnerabilities and abuse:**
  - Few life expectations among the elderly.
  - Vulnerabilities lead to abuse by family, community, and society.
  - 5% report abuse, more frequent for women in rural areas.
- **Need for social agency:**
  - Create social agency for the elderly.
  - Develop innovative institutions to change their perception from liability to asset.
  - Focus on ensuring an active life course for future elderly.

## 2. Caste and Identity Issues:

**2.1. Justice K. Chandru Committee** was formed after a violent assault on two Scheduled Caste siblings.

#### Recommendations:

- Prohibit students from wearing colored wristbands, rings, or tilaka (forehead marks) that signify caste.
- Students should not use bicycles painted with any caste-related signs.
- School names should not include any caste references.
- Ensure confidentiality of students' caste information.

#### Historical Context:

- The government previously removed caste, community, and leader names from transport corporations, districts, and street signboards.
- Caste surnames of popular leaders were erased from textbooks a few years ago.

#### Committee Recommendations:

- Establish a Social Justice Monitoring Committee comprising academicians and social activists to review and modify curriculum related to social issues.
- Include topics on social justice, equality, and non-discrimination in school curricula.
- Revise B.Ed and Diploma in Elementary Education syllabuses to promote inclusivity.

#### Controversial Recommendations:

- Proposed removal of noon meal kitchens in every school is regressive and should be ignored.
- Instead, establish centralized kitchens in every block/panchayat union to mask caste identities of cooks.
- Practical difficulties in food distribution from central kitchens could deprive children of hot and fresh meals.

#### Social Justice Students Force:

- The suggestion to establish a uniformed Social Justice Students Force, operating independently of the union government, needs cautious consideration.
- The existing NCC, Scouts and Guides, and NSS setups are already sufficient to provide students with such opportunities.

#### Addressing Discrimination:

- Discrimination starts in children's habitats with caste-identifiable colors in drinking water pipes and bus stops.
- Electoral success of parties with caste vote banks has increased such practices, influencing impressionable teenagers for political gain.
- Mainstream parties courting such outfits have perpetuated caste considerations.

## Caste away

Efforts to end caste discrimination should do more than hide caste identity

The overt display of caste pride among schoolchildren in several parts of Tamil Nadu has often resulted in bloodshed. And the Justice K. Chandru Committee, constituted against the backdrop of a murderous assault on two Scheduled Caste (SC) siblings by their dominant community schoolmates in Nanguneri, has sought to remedy the situation. In its exhaustive report, it has recommended to the State government that students be prohibited from having any coloured wristbands, rings, or forehead marks (*tilaka*), which serve as caste identities. Students must refrain from using bicycles that are painted with any sign of caste reference. Besides, school names are not to bear any caste appellation. It has also called for the caste confidentiality of pupils. Such recommendations are not new. A quarter of a century ago, following caste clashes in the southern districts, the government had dropped the names of caste, community and leaders given to transport corporations and districts. Much earlier, it had experimented with the dropping of caste surnames from street signboards. A few years ago, the caste surnames of popular leaders were erased from textbooks.

The committee has rightly recommended that the government appoint a Social Justice Monitoring Committee comprising academicians and social activists to check the curriculum relating to social issues and suggest modifications, and push for the inclusion of topics based on social justice, equality, and non-discrimination. The suggestion to revise the B.Ed and Diploma in Elementary Education syllabuses to ensure orientation towards inclusivity is welcome. But the government would do well to ignore the regressive recommendation to do away with noon meal kitchens in every school. A centralised kitchen in every block/panchayat union, as recommended by the committee, may perhaps help in masking the caste identity of cooks, but it does not remedy the prevailing discrimination. Apart from practical difficulties in distributing food from central kitchens, children would be deprived of hot and fresh food. The suggestion to establish a uniformed Social Justice Students Force, which will "operate independently of the union government", and conduct regular drills and exercises, also needs to be viewed with caution. The existing NCC, Scouts and Guides and NSS setup is adequate enough to offer students such a space. The government must be cognisant of addressing discrimination which starts in children's habitats that are wash with caste-identifiable colours – from drinking water pipes to bus stops. The electoral success of parties with caste vote banks has only spawned more such outfits whose leaders use impressionable teenagers as political capital. Distressingly, such outfits are courted by mainstream parties. Unless there is a transformation at the village level and a political will to transcend caste considerations, efforts to establish harmony among school students on campuses may not be meaningful.

**Conclusion:** Without transformation at the village level and political will to transcend caste considerations, efforts to establish harmony among school students may not be effective.

## 2.2. Maratha, Kunbi identities have changed over the course of history:

The crystallisation of the term 'Maratha' probably occurred between 1400 and 1600 C.E. to describe a newly emerging service elite — the chiefs who brought bands of followers to serve the Bahamani kingdom and its five successor states.

- Since September last year, an agitation for Maratha reservation has been led by activist Manoj Jarange-Patil in Maharashtra's Marathwada region.
- The demand is for quota in jobs and education for economically backward Maratha community members.
- This demand has been ongoing since the 1980s but gained prominence due to hunger strikes by Jarange-Patil over the past 10 months.
- The agitation has caused socio-political unrest in Maharashtra.
- It has adversely affected Mahayuti government candidates in parliamentary seats in Marathwada.
- Jarange-Patil demands that Marathas be classified under the Kunbi category as Other Backward Classes (OBCs).
- This demand has increased social tensions, especially in Marathwada.
- OBC politicians and writers oppose Maratha reservation, arguing that the community is politically dominant in Maharashtra.
- They point out that a significant percentage of Maharashtra's Chief Ministers and legislators are Marathas.
- The conflict has sparked introspection into the identities of 'Maratha' and 'Kunbi' and their complex histories.

### On Identity Formation

- **English civil servant R.E. Enthoven's book "Tribes and Castes of Bombay" (1922)** is a landmark in Indian anthropology.
- Enthoven noted that there is likely no origin difference **between Marathas proper (warrior section) and Maratha Kunbis (cultivators)**.
- He observed fluidity in the terms Marathas and Kunbis.
- Enthoven explained that the rise of Maratha power under Shivaji Bhosale in the 17th century led the fighting classes and landholders to claim Kshatriya rank, seeing themselves superior to **Kunbis, who were primarily tillers** of the land.
- **Kunbi denotes a status and not a caste**, and Marathas and Kunbis are often used interchangeably.
- **Enthoven distinguished Konkani Kunbis who do not claim to be Marathas or Kshatriyas.**
- Marathas in the Konkan region oppose Jarange-Patil's agitation as they refuse to accept reservation under the OBC Kunbi category, fearing loss of status.
- **The term 'Maratha' originated and evolved over time, explored in Rosalind O'Hanlon's study "Caste, Conflict and Ideology" (1985).**
- O'Hanlon's study is essential for understanding identity formation in Maharashtra and sheds light on the Maratha-Kunbi cluster of castes.

- At its simplest level, 'Maratha' refers to all Marathi speakers and those who fought under Shivaji Bhosale's banner and later under the Peshwas until British paramountcy in 1818.
- In the 18th century, the term 'Maratha' was not caste-specific and referred to all Marathi speakers, including Brahmins, soldiers, cultivators, and artisans.
- Early European observers used the term 'Maratha' indiscriminately to denote all Marathi speakers.
- The term implied mastery over land and military prowess.
- Over time, the term 'Maratha' became narrower and more caste-specific within the Maratha peasant castes.
- Families who called themselves 'Marathas' represented a small elite claiming Kshatriya varna status, while **Kunbis accepted Shudra varna**.
- The term emerged in the context of **Ala-ud-din Khalji's raids in the Deccan in the 1290s and the decline of the Marathi-speaking Yadava dynasty**.
- Scholar-travellers like **Al-Beruni (1020 C.E.) and Ibn Batuta (1340 C.E.) mentioned the 'Marhat Des' or 'Marathas'** in their writings about the people living in the Deccan region.

#### Aspiring to be a Maratha:

- The term 'Maratha' began to crystallize between 1400 and 1600 C.E. to describe a newly emerging service elite.
- These chiefs brought bands of followers to serve **the Bahamani kingdom** and its successor states.
- Certain Maratha families, including **the Bhosales**, gained prominence for their military service.
- Their domestic and social practices differed from the Kunbis due to their association with the Muslim courts of Ahmednagar and Bijapur.
- They aspired to Kshatriya status and followed Islamic practices such as seclusion of women and eating from a single dish.
- The term 'Marathmola' was coined to describe their distinctive social practices, as noted by James Molesworth in his Marathi-English dictionary.
- Shivaji Bhosale's coronation as 'Chhatrapati' in 1674 was controversial, as efforts were made to declare him a 'pure' Kshatriya and link his genealogy to Rajput families like the Sisodias of Udaipur.
- After Shivaji's death, the Maratha Chhatrapatis were influenced by the Brahmin Peshwas who expanded Maratha power.
- Pratapsinh Bhosale's rule from 1818 to 1839 had significant implications for the Kshatriya debate and tensions between Marathas and Chitpavan Brahmins.
- This period also impacted the Maratha-Kunbi complex of castes and their socio-political dynamics.
- Pratapsinh Bhosale, suspicious of his Brahmin administrator Balajipant Natu, believed the Peshwas were undermining his rule as Chhatrapati.
- **James Grant Duff**, as the resident of Satara **from 1818 to 1823**, monitored Pratapsinh's rule and authored the first **comprehensive history of the Marathas** in three volumes, published in 1828.
- Pratapsinh eagerly endorsed Duff's History of the Mahrattas and had it translated into Marathi, contributing to its wide dissemination.
- The conflicts between Pratapsinh and the Brahmins, as documented by Duff, contributed to the popularization of the term 'Maratha' in western Indian society in the 1860s and 1870s.

- From the 1860s onwards, the term 'Maratha' gained significance as a new identity that encompassed the entire Maratha-Kunbi grouping, to the exclusion of Brahmins.
- O'Hanlon notes that many Kunbi families aspired to gain acceptance in elite Maratha circles, leading to the proverb "kunbi majhala Maratha zhala" (when a Kunbi prospers, he becomes a Maratha).
- In a reversal of fortunes today, Marathas in certain parts of Maharashtra are demanding to be recognized as 'Kunbis' to avail themselves of Other Backward Class (OBC) reservation benefits.

### 3. High court on Marriage Act:

- The Madhya Pradesh High Court made a problematic ruling regarding inter-faith marriages.
- This ruling could lead to a misinterpretation of the Special Marriage Act, 1954.
- The Act is meant to provide legal avenues for inter-religious marriages.
- An unmarried Hindu-Muslim couple petitioned the court for protection of their inter-faith marriage.
- The High Court questioned if a marriage between a Muslim boy and a Hindu girl under the Act would be valid.
- The court denied police protection to the couple, deeming their marriage invalid.
- This ruling undermines the right to choose a partner and the objectives of the Special Marriage Act.

#### Erroneous considerations

- Typically, when a petition for police protection is filed under Article 226 of the Constitution, the High Court assesses the petitioners' rights and the threats they face.
- These petitions are often filed by couples in inter-faith and inter-caste marriages.
- High Courts have also granted protection to unmarried persons facing societal threats.
- Example: The High Court of Madras granted police protection to a same-sex couple recognizing their precarious situation.
- Example: The Punjab and Haryana High Court granted protection to a live-in couple, focusing on their fundamental rights under Article 21, rather than the legality of their relationship.
- Contrastingly, the Madhya Pradesh High Court did not assess the threats faced by an inter-faith couple but instead questioned the validity of their impending marriage.
- The High Court should have decided their protection claim based on Article 21, which ensures the protection of an individual's right to life and liberty, regardless of marriage registration.

#### Dilution of the Special Marriage Act

- The Madhya Pradesh High Court's order contradicts the fundamental basis and objectives of the Special Marriage Act.
- The order refers to a Supreme Court precedent in **Mohammed Salim vs Shamsudeen (2019)**, which was about property succession in a marriage between a Muslim man and Hindu woman, not about the validity of inter-faith marriages.
- Using this case as precedent for deciding the validity of inter-faith marriages or for police protection is inappropriate.
- The order also misinterprets Section 4 of the Special Marriage Act, which deals with marriages between persons in "prohibited degrees of relationship".

- Section 4 actually prohibits marriages only between relatives, not between persons of different faiths.
- The High Court's reliance on this provision to deny protection to an inter-faith couple is factually incorrect and against the Act's objective.
- The Special Marriage Act is designed to facilitate marriages between any two Indian nationals, regardless of the faith they profess.

### The India of today and special marriages

- The Madhya Pradesh High Court's order is significant in the current social and political context where there is a threat of vigilantism against inter-faith and inter-caste marriages not approved by parents.
- Issues such as the love jihad conspiracy and right-wing propaganda have led to vigilantism, directly challenging constitutional morality.
- There are pending petitions challenging unconstitutional provisions in the Special Marriage Act, like the requirement for prior notice, before the Supreme Court.
- These cases are linked by a common theme of individual autonomy, liberty, and equality.
- The Supreme Court in **Shafi Jahan vs Asokan K.M. (2018)** emphasized that intimacies of marriage are within a core zone of privacy that is inviolable.
- Justice D.Y. Chandrachud, in dealing with inter-faith marriage cases, stressed that social approval for personal decisions should not be the basis for recognizing them.
- The Constitution protects personal liberty from disapproving audiences, according to this judgment.
- **The Shafin Jahan case** prioritizes an individual's absolute right to choose a life partner over considerations of faith or caste-based norms.
- Recent years have seen a departure from the spirit of this judgment, making it crucial for constitutional courts to uphold autonomy, privacy, and liberty.

## 4. Tribes of India:

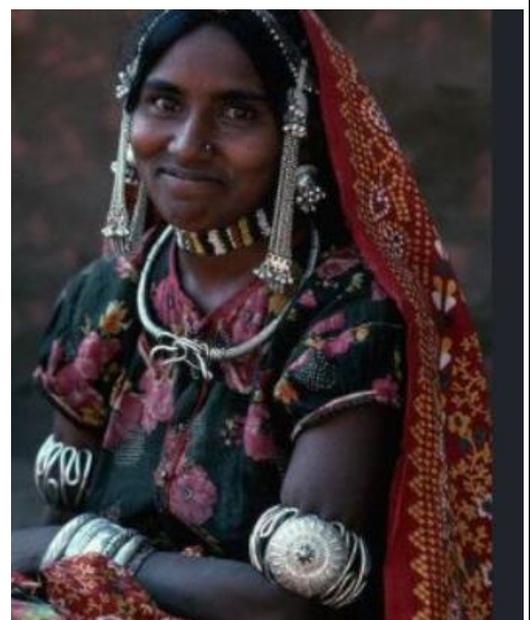
### 4.1 Bhil Tribe:

- One of the largest tribal groups in India, estimated at around 12.6 million people.
- Considered one of the oldest tribes in India, inhabiting areas across Gujarat, Rajasthan, Madhya Pradesh, Maharashtra, Chhattisgarh, Andhra Pradesh, and Tripura.
- The name "Bhil" is derived from the word 'billu', which means bow.

#### Origin and Language

- Exact origins are unclear; some sources suggest they might be descendants of pre-Aryans or the Munda race.
- Their languages are classified as Indo-Aryan, similar to Gujarati and Marathi.

#### Lifestyle and Traditions



- Traditionally known for their skill in archery, warfare, and deep knowledge of local geography.
- Traditionally experts in guerrilla warfare, but today most are farmers and agricultural laborers.
- Known for their sculpting skills.
- Follow a variety of religions, with Hinduism being the most common. Some communities practice Islam or Christianity.
- Have their own traditional belief systems centred around local deities and spirits.
- Bhil women wear traditional saris and heavy ornaments made of silver, brass, beads, and silver coins.
- Men dress in long frocks and pyjamas.
- Both men and women wear earrings.

## 4.2. Warli Tribes

**Location:** The Warli tribes are an Adivasi indigenous tribe living in the mountainous, coastal, and bordering regions of Gujarat and Maharashtra. They are considered by some to be a sub-caste of the Bhil tribe, dating back to the 10th century AD.

**Meaning:** The word 'Warli' is derived from 'Warla,' meaning 'piece of land.'

**Language:** The Warli people speak Varli or Warli, an Indo-Aryan language. It is typically classified as Marathi but is also known as Konkani or Bhil.



### House & Food:

- **Houses:** They live in thatched mud huts and create art on their home walls using rice paste.
- **Food:** They do not eat vegetables but consume deer, goat, wild rabbit, fowls, pigeons, and peacocks. Fish is their favourite non-vegetarian dish. Dry fish is combined with dal (pulse) or vegetables and served with rotlas (thick breads made of nagli, wheat, jowar, or rice). Nagli and rice are staple foods.

### Culture:

- **Beliefs:** They have animistic beliefs, customs, and traditions, and have adopted many Hindu beliefs due to acculturation.
- **Art:** Warli culture centers on Mother Nature, often depicted in Warli paintings. They value folk art, gods, goddesses, and rituals. Most paintings are created by women.

### Style & Attire:

- Traditionally semi-nomadic, now mainly agriculturists.
- **Men:** Wear a loin cloth, waistcoat, and turban.
- **Women:** Wear a Lugden, a one-yard sari worn until the knee, influenced by Maharashtrian rural styles. They wear toe-rings and necklaces as a sign of marriage.
- Cultivate crops like rice and wheat.

### Festival:

- **Bohada:** A three-day mask festival where participants wear masks and perform several times.

**Father of Warli Art:**

- **Jivya Soma Mashe:** Known for his paintings of fishing nets, featuring enormous domes of white lace.

**Dance & Music:**

- **Tarpa Dance:** Performed in groups with one person playing the Tarpa instrument while others dance in a circle around the musician.

**दिल्ली से भी बेहतर आपके शहर गोरखपुर में**

**Patriotic IAS**  
IAS/PCSwali Pathshala

**Team Led by:**

**Amit Kumar**  
(More than 4 Years of Teaching Experience in Vision IAS Delhi & Qualified 4 Times For The IAS Mains).

**Piyush Gambhir Sir**  
(More than 5 years of teaching experience in Vision IAS Delhi & qualified 3 times for the IAS mains & 2 times IAS Interview)

**पैडलेगंज, गोरखपुर**      **Mob. 9971932488**

<p><b>Sonal Choudhary Ma'am</b> More than two years of experience in Vision IAS and qualified 3 Times for IAS mains.</p>	<p><b>Tanya Sehgal Ma'am</b> More than four years of experience in Vision IAS and qualified 2 times for IAS mains.</p>	<p><b>Manohar Pandey Sir</b> (More than 5 years of experience in Vision IAS Delhi &amp; qualified 3 times for the IAS mains, &amp; 2 times for PCS Interview).</p>	<p><b>Piyush Kannaujya Sir</b> (More than 4 years of teaching experience in Vision IAS Delhi &amp; qualified 6 times for the IAS Mains &amp; 2 IAS Interview)</p>	<p><b>Abhishek A. Singh Sir</b> (More than 3 years of experience in Vision IAS Delhi &amp; qualified 2 times for the IAS Mains).</p>	<p><b>Divyansh Srivastava sir</b> More than 3 years Working experience with Vision IAS Delhi and Qualified 2 times for IAS mains and 2 times for CAPF Interview.</p>
--	--	--	---	--	--

## Geography

### 1. Geomorphology (Landforms, Volcanoes):

#### 1.1 Glacial Lakes:

They are captivating bodies of water formed by the dynamic interplay between glaciers and the landscape.

#### Formation:

- **Glacial Erosion:** As glaciers move, they carve depressions and valleys into the underlying bedrock.
- When the glacier melts, these depressions can fill with water, forming glacial lakes.
- **Ice Dams:** A glacier's advance can dam a pre-existing valley or river, creating a lake.
- **Supraglacial Lakes:** These lakes form on the surface of glaciers as melt water accumulates in depressions on the ice surface.

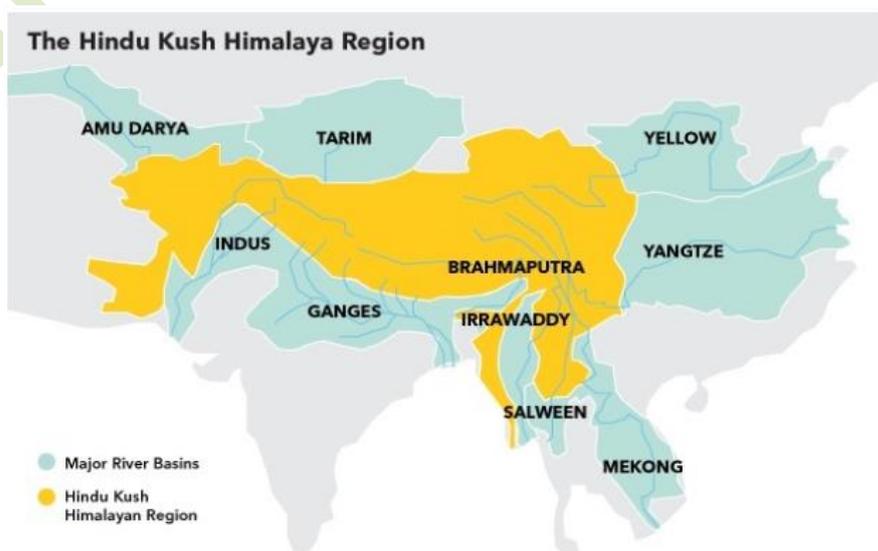


#### Types of Glacial Lakes:

- **Ice-Marginal Lakes:** Located at the terminus (end) of a glacier, these lakes are formed when melt water is trapped between the glacier and surrounding landforms.
- **Subglacial Lakes:** Hidden beneath the glacier, these lakes form when melt water accumulates at the base of the glacier, lubricating its movement.
- **Ice-Dammed Lakes:** Formed when a glacier creates a natural dam across a valley or river, these lakes can be potentially hazardous due to the risk of dam failure.

#### 1.2 Hindu Kush Himalaya (HKH):

- The Hindu Kush Himalayan region stretches over 3,500 kilometers.
- **Spans eight countries:** Afghanistan, Bangladesh, Bhutan, China, India, Nepal, Myanmar, and Pakistan.
- Considered the world's most important 'water tower'.
- Contains the largest volume of ice and snow outside the Arctic and Antarctica.



- Supports the drinking water, irrigation, energy, industry, and sanitation needs of 1.3 billion people in the mountains and downstream.

### **1.3. Tonga Volcano could cause unusual weather:**

Usually, the sulphur dioxide in the smoke of a volcano cools the earth's surface for a short period. Hunga Tonga was an underwater volcano, so it produced little smoke and a lot of water vapour, which shot into the stratosphere. And in the stratosphere, water vapour is a potent greenhouse gas.

- Hunga Tonga-Hunga Ha'apai (Hunga Tonga) erupted on January 15, 2022, in Tonga.
- The eruption caused a tsunami and triggered warnings across the entire Pacific basin.
- Sound waves from the eruption traveled globally multiple times.
- A study in the Journal of Climate links the eruption to significant climate impacts.
- It suggests the eruption could explain the unusually large ozone hole in 2023.
- The summer of 2024 was much wetter than expected due to the eruption's effects.
- Lingering effects on winter weather are anticipated for years to come.

#### **A cooling smoke cloud**

- Hunga Tonga-Hunga Ha'apai, an underwater volcano, erupted with minimal smoke but released significant water vapor.
- The eruption produced 100-150 million tonnes of water vapor, equivalent to 60,000 Olympic swimming pools.
- This water vapor reached the stratosphere, a dry layer of the atmosphere between 15 and 40 kilometers above the surface.
- Water vapor in the stratosphere contributes to ozone depletion and acts as a potent greenhouse gas.
- Unlike volcanic eruptions that emit sulfur dioxide leading to cooling, water vapor from Hunga Tonga has uncertain climate impacts.
- Previous satellite observations haven't encountered such a large-scale injection of water vapor into the stratosphere.

#### **Follow the vapour**

- Experts globally analyzed satellite data immediately after the eruption of Hunga Tonga-Hunga Ha'apai.
- Studies focused on traditional effects like sulphate aerosols and new aspects such as the impact of water vapor.
- Uncertainty prevailed regarding how the massive amount of water vapor in the stratosphere would behave.
- Key questions included the duration of water vapor presence, its dispersion, and implications for climate.
- Climate models were utilized to predict future scenarios due to the inability to directly measure long-term effects.
- Two simulations were conducted using climate models: one without the eruption and one with added water vapor equivalent to 60,000 Olympic swimming pools.
- Differences between the simulations highlighted the specific impacts of the added water vapor on climate projections.

### What did we find out?

- The **large ozone hole observed from August to December 2023** was partly caused by the Hunga Tonga eruption.
- Predictive simulations had forecasted this ozone hole almost two years before it occurred.
- The **eruption's impact on the ozone hole** was expected to be limited to the year 2023, as subsequent years would not have sufficient residual water vapor to affect the ozone layer.
- The prolonged ozone hole influenced a positive phase of the Southern Annular Mode during the summer of 2024, resulting in a **wetter summer in Australia** contrary to expectations during an El Niño.
- Global mean temperatures saw a minimal increase of about 0.015 degrees Celsius due to the Hunga Tonga eruption.
- Independent studies confirmed the negligible effect of Hunga Tonga on the overall high global temperatures observed recently.

### Disruption for the rest of the decade

- The Hunga Tonga eruption has resulted in surprising and lasting impacts on regional climates.
- **Northern Australia is predicted to experience colder** and wetter than usual winters until approximately 2029.
- North America is expected to have warmer than usual winters due to the eruption.
- Scandinavia is forecasted to have colder than usual winters following the eruption.
- The eruption appears to alter atmospheric waves, which play a crucial role in shaping weather patterns.
- This study provides one perspective on how the eruption may affect weather and climate, acknowledging that climate models are not perfect.
- The study hopes to stimulate further scientific inquiry into understanding the implications of a significant amount of water vapour in the stratosphere on global climate.
- Scientists are open to findings that either support or challenge their conclusions, aiming to deepen understanding of the eruption's effects.

## 2. Climatology:

### 2.1 Rainshadow Region:

A rain shadow is a dry area located on the leeward side (opposite the wind direction) of a mountain range. It arises due to the interaction of wind patterns and mountains, impacting regional climates and vegetation.

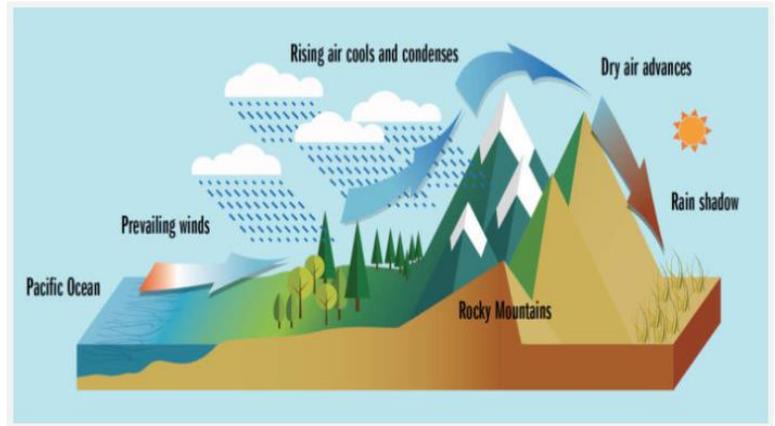
#### How Rain Shadows Form:

1. **Moist Air Rises:** Prevailing winds carry moisture-laden air towards mountains.
2. **Adiabatic Cooling:** As the air ascends to higher altitudes, it cools down due to a decrease in atmospheric pressure (adiabatic cooling).
3. **Condensation and Precipitation:** As the air cools, it reaches its saturation point, causing water vapour to condense and form clouds. This condensation results in precipitation on the windward side (facing the wind) of the mountains, often in the form of rain or snow.
4. **Dry Air Descends:** The air that has released its moisture descends on the leeward side of the mountain range. During descent, the air mass is compressed, leading to warming (adiabatic

heating). This warmed air is drier and less likely to produce precipitation, creating a rain shadow region.

#### Impacts of Rain Shadow:

- **Climate:** Rain shadows significantly influence regional climates. Areas on the windward side tend to receive more rainfall, leading to a more temperate or humid climate. Conversely, the leeward side experiences less precipitation, resulting in arid or semi-arid conditions.
- **Vegetation:** The variation in rainfall due to rain shadow affects vegetation patterns. Windward slopes may support lush forests, while leeward sides might have sparse vegetation like deserts, grasslands, or scrublands.



#### Examples of Rain Shadow:

- **The Atacama Desert (South America):** The Andes Mountains create a rain shadow effect, contributing to the extreme aridity of the Atacama, one of the driest non-polar deserts globally.
- **The Great Basin (North America):** The Sierra Nevada and Cascade mountain ranges create a rain shadow, resulting in the formation of the Great Basin, a vast desert region in the western United States.
- **The Himalayas (Asia):** The Himalayas cast a rain shadow on the Tibetan Plateau, making it a high-altitude desert despite its proximity to the Indian Ocean.

## 2.2. Blizzards

A blizzard is a severe winter storm characterized by three key elements: strong sustained winds, low visibility, and significant snowfall.

- **A blizzard as a storm with:**
  - Sustained winds or frequent gusts exceeding 35 mph (56 km/h)
  - Blowing or drifting snow that reduces visibility to a quarter mile (0.4 km) or less
  - Lasting for at least three hours

#### Conditions During a Blizzard:

- **Heavy snowfall:** Accumulation can be significant, making travel treacherous and potentially impossible.
- **Blowing snow and whiteouts:** Strong winds pick up loose snow, drastically reducing visibility and creating dangerous whiteout conditions.
- **Frigid temperatures:** Blizzards often occur in conjunction with very cold temperatures, increasing the risk of hypothermia and frostbite.

## 2.3. Carnian Pluvial Episode: Bounty in Rain:

- The late Triassic Period, about 230 million years ago, experienced a prolonged period of rain known as the carnian pluvial episode.

- This rain lasted for more than a million years and significantly impacted global climate and ecosystems.
- The carnian pluvial episode occurred just before the age of dinosaurs began, marking a crucial transition in Earth's biological evolution.
- It is believed that volcanic activity in the **Wrangellia Province (present-day western coast of North America)** triggered this extended period of heavy rainfall.
- The volcanic activity likely caused environmental changes that affected both marine and terrestrial life.
- Despite initial devastation, the carnian pluvial episode led to an increase in species diversity and numbers.
- Many species that emerged or evolved during this period continue to influence Earth's ecosystems today.

### 3. Agriculture:

#### 3.1 Turmeric Cultivation

- Turmeric, a bright yellow spice with a distinctive aroma and earthy flavor, is a key ingredient in many cuisines around the world.
- India is the world leader in turmeric cultivation.



#### Top Turmeric Producing State in India:

- According to the Government of India Press Information Bureau (PIB), the state of **Maharashtra is the current leader in turmeric production within India**. As of 2022-23, Maharashtra produced over 2.78 million metric tons of turmeric, contributing roughly 22% of the country's total output.
- Grown in over 20 states, with Maharashtra, Telangana, Karnataka, and Tamil Nadu as leading states.
- Area under cultivation: 3.24 lakh hectares.
- Production: 11.61 lakh hectare (over 75% of global production)
- More than 30 varieties grown in India.

#### Top Turmeric Producing Country in the World:

- India is the undisputed champion of global turmeric production. The Press Information Bureau (PIB) states **that India holds over 75% of the world's turmeric production**, with an area of over 3.24 lakh hectares dedicated to its cultivation. This translates to a staggering 11.61 lakh tonnes produced in the year 2022-23.
- **India dominates the world production scenario contributing 80% followed by China (8%), Myanmar (4%), Nigeria (3%) and Bangladesh (3%).**

#### 3.2. Soil and Water Conservation:

Contour Trenches: Soil and Water Conservation Technique

**Purpose:**

- To capture and retain rainwater runoff on sloping land.
- To minimize soil erosion by reducing the velocity of flowing water.
- To promote infiltration of water into the soil, improving soil moisture content.



**Construction:**

- Trenches are dug across a slope, perpendicular to the flow of water, following the contour lines (hence the name).
- The depth and width of trenches can vary depending on factors like soil type, slope gradient, and rainfall intensity. Typically, they range from 15-60 cm deep and 30-90 cm wide.
- Excavated soil is usually piled on the downhill side of the trench, forming a berm. This berm further helps trap water and sediment.



**Benefits:**

- Increased soil moisture: Retained water infiltrates the soil, improving its moisture content and supporting plant growth.
- Reduced soil erosion: By slowing down water flow, contour trenches prevent soil particles from being washed away by runoff.
- Improved crop yields: Increased soil moisture and reduced erosion lead to better crop growth and potentially higher yields.

**Applications:**

- Contour trenches are suitable for various agricultural settings, particularly on sloping land prone to erosion.
- They can be used in rain-fed agriculture, where relying solely on rainfall is crucial.
- They are also beneficial for organic farming practices by promoting soil health and moisture retention.

## Polity

### 1. Fundamental Rights:

#### 1.1. Human dignity versus religious practices:

- The **Madurai Bench of the Madras High Court** permitted the resumption of "annadhanam" (free food offering) and "angapradakshanam" (circumambulation) at **Nerur Sathguru Sadasiva Brahmendral's final resting place**.
- These practices involve rolling on banana leaves left by devotees after consuming food, believed to confer spiritual benefits, and had been followed for over a century.
- The practices were halted in 2015 by a Division Bench order in response to a public interest litigation (PIL) petition.
- Justice G.R. Swaminathan reinstated the practices, citing **Article 25(1) of the Constitution that guarantees the right to freely profess, practice, and propagate religion**.
- **The judge linked the devotees' belief in spiritual benefits to the right to privacy**, asserting that spiritual orientation is protected akin to gender and sexual orientation under privacy rights.
- He emphasized that as long as these practices do not infringe on the rights of others, neither the State nor the courts should intervene.
- Justice G.R. Swaminathan reinstated the practice of "angapradakshanam" (circumambulation) at Nerur Sathguru Sadasiva Brahmendral's final resting place.
- He justified his decision under **Articles 14, 19(1)(a), 19(1)(d), 21, and 25(1) of the Constitution**, asserting it as a fundamental right.
- The judge argued that spiritual benefits derived from rolling on leftover food are akin to religious practices protected under the Constitution.
- He criticized the previous Division Bench's order for not including the devotees and trustees of the Adhistanam as parties and for violating **principles of natural justice**.
- The Division Bench had earlier halted the practice in 2015, citing concerns about human dignity and equality under **Articles 14 and 21 of the Constitution**.
- He highlighted that in the current case, all devotees, regardless of their community, participated in the practice of rolling on plantain leaves.
- The judge argued that this practice fosters communal harmony and social integration.
- Justice Swaminathan emphasized the devotees' rights to practice their rituals under the protection of fundamental rights.
- Critics argue that his judgment overlooked the constitutional duty to promote scientific temper, humanism, and inquiry.

### Activity to Do:

Find out which of the Fundamental Rights are available or guaranteed only to Citizens of India?

#### Defamation

- Any type of deliberate false communication, either written or spoken, that can harm a person's reputation decreases the respect, regard, or confidence of a person or induces disparaging, or a hostile or disagreeable opinion or feeling against a person.

#### Indian Constitution

- **Article 19(1)(a):** Guarantees the right to freedom of speech and expression to every citizen of India.
- **Article 19(2):** Allows the state to impose reasonable restrictions on the exercise of this right in the interests of, among other things, defamation.

**Indian Penal Code, 1860 (IPC)**

- While the IPC primarily deals with **criminal defamation** under **Section 499 and Section 500**, the principles laid out in these sections are often referenced in civil defamation cases.
- **Civil defamation:** can seek monetary compensation.
- **What is not Defamation:** mere insult or statements that hurt the feelings of the person to whom they are addressed would not constitute defamation.
- **In Subramaniam Swamy vs UOI,2016** supreme court upheld the constitutionality of criminal defamation.

**1.2 Right to Constitutional Remedies:**

**Habeas Corpus:** Habeas corpus is a legal concept; it means "you shall have the body" in Latin

- It serves as a crucial safeguard against unlawful imprisonment.

**Function:**

- It's a legal procedure that allows a person (or someone acting on their behalf) to challenge the legality of their detention before a court.
- The court then inquires into the reasons for the detention and determines if it's lawful.
- If the detention is found to be unlawful, the court can order the release of the detainee.

**Who Can Use It?**

- Anyone who is being held in custody, including those arrested, imprisoned, or institutionalized (e.g., in a mental health facility).
- It can also be used on behalf of someone else who is being detained.

**1.3. Patna High Court strikes down 65% quota in Bihar:**

- The Patna High Court overturned Bihar's amendments from 2023 to increase reservation from 50% to 65%.
- The decision came in response to petitions challenging the legislation.

**Pune car crash: HC to pass order on plea to release minor on June 25**

**The Hindu Bureau**  
MUMBAI

The Bombay High Court on Friday reserved till June 25 its order on a *habeas corpus* petition filed by the aunt of the 17-year-old accused in the Pune luxury car accident case that killed two software engineers.

The Division Bench of Justices Bharti Dangre and Manjusha Deshpande questioned the approach of the Pune Police by which the minor was granted bail but then put in an observation home following public outcry.

The High Court said that both sides had gone through trauma. "Those who met with the accident and lost their lives, of course, their families are in trauma. But the child is also in trauma. Give him some time," the court said.

Raising objections against the *habeas corpus*



Car crash victim Ashwini Koshta's grief stricken kin in Jabalpur. The HC said on Friday that both sides have gone through trauma. PTI

petition filed by the minor's aunt who was seeking the accused's release from the observation home, public prosecutor Hiten Venegavkar argued that such a petition must be based on the incompetence of the judge or the mechanical passing of the order, neither of which were mentioned in the plea.

To this, the court said, "Prima facie we have made

up our minds that in such a contingency, if we do not entertain either writ of *certiorari* or *habeas corpus*, we will be failing the citizens of this country."

Mr. Venegavkar argued that since the grandfather and parents were in custody, the minor had to be in an observation home under the supervision of a probation officer.

Mr. Venegavkar informed the court that there

was no obligation for the minor to leave unless someone physically 'fit' comes to take him but till date, no one approached the authorities. He also stressed that sending him to the observation home was important for the minor's safety and well-being.

Appearing for the petitioner, senior advocate Aabad Ponda argued that once a juvenile was granted bail, in no circumstances can they be placed in an observation home.

**Father granted bail**  
Meanwhile, a court in Pune granted bail to the father of the juvenile accused in one of the cases pertaining to the car crash. The court also granted bail to five other accused, including the owner and managers of two bars who were arrested for allegedly serving liquor to underage patrons.

**Do You Know?**

**Dr. Ambedkar described Article 32 as the "Heart and Soul of the Indian Constitution"**

- The State government cited inadequate representation as the reason for increasing reservation.
- Petitioners argued that the move violated the Supreme Court's cap of 50% on reservations, established in the Indira Sawhney case.
- The Bihar Assembly had passed the amendment on November 9, 2023, aiming to raise reservation to 75% when combined with the EWS quota.
- Congress leader Jairam Ramesh questioned if the Bihar government would appeal the decision to the Supreme Court.

#### 1.4. Property is real, and so should the 'compensation':

- Property rights, likened to liberty by President John Adams, have been a contentious issue in post-colonial India.
- Initially considered a fundamental right and later a constitutional right, the interpretation has evolved over time.
- **The case of Bela Banerjee highlighted a clash between Articles 19(1)(f) and 31(2) of the Constitution regarding compensation for property acquisition.**
- The Supreme Court's interpretation in the Bela Banerjee case emphasized that compensation must be a "just equivalent" of the property taken.
- In response, the **Constitution (Fourth) Amendment in 1955 restricted the courts from questioning the adequacy of compensation.**
- Courts later maneuvered by allowing scrutiny of the principles set by the legislature to determine compensation, despite the final amount being non-justiciable.

#### Word substitution

- The **Constitution (Twenty-Fifth) Amendment Act in 1971** substituted "compensation" with "amount" in **Article 31(2)** to evade judicial scrutiny over the adequacy of compensation.
- This change allowed property acquisition through eminent domain by paying an "amount," which the courts couldn't review.
- Despite the amendment's validation in Kesavananda Bharati, the Supreme Court maintained the right to scrutinize the principles governing the determination of compensation.
- This decision undermined the legislative intent behind the 1971 amendment to shield property acquisition from judicial interference.
- Parliament perceived the right to property as an obstacle to establishing a socialist state, viewing it as a stronghold of the bourgeoisie.

#### A significant change

- The Janata Party, after winning the 1977 general election, enacted the **Constitution (44th Amendment) Act in 1978.**
- Under this amendment, the right to property under **Article 19(1)(f)** was removed from **Part III of the Constitution and reintroduced as a constitutional right under Article 300-A.**
- Article 31, which had caused controversy regarding compensation for property acquisition, was also deleted.
- **Justice K.K. Mathew, dissenting in Kesavananda Bharati, argued that property ownership is integral to civilization and culture, suggesting it should be a fundamental right.**
- Professor P.K. Tripathi criticized the deletion of Article 31, arguing that it safeguarded against confiscation and ensured compensation for acquisitions under specific conditions.

- **Article 300A of the Indian Constitution states that no person shall be deprived of their property except by authority of law.**
- Professor P.K. Tripathi interpreted this to mean that any law authorizing property acquisition must be for a public purpose and include provisions for fair compensation.
- He argued that "compensation" should reflect the market value of the property around the time of acquisition, akin to the Bela Banerjee case.
- **The Supreme Court of India has affirmed that the right to property, under Article 300A, is not only a constitutional right but also a human right.**
- In the **M.C. Mehta case**, the Supreme Court ruled that laws depriving individuals of their property must be just, fair, and reasonable, meeting the standards of Articles 14, 19, and 21 of the Constitution.
- The Court further emphasized in the B.K. Ravichandra case that Article 300A's guarantees should not be interpreted narrowly and have similarities with Articles 21 (right to life and personal liberty) and 265 (taxation principles).

#### Facets that are Protected

- **The Supreme Court's decision in Kolkata Municipal Corporation delineates seven protected facets under Article 300A.**
- **These include the right to notice, right to be heard, right to a reasoned decision, and acquisition only for public purpose.**
- It also includes the right to fair compensation, an efficient process, and conclusion.
- The Court emphasized that any law depriving a person of property must adhere to all these facets to avoid legal challenge.
- The ruling reinstates the requirement of fair and just compensation, aligning with the principles established in the Bela Banerjee case.
- This decision is seen as restoring the protection to property rights that existed before the amendments of the Forty-Fourth Amendment Act, 1978.
- It affirms the foresight of Prof. P.K. Tripathi regarding the unintended consequences of deleting Articles 19(1)(f) and 31, thereby enhancing property protection in India's legal framework.

## 2. Parliament:

### 2.1 Leader of Opposition:

- The Leader of the Opposition (LoP) in Lok Sabha has significant political importance.
- In British tradition, the LoP is known as the Prime Minister-in-waiting and forms a shadow cabinet.
- The shadow cabinet scrutinises government policies and offers alternatives.
- Shadow cabinet members mirror real cabinet positions and familiarize themselves with government operations.
- Erskine May describes the shadow cabinet's role in directing criticism and outlining alternative policies.
- India has adopted the Westminster system, but does not practice forming a shadow cabinet.
- **The LoP position in India has been statutory since 1977, but its functions are not defined by statute.**
- Traditionally, the LoP is a senior and respected member of the principal Opposition party.

**Significance of LoP:**

- This large Opposition presence boosts morale and influences the functioning of the House.
- Influence can be seen in questions, answers, debates on Bills, general debates, urgent matters, adjournment motions, and committee references.
- The Leader of the Opposition (LoP) should effectively represent the new mood of the Opposition.
- The LoP of the 18th Lok Sabha must maintain Opposition unity.
- As prime minister in waiting, the LoP must responsibly inform the nation about government failures.
- The LoP has primacy in debates and other interventions in the House.
- The Speaker allows the LoP to make interventions without notice.
- The LoP can demand the Prime Minister's presence for serious debates.
- In British tradition, the Prime Minister informs the LoP about major policy initiatives.
- Communication between the Prime Minister and the LoP is always kept open.

**Lessons from the Past to enhance significance of LoP:**

- India can follow the tradition of communication between the Prime Minister and the Leader of the Opposition (LoP) to strengthen democracy.
- Jawaharlal Nehru set traditions such as attending Question Hour and supplementing ministers' replies.
- Nehru advocated for more time for Opposition leaders and valued their input to understand the real situation in the country.
- Early Indian Parliament evolved in an environment of openness to dissent.
- Learning from the past is essential for new parliamentarians.
- Intolerance towards dissent was never part of the tradition.
- The political class has an opportunity to restore normalcy in Parliament.
- The LoP's main function is to remind the ruling Benches of the need to normalise Parliament.

**2.2. Speaker and Speaker Pro tem:****Why in News?**

- **Bhartruhari Mahtab**, a seven-time Member of Parliament (MP), has been appointed as the 'Speaker pro tem' of the 18th Lok Sabha.

**Who is Speaker Pro tem:**

- **Article 94** of the Constitution of India states that the Speaker of the Lok Sabha remains in office until immediately before the first meeting of the Lok Sabha after its dissolution, ensuring the office is never vacant.
- **Om Birla, who was the Speaker of the 17th Lok Sabha**, continues in that role until June 24, when the first meeting of the 18th Lok Sabha is scheduled.
- **Article 95(1)** provides that when both the posts of Speaker and Deputy Speaker are vacant, the President appoints a member of the Lok Sabha to perform the duties of the Speaker until a new Speaker is elected.
- **A 'Speaker pro tem' is appointed by the President** under this provision to temporarily fulfill the role of the Speaker until a full-time Speaker is elected.
- The term 'pro tem' means 'for the time being' or 'temporary' and is not explicitly mentioned in the Constitution or Lok Sabha rules but is a conventional term used in parliamentary practice.

- Traditionally, one of the senior-most members of the Lok Sabha is selected by the government to be the Speaker pro tem, who is then administered oath by the President.
- The Speaker pro tem administers the oath of office to all other Members of Parliament and presides over the election process of the full-time Speaker.
- In the 18th Lok Sabha, **Bhartruhari Mahtab of the Bharatiya Janata Party (BJP) has been appointed as the Speaker pro tem.**

#### How is Speaker and Deputy Speaker elected?

- **Article 93 of the Constitution:** Specifies that the Lok Sabha, the lower house of Parliament in India, chooses two members to serve as its Speaker and Deputy Speaker.
- **Election of the Speaker:**
  - The date for the election of the Speaker is determined by the President of India.
  - Throughout the history of independent India, all Speakers have been elected unopposed, indicating a consensus among members.
- **Election of the Deputy Speaker:**
  - The date for the election of the Deputy Speaker is fixed by the Speaker of the Lok Sabha.
  - This election process follows the election of the Speaker and is conducted within the Lok Sabha itself.

#### Role and Functions of Speaker:

- **Speaker's Constitutional Functions:**
  - Certifies Bills as Money Bills, reducing the Rajya Sabha's role.
  - Decides on disqualification cases under the Tenth Schedule.
  - Historically, Speakers tend to favour the ruling party in these decisions, raising impartiality concerns.
- **Powers of the Speaker:**
  - Refers Bills to Standing Committees for detailed scrutiny.
  - Can suspend members for up to five days for serious disruptions.
- **Decline in Referral of Bills:**
  - Referral of Bills to Standing Committees dropped significantly from 71% (2009-14) to 16% (2019-24).
  - Coalition government formation may increase referral of important Bills to committees.
- **Suspensions of Opposition MPs:**
  - Winter session of 2023 saw widespread suspensions of Opposition MPs.
  - Overuse of suspensions can hinder effective Parliament functioning and should be used judiciously.

#### Do you know?

- The first session of the 18<sup>th</sup> Lok Sabha saw a contested Speaker's post.
- Candidates: Om Birla (NDA, previous Speaker) and K. Suresh (Congress, eight-term MP).
- **This is not the first contested Speaker election; there have been at least three previous instances.**
- **1952:** G.V. Mavalankar defeated Shantaram More in the first Lok Sabha.
- **1967:** Neelam Sanjeeva Reddy (Congress) defeated Tenneti Viswanathan, supported by Atal Bihari Vajpayee.
- **1976:** During the Emergency, Baliram Bhagat won against Jagannath Rao Joshi of Jana Sangh. In 1976, Baliram Bhagat was elected Speaker because the previous Speaker became a Cabinet Minister.

**Conventions Related to the office of the Speaker:****1. Speaker's Impartiality in Britain:**

- Upon election, the Speaker resigns from their political party.
- Seeks re-election as 'The Speaker seeking re-election' to reflect impartiality.
- Somnath Chatterjee, as Speaker of the 14th Lok Sabha, did not resign from CPM despite party's direction, citing independence.

**2. Resignation from Political Party:**

- Tenth Schedule allows Speaker to resign from political party upon election but has never been exercised.
- Could enhance perception of Speaker's independence.

**3. Role of Deputy Speaker:**

- Deputy Speaker assumes Speaker's duties in their absence or vacancy.
- Conventionally offered to Opposition since 1991, ensuring balance in House.

**2.3 Parliamentary Procedure:****A. Motion of Thanks**

- The **first session after each general election and the first session of every fiscal year** is addressed by the President.
- In this address, the President **outlines the policies and programmes of the government** in the preceding year and ensuing year.
- This address of the President, which corresponds to the '**speech from the Throne**' in Britain, is discussed in both the Houses of Parliament on a motion called the 'Motion of Thanks'.
- At the end of the discussion, the **motion is put to vote**. This motion must be passed in the House. Otherwise, it amounts to the defeat of the government.
- This inaugural speech of the President is an occasion available to the members of Parliament to raise discussions and debates to examine and criticize the government and administration for its **lapses and failures**.

**B. Adjournment Motion:**

- It is introduced in the Lok Sabha **to draw attention of the House to a definite matter of urgent public importance**.
- It needs the **support of 50 members** to be admitted.
- It **interrupts the normal business of the House**, it is regarded as an extraordinary device.
- It involves an element of **censure against the government** and hence **Rajya Sabha is not permitted to make use of this device**.
- The discussion on an adjournment motion should last for **not less than two hours and thirty minutes**.

The right to move a motion for an adjournment of the business of the House is subject to the following restrictions:

1. It should raise a matter which is definite, factual, urgent, and of public importance.
2. It should not cover more than one matter.
3. It should be restricted to a specific matter of recent occurrence and should not be framed in general terms.
4. It should not raise a question of privilege.
5. It should not revive discussion on a matter that has been discussed in the same session.

6. It should not deal with any matter that is under adjudication by court.
7. It should not raise any question that can be raised on a distinct motion.

### **3. Centre-State Relations:**

#### **3.1. Article 371F:**

- It is a special provision in the Indian Constitution that applies **specifically to the state of Sikkim**.
- Sikkim was an independent kingdom until 1975, when it became part of India as the 22nd state of the **Indian Union on 26th April 1975** through the **Constitution 36th Amendment Act 1975**.

#### **Purpose of Article 371F**

- This article was included in the Constitution to protect the unique identity and cultural heritage of Sikkim after it merged with India.
- It grants special powers to the state government of Sikkim in various aspects.
- **Legislative Assembly Seats:** The article allows the Parliament of India to reserve seats in the Sikkim Legislative Assembly for different sections of the population. This ensures fair representation for various communities within the state.
- **Land Ownership:** It restricts outsiders from purchasing land in Sikkim. This provision safeguards the rights of indigenous communities and helps to preserve the state's character.
- **Transitional Provisions:** The article also includes temporary and special provisions that were relevant during Sikkim's initial integration with India.

#### **3.2. Bihar's call for special category status (12 June)**

- Bihar Chief Minister Nitish Kumar has restated Bihar's demand for special category status from the Central government.
- This status would increase the amount of tax revenues that Bihar receives from the Centre.
- The demand for special category status is significant because the BJP, led by Prime Minister Narendra Modi, relies on support from Nitish Kumar's Janata Dal (United) party to maintain power in the Centre.
- The Janata Dal (United) holds 12 seats in the new Lok Sabha.
- The Bihar Cabinet had previously passed a resolution last year urging the Centre to grant special category status to Bihar.

#### **What is the special category status?**

- **Introduced in 1969 based on recommendations of the Fifth Finance Commission.**
- Aimed to help economically, socially, and geographically disadvantaged states.

#### **Criteria for Special Category Status:**

- States with hilly terrain and sizable tribal populations are eligible.

#### **Benefits:**

- Allows states to claim more funds from the Centre compared to other states.
- Includes various tax-related concessions.

#### **Financial Support:**

- States with special category status receive **90% of funds from the Centre for centrally sponsored schemes**.
- Other states typically receive around 60% to 80% of funds.

**States Granted Special Category Status:**

- Initially granted to Jammu & Kashmir, Assam, and Nagaland.
- Later extended to eight other states including Himachal Pradesh and Uttarakhand.
- Currently, 11 out of 28 states in India, or more than a third, have special category status.

**Why is Bihar demanding the special category status?**

- Bihar's politicians, including the Chief Minister, have long demanded special category status for the state due to its economic backwardness.
- Bihar's per capita income of ₹60,000 is among the lowest in India, and the state lags behind the national average in various human development indicators.
- Bihar's fiscal situation has been negatively affected by the state's bifurcation, causing industries to move to Jharkhand, lack of sufficient water resources, and frequent natural disasters.
- A 2022 survey based on caste indicates that nearly one-third of Bihar's population lives below the poverty line.
- Both BJP and Congress-led Union governments have refused to grant special status to Bihar and other states, citing increased financial burden on the Centre.
- The Fourteenth Finance Commission recommended increasing tax devolution to states from 32% to 42%, making Bihar's demand for special category status appear as an attempt to seek more funds from the Centre.
- Granting special category status to certain states may encourage others to demand the same, posing a fiscal challenge for the Centre.
- Political considerations heavily influence the decision to grant special status to states.
- States with stronger political leverage with the Centre may secure more funds either through special status or other means.
- There's a risk of political parties competing to promise special status to states to gain or retain power, which can strain the Centre's finances.
- The Congress party, in its 2024 election manifesto, promised to grant special category status to Bihar if it wins, highlighting competitive populism in elections.

**Does Bihar need the special category status?**

- State-level politicians have a strong incentive to compete for funds from the Centre to increase their spending capabilities.
- Besides Bihar, other states like Andhra Pradesh and Odisha have also demanded special category status, which would provide them with more funds from the Centre.
- TDP leader N. Chandrababu Naidu withdrew his party from the NDA government in 2019 due to the demand for special category status for Andhra Pradesh.
- Mr. Naidu sought special status to offset the loss of tax revenues after Hyderabad was transferred to Telangana.
- Bihar's economic backwardness is the main reason cited for its demand for special category status.
- Mr. Naidu seeks special status due to tax revenue loss from Hyderabad's transition to Telangana.

- Bihar wants special category status due to economic backwardness.
- Analysts support Bihar's demand, saying it will aid welfare and infrastructure.
- Critics argue against more central funds, fearing it could reward poor policies and penalize better-performing states.
- Bihar, historically slow-growing, has seen recent rapid GDP and per capita income growth.
- Analysts suggest Bihar needs better rule of law for long-term economic growth, not just more fiscal aid.

### 3.3 Democratic Decentralization:

#### Role of PESA in Conservation Efforts:

- Conservation efforts in India face conflicts between conservation goals and local resource extraction needs.
- Government policies often oscillate between prioritizing conservation and promoting economic development through projects like mining and dams.
- Centralization of political power tends to favour national and state elites over local communities, leading to deforestation and loss of traditional lands.
- The proposed solution involves decentralization and democratization, ensuring that local communities near forests have genuine influence in decision-making and resource management.

#### The Methodology:

- The authors base their conclusion on a data-driven study focused on the Panchayat (Extension to Scheduled Areas) Act (PESA).
- **PESA, enacted in 1996**, extends local government councils to Scheduled Areas designated under the Fifth Schedule of the Indian Constitution, which primarily house tribal populations.
- **Unlike the 73rd Amendment of 1992**, which established Panchayati Raj Institutions (PRIs) without mandated representation for Scheduled Tribes (STs), PESA specifically mandates electoral quotas.
- **PESA requires all chairperson positions and at least half of the seats on local government councils in Scheduled Areas to be reserved for ST individuals.**
- The study shows that where PESA is effectively implemented, it enhances political representation and participation of STs in decision-making processes regarding resource management and governance.
- States like **Gujarat, where PESA implementation is lacking**, highlight failures such as the absence of mandated ST representation in gram sabha committees, undermining its intended impact.

### Equitable Representation:

- Introduction of PESA (Panchayat Extension to Scheduled Areas) with mandated representation for Scheduled Tribes (ST) led to significant conservation benefits:
  - **Average increase in tree canopy by 3% per year.**
  - Reduction in the rate of deforestation.
- These effects were more pronounced in areas with higher initial forest cover.

- The study demonstrates that the conservation benefits emerged specifically after the implementation of PESA with ST quotas.
- The presence of Panchayati Raj Institutions (PRIs) without mandated ST representation did not show conservation effects.
- The causal link between ST empowerment and forest conservation is highlighted, indicating that STs had economic incentives to protect trees vital for their livelihoods.
- ST communities, empowered through PESA, opposed commercial timber and mining activities, major drivers of deforestation.
- The mechanism termed "forest stewardship" emerged, where STs pursued economic interests aligned with forest conservation.
- Qualitative and quantitative evidence also shows increased resistance to mining activities in areas with PESA-mandated representation for STs.
- Prior to PESA, areas near mines experienced higher deforestation rates, which reduced after PESA implementation.
- Introduction of PESA also coincided with increased conflict around mining, suggesting heightened community engagement and resistance.

#### **On democratic decentralisation**

- Comparison between PESA (Panchayat Extension to Scheduled Areas) and FRA (Forest Rights Act) shows that PESA had significant conservation impacts, while FRA did not contribute additional conservation benefits beyond PESA.
- PESA mandated representation for Scheduled Tribes (ST) in local governance, leading to improved forest conservation outcomes.
- The study distinguishes between administrative decentralisation, focused on efficient execution, and democratic decentralisation, emphasizing representative and accountable local governance.
- Democratic decentralisation grants local actors autonomy and discretionary power over resource management, crucial for making impactful decisions affecting community livelihoods and conservation.
- Mandated political representation for marginalized communities enhances conservation outcomes.
- A single umbrella institution empowering marginalized voices is proposed as effective for balancing development and conservation goals.
- Consolidating power into one institution fosters more substantive and meaningful democratic authority.
- Forest-dwelling Scheduled Tribe (ST) communities in India, among the most marginalized, benefit from policies aligning conservation with economic development.
- The study's findings support policymakers in protecting rights and ensuring welfare of vulnerable populations.

## **4. Constitutional/Non-Constitutional/Statutory Bodies:**

### **4.1 NATIONAL Testing Agency**

- NTA an **autonomous organization** under the **Department of Higher Education, Ministry of Education of India**.
- **Function:** NTA conducts entrance examinations for admissions and fellowships in various higher educational institutions across India.
- **Establishment: Established in November 2017** by the Union Cabinet of Ministers, it aims to streamline and improve the entrance exam system in the country.
- **Examinations Conducted:** NTA conducts a wide range of entrance exams, including:
  - JEE Main (engineering)
  - NEET (medical)
  - UGC NET (lecturer & assistant professor)
  - IGNOU Entrance Exams
  - Common University Entrance Test (CUET)
- **Objectives:** To conduct examinations in a transparent, efficient, and international standards-based manner [NTA].
- To minimize errors and ensure fairness in the exam process.
- To leverage technology for smoother exam administration and delivery.
- **Benefits:** Streamlined exam process with a single agency conducting various exams.
  - Standardized exam format for consistency and fairness.
  - Improved online application and exam registration system.
  - Increased transparency and reduced chances of errors.

#### **4.2 National Human Rights Commission of India (NHRC):**

- The National Human Rights Commission (NHRC) is a statutory body established in India under the Protection of Human Rights Act, 1993. It plays a vital role in promoting and protecting human rights enshrined in the Indian Constitution and international covenants.
- **Establishment:** October 12, 1993
- **Chairperson:** Justice Arun Kumar Mishra (Former Supreme Court Judge)
- **Headquarters:** New Delhi

#### **Functions of NHRC:**

- Investigate complaints of human rights violations.
- Review constitutional or legal safeguards for human rights protection.
- Recommend measures for effective implementation of human rights treaties and conventions.
- Visit judicial, police establishments, or other custody places.
- Review factors inhibiting the enjoyment of human rights.
- Recommend new laws or amendments to existing laws to the government or Parliament.
- Spread awareness about human rights through various means.

#### **Key Roles and Activities:**

- Addressing issues like custodial violence, encounter killings, and discrimination.
- Conducting public hearings and inquiries into major human rights violations.
- Awarding and organizing competitions to recognize efforts in human rights promotion.

#### **4.3 Election Commission of India:**

- It supervises, directs, and controls elections for Parliament, State Legislatures, and offices of President and Vice-President.

**Evolution and Composition:**

- Originally, the ECI consisted only of a Chief Election Commissioner.
- Additional Commissioners were first appointed temporarily in October 1989.
- The multi-member Commission was established permanently in October 1993, comprising a Chief Election Commissioner and two Election Commissioners.

**Appointment and Tenure:**

- Commissioners are appointed by the President.
- They serve a tenure of six years or until age 65, enjoying status and perks equivalent to Supreme Court judges.
- Removal follows procedures similar to those for Supreme Court judges.

**Decision-Making and Operations:**

- Decision-making within the Commission is by majority vote.
- State-level operations are overseen by the Chief Electoral Officer, appointed from a panel proposed by the state government.

**Roles at Various Levels:**

- District Election Officers, Electoral Registration Officers, and Returning Officers manage election tasks at district and constituency levels.
- They are supported by a team of functionaries during elections, focusing primarily on electoral duties.

**Focus on Fair Elections:**

- The ECI ensures free and fair elections based on Constitutional principles, Electoral Laws, and a robust electoral system.
- It remains committed to upholding democratic values and conducting transparent electoral processes

**4.4 Central Drugs Standard Control Organisation (CDSCO):**

- It is **India's national regulatory body for pharmaceuticals and medical devices**, including diagnostics. Here's a detailed explanation of CDSCO and its role in diagnostic approvals:
- **Apex Regulatory Body:** CDSCO is the top authority in India responsible for the regulation and approval of pharmaceuticals, medical devices, and diagnostics.
- **Ministry:** It functions under **the Ministry of Health and Family Welfare**, Government of India.
- **Objective:** Ensuring the safety, efficacy, and quality of drugs and medical devices available in the Indian market.

## International Relations

### 1. India and Its Neighbours:

#### 1.1 India and Bangladesh Relations:

##### What is holding up the Teesta treaty?

- During Sheikh Hasina's recent visit to India, PM Narendra Modi mentioned that a technical team will visit Bangladesh to discuss the Teesta river's conservation and management.
- This remark reignited speculation about the long-pending Teesta water sharing treaty between India and Bangladesh.

##### What is India's stand?

- Foreign Secretary Vinay Kwatra clarified that the discussion between the two leaders focused on water flow management within the Teesta, not water sharing.
- West Bengal Chief Minister Mamata Banerjee objected to the Centre's stance, writing to PM Modi on June 24 to insist that no discussions on Teesta water sharing with Bangladesh should proceed without the State's involvement.

##### Why is Bengal upset?

- Mamata Banerjee warned that sharing Teesta's water with Bangladesh would severely impact lakhs in north Bengal. She has consistently opposed the Teesta water sharing agreement.
- In July 2019, Banerjee acknowledged Bangladesh's disappointment over the issue and expressed her willingness to share Teesta water if possible.
- In 2017, she suggested sharing waters of other rivers (**Torsa, Manshai, Sankosh, Dhansai**) instead of Teesta.
- 54 rivers flow between India and Bangladesh, making river water sharing a key bilateral issue.
- **India and Bangladesh agreed on sharing Ganga waters in 1996** after Farakka Barrage's construction.
- Teesta water sharing negotiations began in the 2010s.
- A near-agreement in 2011 was derailed when Banerjee walked out, leaving the deal pending.

#### Agartala-Akhaura Rail Link

- **First Train to Bangladesh:** The rail line between Agartala in Tripura and Akhaura in Bangladesh will enable the first train service from the northeastern region of India to Bangladesh.
- **Route Connection:** The railway link will connect Gangasagar in Bangladesh to Nischintapur in India, and then from Nischintapur to Agartala railway station.
- **Funding:**
  - The Ministry for Development of North Eastern Region (DoNER) will cover the cost of laying the 5.46 km track on the Indian side.



##### What is the proposal?

- In 2011, the Teesta water sharing proposal allocated 42.5% to India and 37.5% to Bangladesh from December to March.
- Teesta is a tributary of the Brahmaputra, originating from Tso Lhamo Lake in north Sikkim at about 5,280 meters elevation.
- It travels 150 km in Sikkim and 123 km in West Bengal before entering Bangladesh at Mekhligunj in Cooch Behar district.
- The river flows another 140 km in Bangladesh and joins the Bay of Bengal.
- Teesta is Bangladesh's fourth largest trans-boundary river, with a floodplain area of 2,750 square kilometers in Bangladesh.
- 83% of Teesta's catchment area is in India, supporting 8.5% of Bangladesh's population and 14% of its crop production.

#### **What are the political considerations**

- The Awami League government in Bangladesh faces opposition questions about the delayed Teesta agreement.
- Dams in Sikkim and the Teesta Barrage Project in West Bengal cause erratic river flow in Bangladesh, leading to floods or water scarcity.
- India's technical team visit to discuss Teesta conservation comes amid China's 2020 proposal for major dredging work on the river.
- Bangladesh has put China's proposal on hold for four years.
- Prime Minister Hasina announced acceptance of India's proposal to develop the Teesta River basin.
- Ms. Banerjee questioned the health of the Teesta after hydropower projects, deforestation, and climate change impacts.
- She noted the lack of concrete restoration steps by India's Ministry of Jal Shakti.
- Environmental activists raise concerns about the ecological impact of hydropower projects.
- In October 2023, a glacial lake outburst caused floods in the Teesta basin, killing hundreds and destroying the Teesta III hydroelectric dam.
- International laws, including The Helsinki Rules of 1966, mandate sharing of transboundary river waters.
- Article 253 of the Indian Constitution allows the government to enter transboundary river water treaties with riparian states.

#### **Why is Bengal talking about Ganga treaty?**

- The Ganga water sharing treaty with Bangladesh is set to be renewed in 2026 after 30 years.
- The Trinamool Congress chairperson highlighted that water sharing has altered the Ganga's morphology.
- Water sharing has affected lakhs of people in West Bengal due to river erosion and displacement.
- Displacement has left many homeless and impacted their livelihood.
- Reduced silt load in the Hooghly River has hindered the nourishment of the Sundarban delta.
- These concerns were conveyed in a letter to the Prime Minister regarding the impact of the Ganga water sharing on West Bengal.

### 1.2 India and Pakistan Relations:

- A five-member Pakistani delegation and World Bank neutral experts toured the Ratle power project in the Chenab Valley.
- The **850-MW run-of-the-river hydroelectric project** is located in **Drabshalla village, Kishtwar**.
- The inspection included 40 team members, including Indian delegates, and was not open to the media.
- Since 2006, Pakistan has raised technical objections to power projects in J&K and sought arbitration from international forums, which India has rejected.
- Pakal Dul project
- The Pakistani delegation is likely to inspect the 1,000 MW Pakal Dul hydroelectric project on the Marusudar river.
- The Marusudar river emerges from the Marwah Valley and joins the Chenab river.
- Pakistan raised objections to the Kishanganga project in Kashmir in 2006.
- Officials are uncertain if the delegation will access the Kishanganga project in Bandipora district.
- The delegation will stay in Jammu and Kashmir until June 28.

## Pak. delegation inspect Ratle power project on Chenab river in J&K

**Peerzada Ashiq**  
SRINAGAR

A five-member Pakistan delegation and neutral experts of the World Bank toured the **Ratle power project, a run-of-the-river hydroelectric power project in the Chenab Valley**, on Tuesday.

The delegation, which is on the second day of its visit to Kishtwar, visited the **850-MW Ratle project on the Chenab river** at Drabshalla village and inspected several units of the project. The inspection by the 40-odd member team, including delegates from India, was kept away from the media gaze.

**Pakistan has been raising technical objections in different forums, including the Permanent Indus Commission, since 2006** regarding power projects in

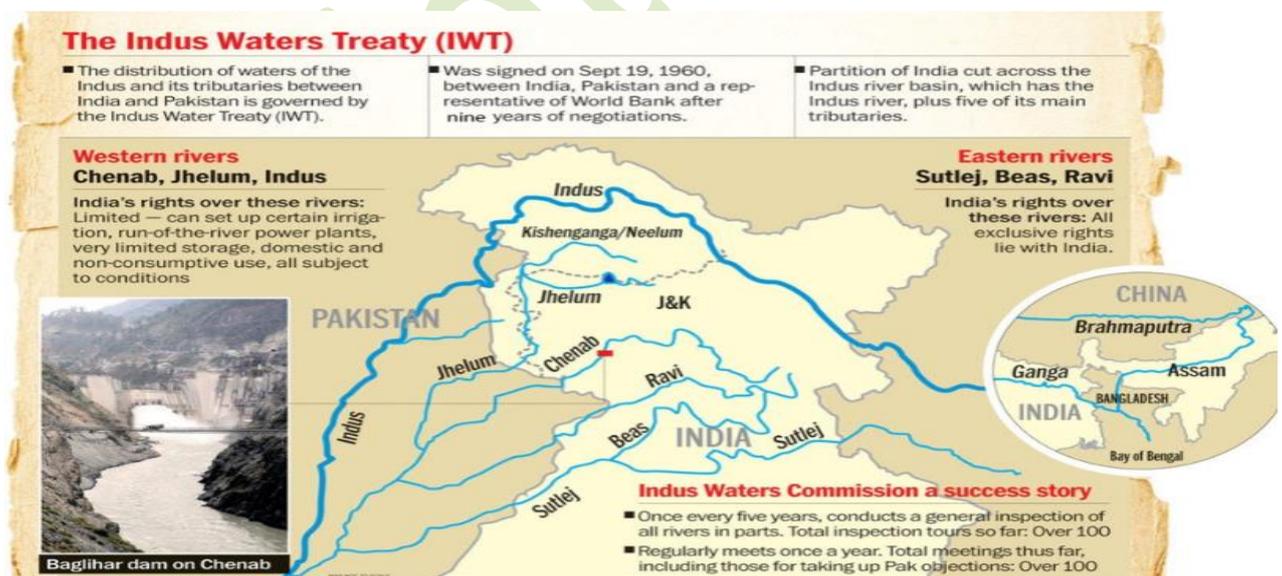
J&K and even demanded an arbitration by different international forums, which was rejected by India.

### Pakal Dul project

Official sources said the Pakistani delegation is also likely to inspect the 1,000-megawatt **Pakal Dul hydroelectric project** being built on the **Marusudar river, which emerges from the Marwah Valley before joining the Chenab river**.

Pakistan also raised its objection over the **Kishanganga project in Kashmir valley in 2006**. Officials are tight-lipped on whether the delegates will be given access to the power project set up over the **Kishanganga river in north Kashmir's Bandipora district**.

The delegation will be in Jammu and Kashmir till June 28.



### 1.3. India and Maldives:

#### From China tilt to a balancing with Beijing and Delhi

- Mohamed Muizzu's India policy has fluctuated from criticism to engagement.
- Since becoming Maldives President in November 2023, he adopted a "pro-Maldives" policy.
- His policy reduces dependence on India, increases ties with China, and diversifies foreign relations.

- Initially, Muizzu impaired Maldives-India relations but is now recalibrating.
- Domestic and external factors shape his foreign policy.
- Muizzu's party led the "India Out" campaign, using anti-India rhetoric for nationalist and religious support.
- He and his party have close ties with China, viewing it as a key project funder.
- He aims to strengthen relations with Japan, Saudi Arabia, Türkiye, UAE, UK, and the US due to Maldives' growing geostrategic importance and desire to reduce Indian ties.

#### **Male's economic difficulties**

- Economic difficulties in Maldives are influencing Muizzu to rethink his strategy.
- Maldives faces increasing debt maturities, low revenues, and declining foreign reserves.
- Debt-to-GDP ratio is 110%, with foreign reserves at \$622 million.
- Annual debt servicing is \$512 million for 2024 and 2025, and around \$1 billion in 2026.
- Heavy dependence on imports, food and fuel inflation, and low production base strain reserves.
- Maldives convinced top import partners, India and China, to pay for imports in local currency.

#### **Ties with China and India's policy**

- China is not meeting Maldives' expectations.
- Muizzu's January 2024 visit resulted in over 20 MoUs and agreements to revive Belt and Road Initiative projects and a free trade agreement.
- Maldives signed a defense pact with China in March 2024 and upgraded relations to a 'China-Maldives Comprehensive Strategic Cooperative Partnership' (2024-2028).
- China invested in some strategic areas but focuses on community development, housing projects, and capacity building.
- Maldives owes China around \$1.5 billion, and debt relief complicates future borrowing prospects.
- China is wary of offering new loans, preferring grants, affecting Muizzu's investment hopes.
- Other countries are slow to form economic partnerships, focusing more on capacity building and maritime security.
- India has maintained high-level engagements with the Maldives despite anti-Indian rhetoric.
- Indian Minister of External Affairs S. Jaishankar has met Maldivian counterparts multiple times.
- India replaced military personnel with civilian experts at Maldives' request.
- India increased development assistance from ₹400 crore to ₹600 crore for 2024 (50% increase).
- India increased export quota of food products to Maldives by 5% and construction items by 25%.

#### **The signal from New Delhi**

- Maldivian Foreign Minister Moosa Zameer visited India in May, marking the first high-level visit of the government.
- During the visit, India extended a \$50 million treasury bill to the Maldives for one year at zero interest through the State Bank of India.

- India invited Maldivian President Mohamed Muizzu to Narendra Modi's swearing-in ceremony, indicating continued engagement regardless of political changes.
- India expects reciprocal sensitivities from the Maldives in bilateral relations, especially with India's assistance and economic support.
- Despite engagements with India, Muizzu maintains relations with China and continues high-level exchanges with both countries.
- Muizzu aims to balance relations between India and China to maximize benefits for the Maldives amidst regional competition.

## **2. International and Regional Organizations:**

### **2.1 G7 and India:**

#### **Where does India stand with respect to G-7?**

##### **About G7:**

- The G7 includes the U.S., Canada, Germany, France, Japan, the U.K., and Italy.
- European Union leadership also attended the summit.
- Various issues were discussed during the summit.
- India has been invited to the G7 outreach 11 times.
- Prime Minister Narendra Modi attended this summit for the fifth time.

##### **What was the G-7 summit hoping to achieve?**

- G7 leaders discussed bridging differences between the "West and the Rest."
- Topics included funding for the Ukraine war, investing in Africa, migration, climate change, and artificial intelligence.
- They agreed to allocate \$50 billion more for Ukraine from frozen Russian sovereign wealth funds.
- A special summit, "Energy for Growth in Africa," focused on clean energy investments.
- They criticized China for coercive trade practices.
- G7 leaders met with leaders from 10 countries, including India, and multilateral organizations as part of the "G-7 Outreach" to discuss Global South concerns.
- The G7 group is trying to improve its image as it is seen as representing the old "western elite."
- Italian Prime Minister Giorgia Meloni's party did well in recent European Parliament elections.
- Other G7 leaders are facing tough election campaigns with low approval ratings.

##### **How important is India to the G-7 process?**

- India has been an important part of the G-7 process for years, gaining attention in the 2000s for steady growth during the global financial collapse.
- India is a key member of the Global South and has hosted the "Voice of Global South" conference since 2023.
- India is also a member of the G-20 troika, along with Brazil and South Africa.
- Prime Minister Modi is a central figure at G-7 outreaches, though India is not a G-7 member.
- Other countries whose leaders attended the outreach included Algeria, Argentina, Brazil, Jordan, Kenya, Mauritania, Tunisia, Türkiye, and the UAE.
- Heads of major international organizations like the African Development Bank, IMF, OECD, UN, and World Bank also attended.

##### **Is it an important platform for India?**

- The G-7 outreach session is significant for India to showcase its achievements and global outlook.
- Italian Prime Minister Giorgia Meloni personally called Prime Minister Modi to ensure his participation, highlighting the event's importance.
- Prime Minister Modi attended the session shortly after his swearing-in, emphasizing the priority given to global engagements.
- During the outreach, Modi emphasized India's recent elections as a victory for democracy and discussed harnessing technology and AI to address global inequality and combat climate change.
- He stressed the importance of addressing concerns of the Global South, particularly regarding unilateral sanctions and security in food, fertilizer, and energy.
- Modi held bilateral meetings with leaders including Rishi Sunak, Emmanuel Macron, Olaf Scholz, Fumio Kishida, and Giorgia Meloni.
- He also met with special invitee Ukraine President Volodymyr Zelenskyy and had a brief interaction with U.S. President Biden.
- A less favorable interaction with Canadian Prime Minister Justin Trudeau was noted, reflecting strained bilateral relations.
- The G-7 outreach allowed Modi to engage with global leaders and set priorities for India's new term in office.

### What is the future of G-7?

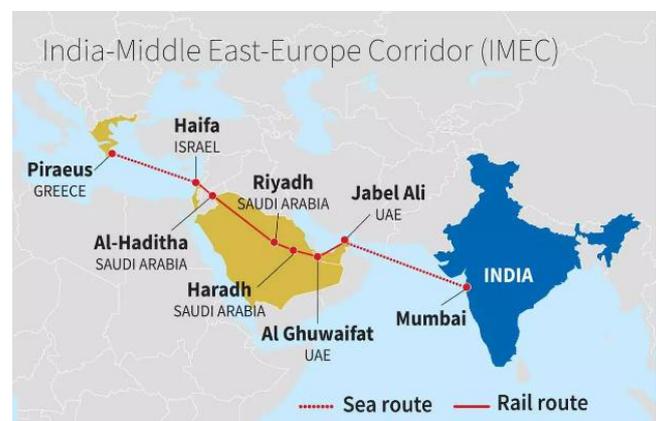
- The G-7 group is criticized for being elitist and non-inclusive, as it excludes major economies like China, India, and Brazil.
- Unlike the G-20, which includes a broader representation of countries, the **G-7 has not expanded its membership** and even reduced it by excluding Russia in 2014.
- The **emergence of BRICS**, which includes Brazil, Russia, India, China, and South Africa, along with other countries and energy majors, is seen as a challenge to the G-7.
- Critics argue that the **G-7 has been ineffective in influencing** significant global events such as **Russia's invasion of Ukraine, Israel's actions in Gaza**, and China's expanding global influence.
- The relevance of the G-7 is increasingly questioned, and there are calls for it to reinvent itself to address current global challenges effectively.
- The **next G-7 summit is scheduled for 2025 in Canada's Alberta region**, amid uncertainties about India's continued participation on its periphery

## 2.2 India-Middle East-Europe Corridor (IMEC)

The India-Middle East-Europe Corridor (IMEC) is a proposed economic corridor aiming to bolster economic development by fostering connectivity and trade integration between Asia, the Persian Gulf region, and Europe.

### Origin and Purpose:

- Announced in September 2023 at the G20 Summit in New Delhi (source: Ministry of External Affairs, Government of India).



- Aims to create a network of transportation links (rail, shipping), communication infrastructure (data cables), and energy pipelines (electricity, hydrogen) to facilitate trade and economic exchange between the participating countries.

**Current Status:**

- The project is still in its initial stages. A Memorandum of Understanding (MoU) outlining the potential geography of the corridor has been signed by India, the United Arab Emirates, Saudi Arabia, Israel, France, Germany, Italy, and the European.
- The initial plan faced delays due to the ongoing Israel-Hamas conflict.

**Potential Benefits:**

- Increased trade and economic cooperation between the participating countries.
- Creation of new jobs and economic opportunities.
- Improved energy security through diversification of energy sources.
- Enhanced regional connectivity and infrastructure development.

**Challenges:**

- Geopolitical tensions in the region.
- Different levels of economic development among participating countries.
- Securing funding and investment for infrastructure projects.

**2.3. The Indo-Pacific Economic Framework (IPEF)** is a recent initiative aimed at strengthening economic ties within the Indo-Pacific region.

- **Launched:** May 23, 2022, by the U.S. President Joe Biden.
- **Founding Members:** Fourteen countries, including Australia, Brunei Darussalam, Fiji, India, Indonesia, Japan, Korea, Malaysia, New Zealand, Philippines, Singapore, Thailand, Vietnam, and the United States
- **Goals:**
  - Advance resilience, sustainability, inclusiveness, economic growth, fairness, and competitiveness
  - Contribute to cooperation, stability, prosperity, development, and peace in the region
- **Structure:** IPEF is built on four pillars:
  - **Trade:** Focuses on facilitating fairer and more open trade practices.
  - **Supply Chains:** Aims to strengthen supply chain resilience in the region.
  - **Clean Economy:** Promotes cooperation on clean energy, decarbonization, and infrastructure development. (An agreement was signed in June 2024)
  - **Fair Economy:** Addresses issues like labor standards, anti-corruption measures, and regulatory practices.
- **Benefits:** IPEF offers potential benefits for member countries, including:

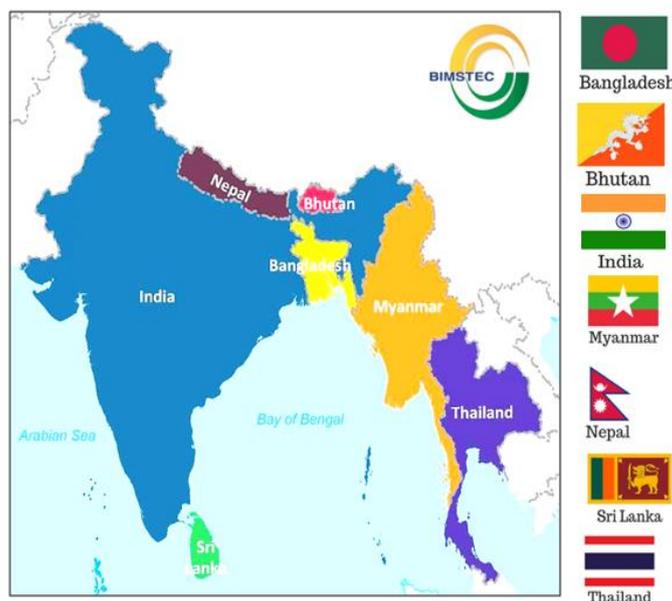
**Economic Framework (IPEF) partners**



- Increased economic activity and investment
- Sustainable and inclusive economic growth
- Benefits for workers and consumers
- **Flexibility:** IPEF is designed to be flexible. Countries can choose to participate in all or some of the pillars based on their interests

**2.4. BIMSTEC: Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation**

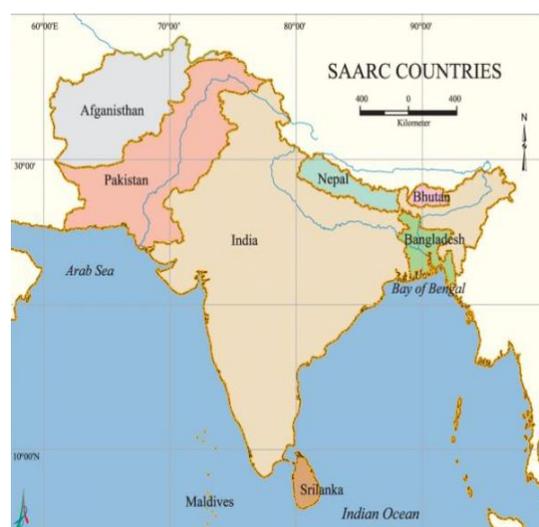
BIMSTEC is an international organization connecting seven South Asian and Southeast Asian countries bordering the Bay of Bengal.



- **Founding:** Established on 6th June 1997, in Dhaka, Bangladesh.
- **Members:** The member countries of BIMSTEC are Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka, and Thailand.
- **Objectives:** BIMSTEC focuses on promoting regional cooperation in various sectors including trade, technology, energy, transport, tourism, fisheries, agriculture, counter-terrorism, environment, culture, and people-to-people contact.
- **Structure:** BIMSTEC summits are held every two years, with a Ministerial Meeting preceding each summit. The organization also has a permanent Secretariat located in Dhaka, Bangladesh.
- **Recent Activities:** The website highlights recent meetings of BIMSTEC Expert Groups on Cultural Cooperation and Fisheries and Livestock, finalizing plans of action in these areas.

**2.5. SAARC: South Asian Association for Regional Cooperation**

- SAARC is a regional intergovernmental organization and geopolitical union of states in South Asia.
- **Member States:** There are eight member states: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.
- **Founding:** Established on December 8, 1985, in Dhaka, Bangladesh.
- **Headquarters:** Kathmandu, Nepal.
- **Goals:**
  - Promote the welfare of the peoples of South Asia and improve their quality of life.
  - Accelerate economic growth, social progress and cultural development in the region.
  - Provide all individuals the opportunity to live in dignity and to realize their full potentials.



## 2.6. The United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA):

- It is a dedicated UN agency that provides essential humanitarian and development assistance to Palestine refugees.

### Background:

- Established in 1949 by the UN General Assembly Resolution 302 (IV) to provide "direct relief and works programmes" to Palestine refugees following the 1948 Arab-Israeli conflict.
- Initially, its mandate was intended to be temporary, but it has been repeatedly renewed by the UN General Assembly,

### Who are UNRWA Palestine Refugees?

- UNRWA defines Palestine refugees as "persons who fled their homes in Palestine in 1948, their descendants and their descendants' children born after 1949."
- This definition also includes persons who lost their homes and means of livelihood as a result of the 1967 conflict.
- As of June 2023, UNRWA registers over 5.9 million Palestine refugees across its five fields of operation: Gaza, West Bank (including East Jerusalem), Jordan, Lebanon, and Syria.

### Core Services Provided by UNRWA:

- **Education:** UNRWA operates over 700 schools providing primary and secondary education to approximately 530,000 Palestine refugee children.
- **Health:** UNRWA provides primary healthcare services through a network of over 140 clinics for Palestine refugees.
- **Relief and Social Services:** UNRWA offers food assistance, cash-based interventions, and other forms of social support to vulnerable Palestine refugees.
- **Microfinance:** UNRWA's microfinance program helps empower Palestine refugees by providing them with access to small loans to start or expand businesses.
- **Camp Improvement:** UNRWA works to improve living conditions in Palestine refugee camps through infrastructure projects and sanitation initiatives.

### Challenges and Funding:

- UNRWA faces chronic funding shortages, making it difficult to deliver its services effectively.
- The ongoing Israeli-Palestinian conflict and regional instability present significant challenges to UNRWA's operations

## 3. US Announce New tariffs on Chinese Imports (Fear of Economic Decoupling):

- **The high cost of a global economic decoupling:**
- U.S. President Joe Biden announced new tariffs on Chinese imports in May, raising fears of economic decoupling.
- European policymakers are considering joining the U.S. to counter China's coercive economic practices.
- The long-term costs of this move are uncertain.
- Trade risk calculations with China are increasingly tied to national security concerns.
- Washington's new rhetoric suggests economic interdependence doesn't equally benefit China and the U.S.
- The Biden administration's tariff decision is driven by political, not economic, considerations.

### The story in the tariffs

- New tariffs on Chinese electric vehicles (EVs) aim to support domestic EV manufacturing and the United Auto Workers (UAW).
- The U.S. imports few EVs from China, but the tariff increase reflects fear of Chinese competition in the auto industry.
- Tariffs on medical devices aim to reduce dependence on China, which has been a primary supplier.
- Many American healthcare businesses have operations in China, increasing investments due to growing demand.
- Mistrust between China and the U.S. affects the private sector and may raise healthcare costs for patients in both countries.
- Protectionist policies result in higher prices for consumers.

**The long-term effects**

- Continuing Trump-era tariffs on China may not align with current economic needs and geopolitical realities.
- Tit-for-tat tariff cycles worsen protectionism risks, encouraging other countries to impose tariffs.
- Import restrictions on Chinese clean energy products could delay global green transition and renewable expansion.
- China's slowing growth and rising household debts could impact earnings of Western multinationals dependent on its consumer market.
- Resource-rich countries like Australia and Brazil face reduced exports and downward pressures on iron-ore prices due to a slowing Chinese economy.
- Diversifying exports away from China is challenging for economies heavily reliant on Chinese markets.
- The EU's strategy to secure trade in critical raw minerals could lead to China tightening its grip on the supply chain.
- China-led mineral-rich groupings may influence terms of global green trade in the future.
- Southeast Asia is experiencing the impacts of protectionism and great power competition.
- The region benefits from production and investment shifting from China, but it remains highly dependent on Beijing for technology and investment.
- Southeast Asia's ability to replace China as a major supplier of components and manufactured goods could be hindered by stricter rules of origin imposed by Washington.
- India anticipates benefiting from global decoupling dynamics, particularly due to its burgeoning consumer market.
- However, India's manufacturing sector is still catching up despite government initiatives.
- India faces tough competition in low-end manufacturing from its South and Southeast Asian neighbours.
- India's deep economic ties with China also pose challenges to its transition and market share gains.

**A potential crisis**

- The cycle of escalation in trade tensions appears to have no end in sight.
- Global investors are deeply affected by the psychological impacts of decoupling.
- The strategy worsens by deliberately distancing from the World Trade Organization (WTO).
- Washington's blocking of judges to the WTO Appellate Body has paralyzed the adjudicatory process.

- The intensifying geopolitical rivalry and fragmentation of the global economy jeopardize the liberal international order.
- This situation is unlikely to benefit the U.S., China, or the rest of the world.

#### 4. India and USA Relations (Issues):

##### Settling trade disputes through 'litigotiation'

'Litigotiation' is a blend of "litigation" and "negotiation," referring to a strategic process where legal disputes are managed through a combination of courtroom litigation and settlement negotiations.

- International diplomacy often involves navigating sensitive issues carefully.
- Countries often prioritize the bigger picture of bilateral relations over major differences in trade and commerce.
- India and the U.S. have successfully resolved seven long-standing trade disputes at the World Trade Organization (WTO).
- The final dispute on poultry products was settled in late March this year.
- Both countries notified the WTO of their mutually agreed solution and withdrew their pending WTO cases related to the poultry dispute.
- This settlement follows an agreement reached between India and the U.S. last September.
- Prime Minister Narendra Modi's visit to the U.S. played a significant role in resolving these disputes.
- The poultry dispute is noteworthy due to its complexity and the efforts taken to resolve it.

##### The dispute

- The dispute over poultry products between India and the U.S. was filed more than a decade ago.
- It originated from India's import restrictions on U.S. poultry products due to concerns about avian influenza.
- This was the oldest among seven trade disputes between the two countries.
- The U.S. challenged India's measures at the WTO, arguing they were not based on scientific justifications as required by WTO rules.
- The dispute focused on sanitary and phytosanitary (SPS) measures related to animal and human health.
- Both the WTO panel and Appellate Body ruled in favor of the U.S., giving India a year to revise its measures.
- Despite India's revisions, the U.S. alleged that India did not fully comply and filed a retaliation claim at the WTO.
- In response, India filed its own dispute to demonstrate compliance with WTO rules.
- Over the past decade, both countries kept these disputes in abeyance as they sought to settle the matter through negotiations.
- The disputes were resolved in March 2024, with both countries reaching a mutually agreed solution and withdrawing their WTO cases.
- India has avoided a \$450 million annual claim by settling its poultry dispute with the U.S., part of a broader resolution of pending disputes.

- As part of the settlement, India agreed to lower tariffs on certain products like cranberries, blueberries, frozen turkey, and premium frozen duck meat destined for luxury hotels.
- This trade-off is considered fair, balancing the interests of both countries and resolving a long-standing dispute.
- While not the most economically significant, the resolution of this dispute is a significant diplomatic breakthrough between India and the U.S.
- Negotiators from both sides faced challenges in resolving this dispute, which was not settled alongside six other pending disputes by mid-2023.
- The resolution of these seven disputes demonstrates the effectiveness of diplomatic channels in resolving sensitive trade matters.
- This settlement, along with India's participation in the U.S.-led Indo-Pacific Economic Framework, strengthens the India-U.S. partnership.

#### Takeaways from the outcome

- Settling disputes bilaterally at the WTO is not uncommon; for instance, the U.S. and the EU resolved their Boeing-Airbus subsidies dispute through diplomatic means after WTO challenges.
- WTO rules encourage countries to resolve disputes amicably, with litigation as a last resort.
- The significance of the India-U.S. settlement lies in the number of disputes settled (seven) and the complexity of their subject matter, including subsidies, countervailing duties, and SPS measures.
- With the WTO Appellate Body non-functional since 2019, resolving long-standing trade conflicts requires creative solutions and a greater emphasis on bilateral diplomatic channels.
- This settlement demonstrates that despite multilateral body paralysis, large trading partners can resolve differences through focused bilateral negotiations.
- This approach is beneficial for fostering a more stable international trade environment where trade disputes do not escalate.

#### Recent Trends in India-US relations (Closeness and Differences):

- India-U.S. relationship has many positive aspects.
- 25th anniversary of improved ties after Prime Minister Vajpayee's 1998 speech.
- Called India and the U.S. "natural allies."
- Built strategic ties in areas like climate change, green energy, technology, and outer space.
- Significant growth in strategic trust over the past decade.
- Completed key agreements and increased military cooperation.
- **Reduced past issues:** de-hyphenation from Pakistan, silence on Jammu-Kashmir.
- Increased engagement with the Quad and alignment on Indo-Pacific strategy.
- Shared concerns over China's actions have strengthened the relationship.
- Bilateral engagement between India and the U.S. is strong due to ongoing official conversations.
- "Not-so-good" areas include differences in multilateral cooperation on global conflicts.
- **Major difference:** U.S. and India's views on Russia's war in Ukraine.
- U.S. frames the war in terms of international law and humanitarian principles.
- India considers historical context and impacts on the Global South, like food and energy security.
- **Compromises made:** U.S. allows India's oil purchases from Russia, no sanctions talk.
- India delayed the annual India-Russia summit for two years.
- Future India-Russia engagements include potential meetings at the SCO Summit in July and BRICS Summit in October.

- U.S. moral stance affected by its support of Israel's actions in Gaza, despite international calls to stop.

## 5. News In short (PCS Special)

### 5.1. Successful Multiple-warhead Missile Test by N.Korea:

- North Korea successfully tested its multiple-warhead missile capability, state media reported.
- Dozens of trash-laden balloons sent by North Korea landed in South Korea.
- Relations between North and South Korea are at a low point, with increased weapons testing by Pyongyang.
- North Korea claimed to have conducted a successful test of individual mobile warheads.
- The test involved guiding the warheads to three coordinate targets.
- The aim was to secure MIRV (multiple independently targetable reentry vehicle) capability.
- South Korea's military initially identified the test as a hypersonic missile launch, which ended in a mid-air explosion.
- Increased smoke from the missile suggested possible combustion issues, according to a South Korean military official.

### 5.2 Brahmos Deal between India and Singapore "A Game Changer":

- The Philippines envoy, Josel F. Ignacio, described the BrahMos cruise missiles recently acquired by his country as a "game changer."
- He emphasized that India has become a crucial partner in the modernization efforts of the Philippines' armed forces.
- Mr. Ignacio highlighted a "renaissance" in the relationship between India and the Philippines, indicating a renewed interest and cooperation between the two nations.
- The BrahMos deal is considered a significant milestone for both countries, marking India's first overseas export of these missiles.
- The envoy suggested that the BrahMos deal expands India's international influence and presence.
- This agreement marked the **Philippines as the first export customer for the BrahMos missile** developed jointly by India and Russia.
- The first batch of these missiles was delivered in April 2022.
- Defence cooperation between India and the Philippines has seen significant growth, particularly in areas of mutual interest.
- The envoy highlighted that defence cooperation between the two countries is supported by a Memorandum of Understanding (MoU) signed in 2006.
- This cooperation was further strengthened in 2017 with another MoU focusing on industry and logistics cooperation between their Defence Ministries.

### 5.3. Armenia latest to Recognized Palestine:

- Armenia announced its recognition of the State of Palestine.
- This decision comes amid ongoing conflict in Gaza involving Israel and Hamas.
- Armenia stated its recognition was motivated by opposition to violence against civilian populations.
- In late May, Spain, Ireland, and Norway officially recognized the State of Palestine.

- These countries viewed recognition as a step towards promoting peace in the region

#### **5.4. Soon CECA negotiations between India and Australia:**

- Australia aims to conclude CECA negotiations with India in the next six-seven months before its federal elections.
- Fast-tracking talks in areas like agriculture, digital trade, and government procurement may be challenging for India's new BJP-led government.
- Negotiations were progressing well before pausing due to Indian elections.
- Australia wants to maintain momentum before its mid-2025 elections to avoid controversial decisions.
- The **India-Australia ECTA came into force on December 29, 2022.**

#### **New areas**

- CECA is intended to be a deeper and more comprehensive agreement building on the ECTA.
- CECA covers goods, services, digital trade, government procurement, and ROO-Product Specific Rules Schedule.
- New areas of interest include competition policy, MSME, gender, innovation, agri-tech, critical minerals, and sports.
- Australia seeks market access for premium items not competing with domestic Indian products.
- Negotiations may be tougher due to a new Agriculture Minister and coalition partners' interests.
- Sensitive areas like government procurement and digital trade may be challenging for India to open up.

#### **5.5 China has 500 nuclear warheads, says SIPRI:**

- India's nuclear arsenal reached 172 warheads in 2024, surpassing Pakistan's 170 warheads.
- China has 500 warheads, with some on high operational alert.
- SIPRI noted India's enhancement of its nuclear triad, focusing on undersea capabilities and long-range missile development.
- India's third SSBN was launched in November 2021, with a fourth under construction, expected to launch in 2024.
- New submarines are significantly larger, about 20 meters longer than earlier ones.
- The second SSBN, Arighat, launched in November 2017, underwent sea trials in 2021-22, and is expected to be commissioned in 2024.

#### **5.6. Summit on Peace, Switzerland:**

- The "Summit on Peace" took place over two days in **Burgenstock**.
- Switzerland successfully brought together over 90 countries, with at least 56 represented by their leaders.
- The final joint communiqué was signed by about 82 countries and organizations, but India was among a few exceptions.

- The document **strongly called for an end to Russia's war against Ukraine** and emphasized sovereignty, territorial integrity, and adherence to international law.

## **6. French Territory New Caledonia:**

- On June 3, the Socialist Kanak National Liberation Front (FLNKS) of New Caledonia made a call.
- They urged French President Emmanuel Macron to abandon the plan to modify the electoral reform.

### **What happened?**

- Widespread protests and riots occurred in New Caledonia due to a French parliamentary decision.
- The amendment to the voters' list includes citizens born or living in the territory for at least 10 years.
- The Kanaks, the indigenous community, opposed this change as it weakens their electoral power.
- Kanaks make up 43% of the population, while European loyalists, Wallisians, and Futunians make up 37%.
- The amendment could give majority power to the loyalists, affecting the Kanaks' decolonization efforts.
- This change would alter the political environment in favor of French settlers.

### **What is history of the archipelago?**

- New Caledonia was originally inhabited by Kanaks.
- France took control in 1853, governing Kanaks with restrictions.
- After World War II, colonial laws ended, and Kanaks gained French citizenship.
- In the 1960s, increased French migration made Kanaks a minority.
- Kanaks became angry due to worsened socio-economic conditions and lack of political involvement.
- The FLNKS independence movement emerged in 1984.
- Tensions rose between Kanaks and loyalists until 1988, leading to the Matignon agreements and 1998 Nouméa Accord.
- These agreements transferred powers to local authorities and included three referendums on independence.
- Referendums in 2018 and 2020 favored remaining with France.
- Kanaks requested to delay the 2021 referendum due to COVID-19, but France refused.
- A low turnout in 2021 resulted in a 96% vote against independence, angering Kanaks.
- Kanaks then opposed further talks with the French government.

### **Why do Kanaks want independence?**

- After World War II, French citizenship was granted and colonies became overseas territories.
- New Caledonia saw increased migration, termed "settler colonialism" by Kanaks.
- Social inequalities grew, with indigenous Kanaks often exploited in sectors like steel and nickel mining.

- Non-indigenous people benefited economically and politically, while Kanaks remained as labor.
- Despite promises by France to reduce inequalities and improve Kanaks' political participation, a 2019 census showed a 32.5% poverty rate among Kanaks, compared to 9% for non-Kanaks.
- Economic progress has stalled, and the French Parliament's vote to change electoral composition is viewed as an attempt to prevent Kanak independence.

#### What is the French endgame?

- Achieving tactical peace is crucial to avoid further violence and protect French citizens overseas, which could damage Macron's party's reputation.
- Integration is a key part of France's Indo-Pacific strategy.
- France considers itself an Indo-Pacific power due to its overseas territories, which give it the second largest Exclusive Economic Zone (EEZ).
- The presence of French citizens in these territories reinforces French governance.
- The islands are strategically important for France in the Indo-Pacific, particularly in relation to China.
- However, integrating these territories is challenging as Kanaks demand independence, posing a difficulty for France's strategic goals in the region.

**दिल्ली से भी बेहतर**

# Patriotic IAS

**IAS/PCSwali Pathshala**

**Now admission open for Offline Classroom Programme.**  
Students can attend free demo classes before taking the admission for their satisfaction.

**FOUNDATION COURSE (OFFLINE/LIVE)**

1. Holistic coverage of all the syllabus of the IAS Prelims & Mains, UP-PCS Prelims & mains. Also Comprehensive Material for each topics.
2. Offline class (In addition Live Class & Recorded Videos of the same class).
3. IAS Prelims Test Series (25 Tests) & IAS Mains Test Series. (20 Tests)
4. UP-PCS Prelims Test Series. (20 Tests) & UP-PCS Mains Test Series. (20 Tests)
5. Mentoring Sessions & Interview Guidance.



**We are committed to providing the best preparation environment for the IAS/PCS at an affordable Fee (even better than those provided in the top institute of Delhi but at much lesser than their Fee)**

**Address : 3rd Floor, KV Tower, Padleyganj Road, Gorakhpur**  
**Email Id : info@patrioticias.in**  
**Contact Number : 9971932488**  
**Website : patrioticias.in**

## Economy

### 1. Capital Market:

#### 1.1 Framework for domestic Mutual Funds (MFs) to invest in overseas Unit Trusts (UTs):

- SEBI floated a consultation paper on May 17.
- The paper proposes a framework for domestic Mutual Funds (MFs) to invest in overseas Unit Trusts (UTs).
- These UTs must invest a portion of their assets in Indian securities.

#### What is the framework's purpose?

- SEBI acknowledges India's strong economic growth prospects.
- International indices, ETFs, MFs, and UTs are increasingly investing in Indian securities.
- MSCI Emerging Markets Index has an 18.08% exposure to Indian securities.
- Indian mutual funds diversify through 'feeder funds' investing in overseas instruments.
- Domestic MFs face ambiguity about investing in instruments with Indian exposures.
- SEBI considers allowing investments with "limited exposure to Indian securities."
- Safeguards will ensure that Indian instruments remain true to their label.
- Significant exposure to Indian securities would defeat the purpose of overseas investments.

#### What proposals has SEBI tabled?

- SEBI has capped the upper limit for investments by overseas instruments in India at 20% of their net assets.
- This cap is deemed appropriate to balance facilitating investments in overseas funds with Indian exposure and preventing excessive exposure.
- Indian mutual funds must ensure that contributions from all investors of the overseas MF/UT are pooled into a single investment vehicle.
- It is mandatory for Indian mutual funds to ensure proportional gains for all investors of the overseas instrument, without any preference.
- Investments in Indian securities by overseas instruments should be managed autonomously by their managers, free from investor or undisclosed party influence.
- SEBI requires periodic public disclosures of portfolios by overseas MF/UTs to ensure transparency.
- Advisory agreements between Indian mutual funds and overseas MF/UTs are prohibited to prevent conflicts of interest and undue advantage.

#### What happens when overseas instruments breach the limit?

- If an overseas instrument exceeds the 20% limit in Indian securities, the Indian mutual fund investing in it enters a six-month observance period.
- During this period, the overseas fund must rebalance its portfolio to comply with the 20% cap on Indian securities exposure.
- Additional investments by the Indian mutual fund in the overseas instrument are allowed only after the exposure is brought below the limit.
- Failure to rebalance within the observance period requires the Indian mutual fund to liquidate its investment in the overseas instrument within the next six months.

#### Are there other considerations?

- RBI Governor Shaktikanta Das has confirmed that there are no plans to increase the upper limit for overseas investments by mutual funds.
- Suresh Soni, CEO of Baroda BNP Paribas Mutual Fund, stated that the current regulatory changes will not immediately affect the industry because the overall limit for overseas investments is already fully utilized.
- Soni emphasized that overseas investments offer diversification opportunities for Indian investors.

## 1.2. Infrastructure Bonds

- Infrastructure bonds are a type of debt security issued by governments, private companies, or state-owned enterprises to raise capital for financing the development, construction, and improvement of infrastructure projects.

### Types of Infrastructure Bonds:

- **Municipal Bonds:** Issued by local governments (cities, states) to finance public infrastructure projects like roads, bridges, public transportation systems, and water treatment facilities.
- **Corporate Bonds:** Issued by private companies involved in infrastructure development, such as toll road operators, power generation companies, and airport management firms.
- **Project Bonds:** Issued by a special purpose vehicle (SPV) created to finance a specific infrastructure project. The SPV repays the bondholders using revenue generated by the project, such as tolls or user fees.

## 2. Taxation:

### 2.1 A fresh start: On the Goods and Services Tax Council meet

- Consensus was reached on several issues to ease taxpayers' burdens, reduce litigation, and provide tax relief.
- Hostel accommodation up to ₹20,000 a month and railway services for passengers are **exempt from GST**.
- A uniform 12% GST rate was approved for packing cartons, milk cans, and solar cookers.
- Several industry-specific measures, some with retrospective effect, were implemented.
- Interest and penalty on tax dues for the first three years of GST are waived if paid by March 2025.
- Lowered pre-deposits for filing appeals, including those with upcoming GST Appellate Tribunals.
- Approved a new form for correcting errors in previous returns.
- Ended the anti-profiteering clause requiring firms to pass tax cut gains to customers.
- Mandated biometric-based Aadhaar authentication for all GST registrations in phases.
- Aims to simplify the registration process and curb fraud from fake invoicing.
- Intent to simplify and de-clutter the seven-year-old indirect tax regime is clear.
- Plans to review the 2021 plan to rationalize the multiple-rate GST structure in the next meeting.
- The GST Council aims to expedite GST rate reforms and consider including petroleum and electricity in the GST net.

## 2.2. Types of Taxes:

### a) Personal Income Tax in India:

- Personal income tax (PIT) is a direct tax levied on the income earned by individuals in a financial year under the Income Tax Act, 1961.
- Residents of India are taxed on their worldwide income, while non-residents are taxed only on income earned in India.

#### Tax Regimes in India:

Old Tax Regime	New tax Regime
Income Slab (in Lakhs) Tax Rate (%)	Income Slab (in Lakhs) Tax Rate (%)
Up to 2.5 = Nil	Up to 5 = 5%
2.5 to 5 = 5%	5 to 7.5 = 10%
5 to 10 = 20%	7.5 to 10 = 15%
Above 10 = 30%	10 to 12.5 = 20%
	12.5 to 15 = 25%
	Above 15 = 30%

#### Additional Charges:

- **Surcharge:** Applicable based on the income slab, ranging from Nil to 39%.
- **Health and Education Cess:** A fixed 4% on the total tax liability (including surcharge).

#### Choice of Regime:

- Individuals have the option to choose between the old and new tax regimes based on their preference and tax planning needs.
- The new tax regime is the default option and provides different tax slabs compared to the old regime.

#### Tax Assessment Year 2024-25:

- The tax slabs and rates mentioned are applicable for the assessment year 2024-25.
- Taxpayers need to calculate their tax liability based on their taxable income and the chosen tax regime.

### b) Securities Transaction Tax (STT) in India

- **Definition and Purpose:**
  - STT stands for Securities Transaction Tax, a direct tax levied by the Indian government on the purchase and sale of taxable securities on recognized stock exchanges in India.
  - It is governed by the Securities Transaction Tax Act, 2004.
- **Levying Authority:**
  - Central Board of Direct Taxes (CBDT) under the Ministry of Finance, Government of India is responsible for administering and collecting STT.
- **Collection Process:**

- STT is collected by stock exchanges on behalf of the government at the time of the transaction.
- **Taxable Securities:**
  - Equity shares (delivery and intraday)
  - Equity-oriented mutual funds
  - Derivative contracts (options and futures)

### c) Corporate Income Tax (CIT) Explained:

**Corporate income tax (CIT)** is a levy imposed by the government on the profits earned by corporations. It's a significant source of revenue for governments worldwide.

#### What is Taxed?

- CIT applies to the net income or profit a corporation makes in a specific period. This includes income from various sources, such as:
  - Sales of goods and services
  - Interest income
  - Dividends
  - Royalties

#### Who Pays CIT?

- Both domestic and foreign companies operating in India are liable to pay CIT.
  - **Domestic companies:** These are registered under the Companies Act of India and have their management and control entirely based in India.
  - **Foreign companies:** These are companies not registered under the Companies Act and have their base and management outside India. However, they are liable to pay CIT on the income they earn within India.

#### Tax Rates:

- The CIT rate in India can vary depending on the company's type and size. Here's a glimpse based on official sources (refer to official sources for the latest rates):
  - **Domestic companies:**
    - Companies with a net tax income lower than ₹100 crore (approx. \$1.3 million): 22% (plus surcharge and cess)
    - Companies with a net tax income equal to or higher than ₹100 crore: 35% (plus surcharge and cess) (subject to some exceptions)
  - **Foreign companies:** 40% of the average taxable income.

## 3. Banking System:

### 3.1 Monetary Policy Committee (MPC):

- Established under Section 45ZB of the amended RBI Act, 1934.
- Constituted by the Central Government via notification in the Official Gazette.

#### Current MPC Members (notified on October 5, 2020):

1. Governor of the Reserve Bank of India – Chairperson, ex officio - Shaktikanta Das
2. Deputy Governor of the Bank in charge of monetary policy – Michael Debrata Patra

3. Executive Director of the Bank in charge of monetary policy – Rajiv Ranjan
4. Ashima Goyal is a member of Prime Minister Narendra Modi's economic advisory council. Ms Goyal is a professor at the Indira Gandhi Institute of Development Research in Mumbai and was a visiting fellow at Yale University.
5. Shashanka Bhide is a senior advisor at the National Council for Applied Economic Research, a New Delhi-based think-tank, whose work has involved research into agriculture, poverty analysis and macroeconomics.
6. Jayanth Varma is a finance and accounting professor at the Indian Institute of Management, Ahmedabad. He was formerly on the board of the country's capital markets' regulator.

<b>First MPC</b>	Constituted on September 29, 2016.
<b>Terms for members 4-6</b>	Hold office for four years or until further orders, whichever is earlier
<b>Functions</b>	Determines the policy repo rate to achieve the inflation target
<b>Meetings</b>	Required to meet at least four times a year and Quorum for meetings is four members
<b>Voting</b>	<ul style="list-style-type: none"> <li>• Each member has one vote.</li> <li>• In case of a tie, the Governor has a second or casting vote.</li> <li>• Each member must write a statement explaining their vote for or against the proposed resolution</li> </ul>

### 3.2 Various Instruments of Monetary Policy:

<b>Repo Rate:</b>	The interest rate at which the Reserve Bank provides overnight liquidity to banks against the collateral of government and other approved securities under the LAF.
<b>Reverse Repo Rate:</b>	The interest rate at which the Reserve Bank absorbs liquidity from banks, on an overnight basis, against the collateral of eligible government securities under the LAF.
<b>Liquidity Adjustment Facility (LAF):</b>	Consists of overnight and term repo auctions. Aims to develop the interbank term money market to set market-based benchmarks for pricing of loans and deposits.
<b>Marginal Standing Facility (MSF):</b>	A facility for scheduled commercial banks to borrow additional overnight money from the Reserve Bank by dipping into their SLR portfolio up to a limit at a penal interest rate.
<b>Corridor:</b>	The MSF rate and reverse repo rate determine the corridor for the daily movement in the weighted average call money rate.
<b>Bank Rate:</b>	The rate at which the RBI is ready to buy or rediscount bills of exchange or other commercial papers, aligned to the MSF rate and changes with the policy repo rate.
<b>Cash Reserve Ratio (CRR):</b>	The average daily balance a bank must maintain with the Reserve Bank as a percentage of its Net Demand and Time Liabilities (NDTL).
<b>Statutory Liquidity Ratio (SLR):</b>	The percentage of NDTL that a bank must maintain in safe and liquid assets like government securities, cash, and gold.
<b>Open Market Operations (OMOs):</b>	Outright purchase and sale of government securities for injection and absorption of durable liquidity.

#### 4. Agriculture:

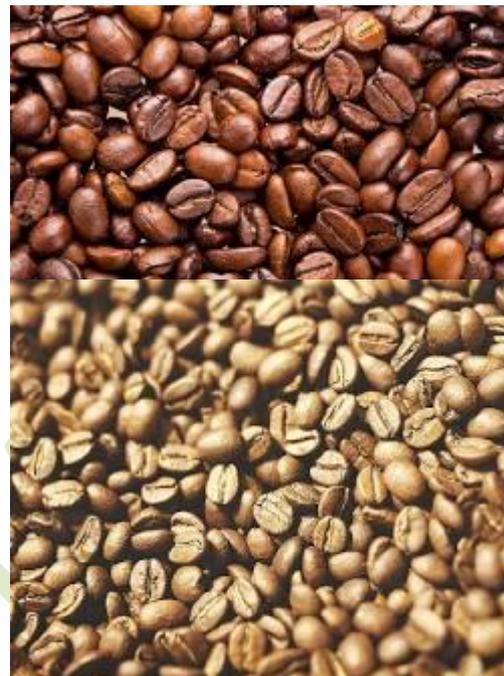
##### 4.1 India's Coffee: A Cup of Tradition and Rich Flavour

India primarily cultivates two main types of coffee beans:

- **Arabica:** Known for its smooth taste, complex aroma, and higher acidity. It thrives in the high altitudes of South India.
- **Robusta:** Renowned for its stronger flavour, higher caffeine content, and better disease resistance. It is well-suited for the lower elevation regions of India.

##### India's Ranking:

- The **International Coffee Organization (ICO)** set up in London in **1963** has organized 4 high-level World Coffee Conferences in the past: England (2001), Brazil (2005), Guatemala (2010) and Ethiopia (2016).
- **India is the seventh largest producer of coffee in the world** accounting for nearly 4% of the global coffee production and **the fifth largest exporter with 5% share** in global coffee exports.



##### Top Producer States:

Southern India is the heart of coffee cultivation in the country.

1. **Karnataka:** Accounts for approximately **71%** of India's total coffee production. The state's high altitude regions in **Kodagu, Chikmagalur, and Hassan** are particularly renowned for their **Arabica coffee**.
2. **Kerala:** Contributes roughly **21%** of the national coffee output. It's known for its high-quality **Robusta beans** cultivated in the **Idukki and Wayanad** districts.
3. **Tamil Nadu:** Produces around **5%** of India's coffee, **primarily Robusta varieties**, grown in the **Nilgiri Hills**.

##### Do you Know?

The history of Indian coffee began with the Saint Bababudan's 1600 AD planting of seven coffee seeds in the courtyard of his hermitage in Chikmagalur, Karnataka,

A mountain known as Dattagiri or Baba Budangiri is located in the western Ghats' Dattagiri hill range in Karnataka. The birth place of coffee plantations in India is known as Baba Budangiri. According to legends, Bababudan, a Sufi scholar planted seven coffee beans and thereafter smuggled coffee from Yemen in 1670

##### 4.2 Kharif Season:

- The Kharif season is a vital agricultural period in India, coinciding with the arrival of the southwest monsoon.

- Kharif, derived from the Arabic word for "autumn," refers to the monsoon season in India, typically lasting from June to September/October.
- During this period, the southwest monsoon brings much-needed rainfall to a large part of the country, making it ideal for cultivating crops that require a good amount of water.

**Key Kharif Crops:**

- **Rice:** The primary Kharif crop, accounting for a significant portion of India's food security.
- **Maize (Corn):** A vital cereal crop with increasing importance.
- **Pulses:** Including legumes like arhar (pigeon pea), moong (green gram), urad (black gram), tur (red gram), etc., crucial for protein intake.
- **Cotton:** A major cash crop for India's textile industry.
- **Oilseeds:** Including groundnut, sesame, soybean, etc., essential for vegetable oil production.
- **Jowar (Sorghum):** A millet crop known for its drought resistance.
- **Bajra (Pearl millet):** Another drought-resistant millet crop.

**Importance of Kharif Season:**

- Contributes significantly to India's food security by providing staple crops like rice and pulses.
- Plays a crucial role in the livelihoods of millions of farmers across the country.
- Supports various industries, including textiles (cotton) and vegetable oil production (oilseeds).

**Minimum Support Price (MSP)**

- **Objective:** Provide farmers with income stability by protecting them from price fluctuations.
- **Mechanism:** Government announces MSPs before planting season; if market prices drop below MSP post-harvest, agencies like FCI buy crops at MSP.
- **Benefits of MSP:** Provides price security, encourages investment in quality inputs, enhances agricultural practices, and boosts food security.
- **Challenges of MSP:** Fiscal strain on the government, risk of surplus production with high MSPs, and difficulties in procurement and distribution.
- **Crops Covered:** MSPs set for **22 crops** including cereals, pulses, oilseeds, cotton, and jute.

**5. Industrial Production:**

**The core sectors**, also known as infrastructure sectors, are fundamental to India's economic growth and development. These eight key industries form the backbone of the nation's infrastructure and play a vital role in supporting other sectors. The core sector under **Ministry of Commerce and Industry**, Government of India

**The Eight Core Sectors:**

1. **Coal:** A primary source of energy for power generation in India.
2. **Crude Oil:** Though India imports a significant portion of its crude oil needs, domestic production remains crucial for energy security.
3. **Natural Gas:** An increasingly important cleaner-burning fuel source for power generation and industrial applications.
4. **Refinery Products:** The processing of crude oil into various petroleum products like petrol, diesel, and LPG.
5. **Fertilizers:** Essential for agricultural productivity, ensuring food security for the nation.
6. **Steel:** A critical material for construction, infrastructure development, and various industrial applications.
7. **Cement:** The binding agent used in construction activities, vital for building infrastructure and housing.
8. **Electricity:** The foundation of modern economies, powering homes, industries, and essential services.

- **Coal:** 10.33%
- **Crude Oil:** 8.98%
- **Natural Gas:** 6.88%
- **Refinery Products:** 28.04%
- **Fertilizers:** 2.63%
- **Steel:** 17.92%
- **Cement:** 5.37%
- **Electricity:** 19.85%

**6. India and US work on Critical Minerals under iCET:**

## India and U.S. work out strategies to scale up collaboration on critical minerals under iCET

**GS Paper II: IR**  
**GS Paper III:**  
**Internal Security**

India and the U.S. are looking to “quickly” conclude a bilateral agreement on furthering cooperation on critical minerals between the U.S. Department of Commerce and the Indian Ministry of Commerce and the Indian Ministry of Mines, and to drive a partnership in supply chains for graphite, gallium, and germanium.

One of the aims will be to promote “India’s vital role in the mineral security partnership, including through co-investing in a lithium resource project in South America and a rare earths deposit in Africa, to responsibly and sustainably diversify critical mineral supply chains,” said a



**Key resources:** In July 2023, India released a list of 30 minerals critical for the country. PTI

fact sheet issued on June 17 on the **India-U.S. Initiative for Critical and Emerging Technology (iCET)** dialogue, chaired by the National Security Advisers of the countries.

In July 2023, India released a list of 30 minerals critical for the country and

has been looking to acquire mines abroad in addition to expanding exploration within the country. To enable this, the **Mines and Minerals (Development and Regulation) Act, 1957** was amended through the **MMDR Amendment Act, 2023**.

India has incorporated a joint venture company **Khanij Bidesh India Ltd. (KABIL)** with equity contribution from three Central Public Sector Enterprises – **National Aluminium Company Ltd, Hindustan Copper Ltd and Mineral Exploration and Consultancy Ltd** – with the objective of acquiring critical mineral assets abroad to ensure consistent supply of critical minerals to the Indian domestic market.

**KABIL** is presently exploring opportunities for acquisition of critical minerals assets like lithium and cobalt in Australia, Argentina and Chile.

The Mines Ministry has joined the mineral security partnership led by the U.S. which aims to enhance cooperation in securing

the supply chain of critical minerals for the member countries by facilitating investment in identified blocks of these minerals in resource-rich countries.

The fact sheet also spoke of the establishment of an **India-U.S. advanced materials research and development forum** to expand collaboration between American and Indian universities, national laboratories, and private sector researchers.

Exploring opportunities for collaboration in the critical minerals sector like bilateral collaboration in technologies for **neodymium-iron-boron metal**, alloy and magnet making, and collaboration with Department of Energy entities, are also listed among the objectives.

## Environment

### 1. Wild Life Sanctuaries and National Parks:

#### 1.1 Deepor Beel Wildlife Sanctuary

- Dipor Bil, also spelled Deepor Beel, means "lake" in Assamese.
- Located southwest of Guwahati city, Kamrup Metropolitan district, Assam, India.
- Permanent freshwater lake in a former channel of the Brahmaputra River, south of the main river.
- **Declared a wildlife sanctuary in 1989**, covering 4.1 km<sup>2</sup>.
- Listed as a Ramsar Site in November 2002 for its biological and environmental importance.
- Critical habitat for resident and migratory birds, including waterfowl, greater adjutant storks, and pelicans.
- One of the largest beels in the Brahmaputra valley of Lower Assam.
- Categorised as representative of the wetland type under the Burma monsoon forest biogeographic region.



#### 1.2. Pobitora Wildlife Sanctuary:

- One-Horned Rhinos Assam
- **Established:** 1987
- **Location:** Morigaon district
- **Key Species:** Indian one-horned rhinoceros (*Rhinoceros unicornis*), leopard (*Panthera pardus*), wild boar (*Sus scrofa*), barking deer (*Muntiacus muntjak*), wild buffalo (*Bubalus arnee*)
- **Birds:** Over 2000 migratory bird species
- **Known For:** Pobitora is renowned for its significant population of the endangered one-horned rhinoceros (*Rhinoceros unicornis*).
- **Flora:** Pobitora's vegetation primarily consists of grasslands and wetlands, providing a suitable habitat for the rhino population and other herbivores.



#### 1.3. Bannerghatta National Park (Karnataka)

# India's largest leopard safari opens at Bannerghatta

GS Paper III: Environment

The Hindu Bureau  
BENGALURU

South India's first and the country's largest leopard safari was inaugurated by Karnataka Environment Minister Eshwar Khandre on Wednesday at the Bannerghatta Biological Park.

As per Central Zoo Authority guidelines for safaris, an area of 20 hectares has been demarcated and fenced for the safari. Eight leopards have been released for the safari in the open forest area.

According to park officials, Bannerghatta is home to a good population of free ranging leopards (*Panthera pardus*), and highlighting these predators is vital.

The facility has been



**In focus:** A leopard clicked during the inaugural safari ride at Bannerghatta in Bengaluru on Wednesday. K. MURALI KUMAR

created at a cost of ₹4.5 crore. The leopard safari area is made up of undulating terrain with natural rocky outcrops and semi-deciduous forest. This whole area is covered with a vertical chain-link mesh

which is 4.5 metres high, and MS sheets have been placed at a 30 degree inclined angle of 1.5 metres.

The officials added that owing to increasing human-animal conflict in recent times, the park re-

ceives many leopard cubs rescued across the Karnataka. "These cubs will be raised and shifted to the leopard safari to help visitors learn about these big cats, the reasons for the growing human-animal conflicts, and the ways to protect the animals," said the officials.

The officials added that four acres within the safari area have been separated, using a solar fence, to help the animals acclimatise to their new environment.

### Other initiatives

During his visit to the park, Mr. Khandre also inaugurated a number of initiatives, which included a renovated elephant weaning centre, a baby care room at the butterfly park, a children's play area, an en-

trance arch, and he also flagged off electric buggies and zoo installations.

The Minister also named a male elephant calf Swaraj and set free six hamadryas baboons for public display.

The park officials said that during this financial year new naturalistic enclosures have been proposed for emus and rheas at a cost of ₹50 lakh.

A hunting cheetah enclosure at an estimated cost of ₹1.5 crore; a hamadrya and olive baboon enclosure at ₹1.5 crore, and an Indian grey wolf enclosure at ₹1.5 crore have also been proposed. Skywalks are also being developed to establish connectivity between the zoo and the butterfly park, they added.

## 1.4. Raimona National Park, Assam:

- Raimona National Park is renowned for its population of golden langur, an endemic species shared with Bhutan, which serves as the mascot of the Bodoland region.
- Other notable wildlife includes Asian elephants, Bengal tigers, clouded leopards, gaurs, chitals, and several species of hornbills.
- **Biodiversity:**
  - The park hosts over 190 species of birds, including hornbills, and more than 150 species of butterflies.
  - It also boasts a diverse flora with 380 varieties of plants and orchids.



## 2. Climate Change and Sustainable Development:

### 2.1. Supreme Court Spells the way of Himalaya's Development:

- It is a well-established fact that the Indian Himalayan Region (IHR) is **both India's water tower and also the critical provider of invaluable ecosystem goods and services.**
- Despite this understanding, there has always been dissonance between the special development needs and the development model being pursued in the IHR.
- As the **economy of the region is dependent on the health and the well-being of its natural resources**, plundering the same in the name of development will inevitably and surely lead the **IHR towards its economic ruin.**
- Recent judgments of the Supreme Court of India, we seem to be headed towards a more robust rights-based regime where sustainable development would be a fundamental right. The tone and tenor of the Court's judgments highlighting the competing rights of people and

nature are a clear sign of the direction in which the development versus environment debate in India is headed.

- In **State of Telangana and Others vs Mohd. Abdul Qasim (Died) Per Lrs**, the Court had said that the need of the hour is **to adopt an ecocentric view of the environment**, where nature is at the core.
- The Court said, **“Man being an enlightened species, is expected to act as a trustee of the Earth...The time has come for mankind to live sustainably and respect the rights of rivers, lakes, beaches, estuaries, ridges, trees, mountains, seas and air.... Man is bound by nature’s law.”**

#### A Model of Destruction:

- According to this approach, nature is not an object of protection but a **subject with fundamental rights, such as the right to exist, to survive, and to persist and regenerate vital cycles**.
- The current development model being pursued in the IHR is in total contravention of this approach. We are witnessing a ‘bumper crop’ of hydroelectric power stations on the rivers and streams in the IHR, without any care for the rights of these rivers and streams.
- There is a reckless widening of existing hill roads to four lanes in the name of development — in any case, these roads are getting washed away in many places in the IHR every time a river is in spate.
- A post-disaster need assessment report by the National Disaster Management Authority on the floods in 2023 in Himachal Pradesh identified, unsurprisingly, rampant construction in violation of norms, regulations (and even court orders in many cases) right on river beds and flood plains, on the steep slopes, in seismic zones, in landslide-prone areas and the loss of green cover as the reasons for the disaster.
- **The Teesta dam breach in Sikkim and the monsoon floods and landslides in Himachal Pradesh** — both events in 2023 — are a stark reminder of the havoc our development model is causing to the environment, ecology and communities, especially in the mountains.
- The mountains, climate, forests, rivers, air and land all are crying for their right to survive in the IHR. In whatever approach we choose to adopt, **whether ecocentric or anthropocentric**, there is a need to align aspirations for growth and development in the IHR with the science and the rights of both people and nature.

#### Intersectionality of Rights:

- In another matter of **public interest litigation (PIL) titled Ashok Kumar Raghav vs Union of India and Ors.**, the Supreme Court asked the central government and the petitioner to suggest a way forward so as to enable the Court to pass directions on the **carrying capacity** of the Himalayan States and towns.
- In **the case of the Great Indian Bustard**, the **Court has recognised the right of the people of this country to be free from the adverse impacts of climate change**.
- Unfortunately the Court’s verdict in the Great Indian Bustard case is being interpreted in a very narrow sense — as if the Court has given a clean chit to all renewable energy projects over and above the concerns for biodiversity or any other right that might get compromised.

- The Court is not only cognisant but also committed to the conservation of species and has underscored the importance of **taking proactive measures “not reactive”** to protect the Great Indian Bustard.
- The **Court modified the previous order** where a blanket ban was imposed on a very large area despite the report of the **Wildlife Institute of India**, which had identified 13,663 square kilometres as the **“priority area”**, and the rest as **“potential areas”** and as **“additional important areas” for the Great Indian Bustard.**
- The Court has explained in the judgement the non-viability of underground power transmission lines.
- In fact, the Court has explained in detail, with examples of many international and national obligations, to explain the **Intersectionality between the fundamental rights enshrined in Articles 14 and 21, specifically, and human rights** which include the right to development and the newly minted right to be able to adapt to climate change.
- The top court went on to say: **“without a clean environment which is stable and unimpacted by the vagaries of climate change, the right to life is not fully realised... The inability of underserved communities to adapt to climate change or cope with its effects violates the right to life as well as the right to equality. The right to equality under Article 14 and the right to life under Article 21 must be appreciated in the context of the decisions of this Court, the actions and commitments of the state on the national and international level, and scientific consensus on climate change and its adverse effects”.**
- It is a given that unless infrastructure is sustainable and dependable, it cannot become the foundation for people’s pursuit of their developmental goals.
- **Sustainability of infrastructure necessarily means that it is resilient** to the adverse impacts of climate change and consequent disasters.
- This is essential to **ensure equality, equity and equal access to people**, to various opportunities all across the country — as is the **mandate of Articles 14 and 21 of the Constitution.**
- Disasters are also known to **amplify social inequality** as the poor are the worst hit and the most inadequately equipped to deal with the consequences.
- **To pursue a path of sustainable development can also be said to be a fundamental right**, as a natural corollary or an integral part or a sub-set of the right to be free from the adverse impacts of climate change.

#### Development and Disaster Resilience:

- While there is no denying that as we are a lower-middle income country with a large and young population, rapid development is India’s destiny.
- The interconnection between disasters and unregulated development has become increasingly pronounced and visible.
- The only way forward is for disaster management to be incorporated in development planning, both from a perspective of prevention and resilience.
- Our actions in the name of development, in total disregard of nature in most cases, is to be blamed for these unnatural disasters resulting from natural hazards.
- The **development plans, policies and laws** that underpin them too play a pivotal role in the making of these disasters.

- There is an urgent **need for planning stage convergence of different authorities** so that when there is a plan for any development, all concerns about disaster and climate resilience are also factored in, and the project reaches implementation stage only after the green signal in these areas.
- We need both development and disaster resilience. We also need science, policy and action to be in conformity with each other, in an integrated approach with the involvement of all including policymakers, planners, the scientific fraternity and communities.

**Conclusion:**

- In view of these judgments of the Supreme Court and also the new fundamental right to be free from the adverse impacts of climate change, it is now a fundamental right for people in general and of IHR in particular to have a development model that is sustainable and in sync with the carrying capacity of the IHR.

**2.2. India’s Roof Top Solar Power Potential:**

# How well is India tapping its rooftop solar potential?

Which are the States with the highest RTS capacities? How can more awareness be spread?

[GS Paper III: Science and Technology](#)

[GS Paper III: Environment](#)

**The story so far:**

India’s installed rooftop solar (RTS) capacity increased by 2.99 GW in 2023-2024, the highest growth in a year. As of March 31, the total installed RTS capacity in India was 11.87 GW, according to the Ministry of New and Renewable Energy. To meet rising energy demand, India needs to double down on its efforts to expand its RTS potential.

**What is the RTS programme?**

India launched the Jawaharlal Nehru National Solar Mission in January 2010. Its main objective was to produce 20 GW of solar energy (including RTS) in three phases: 2010-2013, 2013-2017, and 2017-2022. In 2015, the government revised this target to 100 GW by 2022, including a 40-GW RTS component, with yearly targets for each State and Union Territory. In December 2022, India had an installed RTS capacity of 7.5 GW and extended the deadline for the 40-GW

target to 2026. While financial incentives, technological advances, awareness, and training have improved RTS installation numbers, there is a long way to go. India’s overall RTS potential is approximately 796 GW. To meet India’s target of installing 500 GW of renewable energy capacity, with a solar component of 280 GW, by 2030, RTS alone needs to contribute about 100 GW by 2030.

**How are States faring?**

As of March 31, 2024, the RTS capacities of Gujarat, Maharashtra, and Rajasthan had taken big strides while some others were behind the curve. An installed RTS capacity of 3,456 MW in Gujarat is the result of its government’s quick approval process, a large number of RTS installers, and high consumer awareness. Similarly, Maharashtra, with an RTS capacity of 2,072 MW, is one of the top-performing States owing to its robust solar policies and conducive regulatory environment.

Thanks to its land area and high solar irradiance, Rajasthan boasts of the

highest RTS potential in the country: 1,154 MW. Its efforts to streamline approvals, provide financial incentives, and promote RTS through public-private partnerships have spurred this growth.

Kerala, Tamil Nadu, and Karnataka, with respective installed capacities of 675, 599, and 594 MW, have also performed reasonably well. However, Uttar Pradesh, Bihar, and Jharkhand, among others, are yet to fully explore their RTS potential. Their challenges include bureaucratic hurdles, inadequate infrastructure, and lack of public awareness.

The ‘Pradhan Mantri Surya Ghar Muft Bijli Yojana’ is a flagship initiative to fit one crore households with RTS systems and help them get up to 300 units of free electricity every month. An average system size of 2 kW for targeted households will result in a total RTS capacity addition of 20 GW. The scheme has a financial outlay of ₹75,021 crore, which includes financial assistance for consumers (₹65,700 crore), incentives for distribution companies (₹4,950 crore),

incentives for local bodies and model solar villages in each district, payment security mechanisms, capacity building (₹657 crore), and awareness and outreach (₹657 crore). The scheme also encourages the adoption of advanced solar technologies, energy storage solutions, and smart grid infrastructure.

**How can we ensure RTS growth?**

Creating awareness is key to getting consumers on board. In addition, RTS needs to be economically viable for households. While government subsidies are helping, multiple low-cost financing options are required. The number of banks and non-bank financial companies providing RTS loans has increased of late. Access to low-cost RTS loans should be as easy as getting a bike or car loan.

Promoting R&D in solar technology, energy storage solutions, and smart-grid infrastructure can lower costs, improve performance, and enhance the reliability of RTS systems. Investments in training programmes, (like the ‘Suryamitra’ solar PV technician programme initiated in 2015), vocational courses, and skill development initiatives will help build a skilled workforce.

As the scheme’s implementation enters full swing, net-metering regulations, grid-integration standards, and building codes should be reviewed and updated to help address emerging challenges and facilitate smooth implementation.

Shantanu Roy works with the Center for Study of Science, Technology and Policy.

**THE GIST**

India’s installed rooftop solar (RTS) capacity increased by 2.99 GW in 2023-2024, the highest growth in a year.

As of March 31, 2024, the RTS capacities of Gujarat, Maharashtra, and Rajasthan had taken big strides while some others were behind the curve. An installed RTS capacity of 3,456 MW in Gujarat is the result of its government’s quick approval process, a large number of RTS installers, and high consumer awareness.

Creating awareness is key to getting consumers on board. In addition, RTS needs to be economically viable for households.

**2.3. 46th Antarctic Treaty Consultative Meeting (ATCM-46):**

- **Event:** 46th Antarctic Treaty Consultative Meeting (ATCM-46) and 26th Committee for Environmental Protection (CEP-26)
- **Dates:** May 20 to 30, 2024
- **Location:** Kochi, Kerala, India
- **Organizer:** Ministry of Earth Sciences through the National Centre for Polar and Ocean Research (NCPOR)
- **Attendance:**

- Total registered delegates: 404
- In-person attendees: 328
- Virtual attendees: 76
  
- **Key Highlights:**
- The meeting focused on the ongoing debate on Antarctic tourism.
- Efforts were made to establish a regulatory framework
- The meeting did not reach a definitive solution on tourism regulation.

#### Gaps in the regulatory framework

- The current governance framework for Antarctic tourism **lacks clear regulations** and is fragmented.
- **The Antarctic Treaty, in force since 1961**, prioritizes peaceful use and scientific research but does not have specific tourism regulations.
- **The Madrid Protocol provides broad environmental guidelines** but does not include detailed tourism regulations.
- Day-to-day management of Antarctic tourism largely falls on the **International Association of Antarctica Tour Operators (IAATO), a self-regulatory body**.
- Many stakeholders believe IAATO's guidelines are inadequate to address growing environmental pressures.
- **The Antarctic Treaty Consultative Meeting (ATCM) is the primary platform** for international cooperation on Antarctic issues.
- ATCM-46 recognized the need for a comprehensive tourism regulatory framework **but failed to reach a consensus** due to the requirement for unanimous agreement.
- National interests often impede progress, with some countries prioritizing economic benefits over strong regulations.
- The current geopolitical climate complicates international cooperation on Antarctic governance.
- ATCM-46 made some progress by focusing on developing a comprehensive and flexible framework for regulating tourism and non-governmental activities.
- A new working group has been established to lead efforts in developing this framework over the next year.
- Stronger measures are needed to mitigate the impacts of tourism on Antarctica due to gaps in the current governance frameworks.
- There is a renewed commitment to addressing the challenges of Antarctic governance, but significant improvements are necessary to protect wildlife and ecosystems effectively.
- Discussions on tourism regulation in Antarctica have been ongoing since the 1960s at ATCM meetings.
- A **proposed tourism annex in 1991 did not gain consensus**, leading to reliance on IAATO's self-regulation.
- Since a 2004 expert meeting, discussions on tourism have increased, focusing on environmental impacts, disruption of research, and safety.
- The ATCM's approach has resulted in non-binding guidelines rather than comprehensive regulation.
- **The consensus rule, requiring unanimous approval from all consultative parties, has often hindered action.**

- Proposals like banning permanent tourism facilities have failed due to objections related to domestic laws, sovereignty, and differing views on Antarctic principles.
- Understanding objections and finding flexible compromises are crucial.
- The consensus rule's limitations allow activities to proceed if they comply with the Antarctic Treaty and Protocol.
- This leads to **"decision making by non-decision making,"** permitting unregulated activities in the absence of a clear framework.

#### India's line

- ATCM 44 (2022) discussed concerns about tourism's impact on Antarctic research, conservation, and the environment.
- The meeting emphasized the importance of monitoring tourism impacts, with India advocating for addressing these issues.
- Resolution 5 (2022) advised against building tourism-related structures with significant environmental impacts.
- Calls for a comprehensive debate on Antarctic tourism continued between ATCM 44 and ATCM 45, with a 2023 workshop highlighting the need for governance action.
- Despite the lack of international consensus, India enacted its own Antarctic Law in 2022.
- A sustainable future for Antarctic tourism requires strengthening environmental protection, implementing robust monitoring programs, and fostering international cooperation.
- ATCM-46 efforts offer hope by prioritizing science-based decision-making and engaging with all stakeholders.
- The goal is to ensure Antarctica remains a pristine wilderness while acknowledging the potential benefits of responsible tourism.

#### 2.4. Solid Waste Management:

##### Why in News?

- **Bruhat Bengaluru Mahanagara Palike (BBMP) has proposed a Solid Waste Management (SWM) Cess of ₹100 per month per household.**
- This proposal has sparked debate and criticism among residents and stakeholders in Bengaluru.
- **Rationale for SWM Cess:**
  - SWM cess is levied by Urban Local Bodies (ULBs) as per the Solid Waste Management Rules, 2016.
  - The funds collected through SWM cess are intended to cover the costs of providing solid waste management services.
  - ULBs across India typically charge about ₹30-50 per month as SWM cess, collected along with property tax.
- **Purpose and Use of SWM Cess:**
  - The SWM cess is used to fund various activities related to solid waste management, including collection, transportation, processing, and disposal.
  - The proposed increase in SWM cess aims to meet the rising costs and improve the efficiency of SWM services in Bengaluru.
- **Challenges Faced by ULBs:**

- Urban Local Bodies face significant challenges in managing solid waste due to increasing urbanization and population growth.
- There is a need to revise SWM cess rates and impose higher charges on bulk waste generators to offset the costs incurred by ULBs.
- **Broader Context:**
  - The proposal to increase SWM cess reflects the ongoing efforts to address the solid waste management challenges in Bengaluru and other urban areas.
  - Stakeholders and residents are debating the feasibility and impact of the proposed SWM cess, highlighting concerns about its implementation and effectiveness.

#### **What are the costs?**

- ULBs allocate a significant portion of their resources to SWM services, with up to 80% of manpower and 50% of annual budgets dedicated to this.
- In Bengaluru, each urban resident generates about 0.6 kg of waste daily, amounting to 0.2 tonnes per person annually, resulting in 5,000 tonnes of solid waste daily for the city.
- To manage this waste, Bengaluru requires 5,000 door-to-door waste collection vehicles, 600 compactors, and employs around 20,000 Paurakarmikas.
- SWM services involve four main components: collection, transportation, processing, and disposal, with collection and transportation consuming 85-90% of the SWM budget.
- Processing and disposal of waste account for only 10-15% of the SWM budget but are equally critical in managing waste effectively.

#### **What are the challenges?**

- Solid waste generated in Indian cities consists of approximately 55-60% wet biodegradable material and 40-45% non-biodegradable material. Only about 1-2% of dry waste is recyclable.
- Despite the potential, only 10-12% of wet waste is effectively converted into organic compost or biogas, making these processes financially unviable.
- Operational revenue from waste processing facilities covers about 35-40% of expenses, with the remaining costs subsidized by Urban Local Bodies (ULBs).
- ULBs also face operational challenges such as clearing open points, preventing littering, managing seasonal waste generation, and conducting sweeping operations.
- Disposal of non-compostable and non-recyclable dry waste, like single-use plastics and inert materials, is costly and involves shipping waste to facilities located 400-500 km away.
- In large cities like Bangalore, about 15% of the budget (₹1,643 crore out of ₹11,163 crore) is spent on SWM, with minimal revenue of ₹20 lakh per year. Smaller cities spend up to 50% of their budgets with similarly negligible revenues.
- ULBs levy SWM cess to help cover these costs and manage the financial challenges associated with SWM services effectively.

#### **What is the solution?**

- Waste collection and transportation do not generate revenue, but costs can be reduced through several strategies in solid waste management (SWM).
- Key strategies include waste segregation at the source, reducing single-use plastics, promoting decentralized composting, and implementing Information, Education, and Awareness (IEC) campaigns to prevent open littering.

- ULBs can also encourage bulk waste generators to process their own waste, reducing the burden on SWM services.
- A balanced approach that combines marginal user charges with efficient operations can contribute to cleaner cities and lower overall expenditures on SWM.

## 2.5. Climate Change and International Laws:

### Why in News?

- On May 21, 2024, the International Tribunal for the Law of the Sea (ITLOS) issued an important advisory opinion on climate change litigation.
- The opinion was requested by the Commission of Small Island States on **Climate Change and International Law (COSIS)**.

### New elements

- ITLOS accepted COSIS's request to identify obligations of states not party to the COSIS Agreement.
- The Tribunal focused on **obligations under Article 194(1) of UNCLOS**.
- It stated that parties must take measures to prevent, reduce, and control marine pollution from human-caused **greenhouse gas (GHG)** emissions.
- The Opinion clarified that the **release of carbon dioxide** into the marine environment qualifies as pollution under **Article 1(1)(4) of UNCLOS**.
- **ITLOS affirmed that carbon dioxide is a pollutant**, supporting the scientific view that the ocean absorbs about a quarter of CO<sub>2</sub> emissions, **leading to ocean acidification**.
- Other GHGs do not cause ocean acidification.
- The ocean also absorbs over 90% of the excess heat from global warming, raising ocean temperatures and sea levels.

### Understanding its legal importance

- The "**prevention or no harm**" rule guides state behaviour to regulate shared natural resources to avoid significant harm in another state.
- This principle **faces two main limitations** in addressing the climate crisis: it's rooted in bilateral frameworks and faces challenges of attribution and standing in proving breaches related to climate change.
- The ITLOS Opinion supports applying this principle to climate change, which is a collective interest.
- The required measures should be based on the best available science and international standards like those in the **UN Framework Convention on Climate Change and the Paris Agreement**, aiming for a **global average temperature goal of 1.5°C instead of 2°C**.
- The Opinion describes the obligation to take necessary measures as a stringent due diligence obligation due to the serious and irreversible harm from anthropogenic greenhouse gas (GHG) emissions.
- However, the obligations under Article 194(1) of UNCLOS are broadly stated and don't mandate the immediate cessation of all GHG emissions.
- It implies that **not all GHG emissions need to be prevented**, but measures should be taken to reduce anthropogenic GHG emissions.

- Gradually reducing marine pollution by lowering greenhouse gas (GHG) emissions over time is sufficient.
- The ITLOS identified a general obligation that states must address climate change and don't have unlimited discretion in their actions.
- However, merely identifying a general obligation is symbolic and not enough.
- According to environmental law expert Christina Voigt, the key issue is the content and standard of conduct for mitigating climate change.
- The **Urgenda Foundation vs The Netherlands** case illustrates this, **where the Dutch Supreme Court required the Netherlands to reduce GHG emissions by 25% below 1990 levels by 2020**, based on scientific estimates and cost-effective methods.
- The ITLOS Opinion does not clearly identify the methodology to assess a state's required level of mitigation action, unlike the Urgenda judgment.
- The Opinion states that necessary measures should consider each state's means and capabilities, reflecting the principle of equity.
- While advisory opinions lack legal force, they hold political weight as authoritative judicial statements.

### 2.5. Remoulding the Global Plastic Treaty:

- Discussions are ongoing for an **international legally binding treaty** on plastic pollution.
- It is crucial to support a fair transition for informal waste collectors and recyclers.
- Global plastic waste production was **353 million tonnes in 2019, more than double since 2000, and is set to triple by 2060.**
- **Only 9% of plastic waste was recycled in 2019.**
- 50% of plastic waste was sent to landfills, 19% was incinerated, and 22% was disposed of in uncontrolled sites or dumps.
- Of the 9% recycled, **85% was done by informal recycling workers.**
- Informal recycling workers **collect, sort, and recover** recyclable and reusable materials from general waste.
- They alleviate municipal budgets and subsidize the environmental mandates of producers, consumers, and the government.
- They promote circular waste management solutions and help mitigate greenhouse gas emissions.
- Their efforts significantly reduce plastic content in landfills and dump sites.
- They effectively prevent plastic from leaking into the environment.

#### The need for Recognition:

- Informal waste collectors and recyclers in plastic value chains are often overlooked and remain highly vulnerable.
- They face risks such as increasing privatization of waste management, waste-to-energy or incineration projects, and exclusion through public policy interventions **like Extended Producer Responsibility (EPR).**
- The **informal waste and recovery sector (IWRS)** plays a significant role in worldwide municipal solid waste management systems.
- According to the **UN-Habitat's Waste Wise Cities Tool (WaCT)**, the informal sector accounts for **80% of municipal solid waste** recovery in many cities.

- A recent study by UN-Habitat and the University of Leeds estimates that around **60 million tonnes of plastic from municipal solid waste pollute the environment due to inadequate collection services and mismanagement.**
- Without the IWRS, the volume of plastic pollution would be higher.
- Strategies to reduce plastic pollution often do not effectively involve the recovery capacities, skills, and knowledge of the IWRS.
- This oversight worsens livelihood vulnerabilities and undermines existing informal recovery systems.

**Global Treaty, need for a Just Transition:**

- The Global Plastics Treaty aims to establish a legally binding agreement to reduce and eliminate plastic pollution.
- The decision to form an Intergovernmental Negotiating Committee (INC) was made during the fifth UN Environment Assembly in Nairobi, Kenya, in early 2021.
- The INC process started with an Ad Hoc Open-Ended Working Group meeting in Dakar, Senegal, in mid-2022, followed by meetings in Uruguay, Paris, and Nairobi.
- The fourth INC-4 meeting took place in Canada in April of the current year.
- The final INC-5 meeting will be held in South Korea, with active participation from the International Alliance of Waste Pickers (IAWP).
- The IAWP plays a vocal role in the UNEA Plastic Treaty process, advocating for the formalization and integration of informal waste pickers into plastic pollution discussions.
- The IAWP emphasizes including waste pickers' perspectives and solutions at every stage of policy and law implementation.
- These measures aim to recognize waste pickers' historical contributions, protect their rights, and promote effective and sustainable plastic waste management practices.
- There is no universally agreed-upon terminology for a just transition or a formal definition of the informal waste sector and its workforce.
- Clarifying these definitions is crucial for progressing discussions and policy development.

**India's voice is important**

- India promotes an approach that **emphasizes repair, reuse, refill, and recycling** of plastics without completely eliminating their use.
- India emphasizes the **importance of adopting country-specific circumstances** and capacities.
- India's informal waste pickers are crucial and central to the discussion on plastic waste management.
- There is a need to **rethink Extended Producer Responsibility (EPR) norms** and consider how to integrate informal waste workers into the new legal framework.
- As the final round of negotiations for the Global Plastics Treaty approaches at INC-5, a key question remains on how to ensure a just transition for nearly 15 million informal waste pickers.
- **Informal waste pickers collect and recover up to 58% of global recycled waste**, shaping a sustainable future.
- Incorporating their perspectives and protecting their livelihoods can embody social justice and equity principles in the treaty.
- The goal is to ensure no one is left behind in the efforts to end plastic pollution globally.

**About Global Plastic Waste Treaty:**

- **Background and Mandate:**
  - UN Member States are negotiating a legally-binding international agreement on plastics.
  - The initiative began with the adoption of a resolution at the fifth UN Environment Assembly (UNEA-5.2) on March 2, 2022.
  - The Intergovernmental Negotiating Committee (INC) was established to advance the agreement, aiming to complete a draft by the end of 2024.
- **Timeline of Meetings:**
  - Ad Hoc Open-Ended Working Group (OEWG): Met in Dakar, Senegal from May 30 to June 1, 2022, to set the groundwork.
  - INC-1: Held in Punta del Este, Uruguay from November 28 to December 2, 2022, with over 2,300 delegates from 160 countries.
  - INC-2: Took place in Paris, France from May 29 to June 2, 2023.
  - INC-3: Held at the UN Environment Programme (UNEP) Headquarters in Nairobi, Kenya from November 13-19, 2023.
  - INC-4: Currently taking place in Ottawa, Canada from April 23-29, 2024.
- **Future Meetings and Finalization:**
  - Additional meetings are planned for 2024, hosted by Canada and the Republic of Korea.
  - In 2025, the treaty is expected to be finalized at the conference of the plenipotentiaries, with potential hosts including Ecuador, Peru, Rwanda, and Senegal.
- **Scope and Goals:**
  - The agreement will address the entire life cycle of plastics, from design to production and disposal.
  - Goals include reducing plastic pollution globally through comprehensive and legally binding measures.
- **Participants and Support:**
  - Over 160 countries are participating in the negotiations.
  - The meetings have seen significant global participation and support.
- **Challenges and Considerations:**
  - The negotiations aim to establish rules of procedure and agree on the scope of work.
  - Challenges include balancing the interests of different countries and achieving consensus on key issues.
- **Overall Impact:**
  - The treaty aims to significantly reduce global plastic pollution and promote sustainable practices worldwide

**3. Ecology Threats and Conservation:****3.1 Marine Ecology:****Deep Sea Fishing:**

- **Description:** Deep sea fishing ventures into the ocean depths beyond the continental shelf, targeting fish species that thrive in those cold, dark waters.

- **Methods:** Specialised boats equipped with advanced sonar and fishing gear like longlines or trawls are used.
- **Species:** Tuna, swordfish, halibut, orange roughy, and deep-sea crabs are some examples of commercially caught deep-sea fish.

**Marine Cage Farming:**

- **Description:** Marine cage farming involves raising fish or other seafood species in large, open-water cages. These cages are anchored or suspended in the ocean, allowing fish to grow in a controlled environment.
- **Benefits:** Offers a sustainable alternative to traditional wild-caught fish by providing a controlled environment for raising fish and reducing overfishing.
- **Species:** Salmon, sea bass, yellowtail, and various shellfish are commonly farmed in marine cages.



**Seaweed Cultivation and Processing:**

- **Description:** Seaweed cultivation involves growing varieties of seaweed in controlled underwater settings.
- Seaweed is a versatile resource with applications in food, cosmetics, and industrial products.
- **Methods:** Seaweed can be cultivated using ropes suspended from rafts or lines anchored to the seabed.
- **Uses:** Seaweed can be consumed directly, used as a thickening agent in food products, or processed into carrageenan, a thickening agent with various industrial applications.



Sugar kelp on a line in Alaska. Credit: Sea Grove Kelp Co.

**Sea Ranching:**

- **Description:** Sea ranching involves raising fish in open ocean environments after raising them in hatcheries for a period. Young fish are released into the ocean where they can grow naturally before being harvested.
- **Benefits:** Aims to supplement wild fish populations and potentially reduce overfishing pressure on certain species.



Sea cucumber pens in the coast of Narra. (Photo courtesy of USAID Protect Wildlife Project)

**Species:** Salmon, tuna, and yellowtail are some examples of fish raised and released in sea ranching operations.

**3.2. Fly ash:**

- Fly ash, also known as coal ash or pulverised fuel ash, is a coal combustion product composed of fine particles of burned fuel.
- It is derived from coal-fired boilers along with flue gases.
- **Main components:** silicon dioxide (SiO<sub>2</sub>), aluminum oxide (Al<sub>2</sub>O<sub>3</sub>), and calcium oxide (CaO), iron oxide (Fe<sub>2</sub>O<sub>3</sub>)
- Solidifies while suspended in exhaust gases.

- **Regulation and Capture:** Previously released into the atmosphere, now captured prior to release due to air pollution control standards and pollution control equipment.
- **Uses of Fly Ash:**
  - **Construction of Embankments:** Used as a construction material due to its compaction characteristics, shear strength, compressibility, permeability, and frost susceptibility.
  - **Soil Stabilization:** Enhances soil's shrink-swell properties, making it suitable for subgrade pavements and foundations.
  - **Creation of Asphalt Concrete:** Used as a mineral filler in asphalt concrete mixes to fill voids and provide contact points between larger aggregate particles.
- **Environmental Concerns:**
  1. **Groundwater Contamination:** Contains toxic elements from coal such as arsenic(As), barium(Ba), boron(B), selenium(Se), and mercury(Hg), posing a risk of groundwater contamination.
  2. **Ecological Impact:** Depends on the chemical composition of the coal and the type of factory or thermal power plant. Fly ash deposited on topsoil can affect

### 3.3. Ele-fence' in Kerala seeks to end man-animal conflict:

- **The first AI-based smart fence named 'Ele-fence' is being installed in Kerala's Wayanad to address human-wildlife conflict.**
- The pilot project is conducted by **White Elephant Technologies**, a Kochi-based R&D firm, with support from the Kerala Forest Department.
- It is located at **Chelakkolly near Pambra in the Chethalth forest** range of south Wayanad.
- The **Ele-fence spans 70 meters** and integrates surveillance, real-time monitoring, control, and preventive features.
- The fence consists of six-inch-wide steel girders, 17 feet high, anchored four feet deep in concrete with steel bars for strength.
- AI-based logical trip wires provide early warnings of elephant movements, enhancing proactive management.
- The fence includes 4K cameras for real-time video and audio monitoring, linked to control rooms and Forest Department Rapid Response Teams.
- The Ele-fence includes sound and alarm lights to deter elephants from approaching its vicinity.
- It features built-in alerts using light and sound to warn pedestrians and motorists about the presence of elephants nearby.
- In addition to AI capabilities, the Ele-fence utilizes laser belt technology to physically prevent elephants from breaching the fence.
- When elephants come within 50 to 60 meters of the fence, multiple cameras activate to capture live visuals and trigger alarm bells.
- These alarms notify local residents and authorities, including Rapid Response Teams (RRT), forest offices, and central control rooms in real-time.

### 3.4. Railways to construct canopy bridges across track in Assam gibbon habitat

- The Northeast Frontier Railway (NFR) is funding the construction of canopy bridges for gibbons.
- **Purpose:** To help gibbons cross a railway track that splits their habitat in eastern Assam.
- The 1.65-km-long track will be doubled and electrified.
- It cuts through the 2,098.62-hectare **Hollongapar Gibbon Sanctuary in Jorhat district**.
- The sanctuary has **the largest population of Hoolock gibbons**, the only ape species in India.

- Gibbons live in the upper canopy of tall trees, **mainly the hollong tree**.
- The railway track fragments the forest, endangering the gibbons when they cross.
- Canopy bridges will be installed to ensure safe movement for the gibbons.
- The decision was made in consultation with the Assam State Forest Department, Wildlife Institute of India (WII), and other stakeholders.
- The canopy bridges **are designed by the Wildlife Institute of India (WII)** in consultation with the NFR.
- These bridges will be built at specific points to **help gibbons move across the Mariani-Dibrugarh railway track**.
- The ends and knots of the bridges will be secured with high-grade fastening materials.
- Safety nets will be installed below the main twin-rope bridge as a fail-safe mechanism.
- The bridges will be designed to allow lianas and creepers to grow on them, making them look natural.
- Previous efforts by NFR to build an artificial canopy bridge were not successful.
- Gibbons preferred a natural canopy bridge built by the State Forest Department and Aaranyak, a conservation organization.

#### 4. Species in News:

##### 4.1. Greater Adjutant Stork:

- The most endangered bird species.
- Habitat is in the Brahmaputra valley of Assam.
- Found mostly in Guwahati, Morigaon, and Nagaon districts.
- Wetlands in and around Guwahati were their home.
- Rapid urbanization led to habitat loss, threatening their survival.
- Listed as endangered by the International Union for Conservation of Nature.
- Largest concentration used to be in Guwahati, now seen only at a garbage dump near Deepor Beel Wildlife Sanctuary.
- Abundant fish and prey found from October to February, which is also their breeding season.
- Forage in urban waste disposal sites during non-breeding season.
- Principally carnivorous, preys on fish, frogs, snakes, reptiles, eels, birds, and carrion.
- Depend on wetlands for foraging and tall trees for roosting and nesting.
- Suffer from habitat destruction due to encroachment, overfishing, and drainage projects.
- Many roosting trees in Guwahati are on private land and are being cut down.
- Legally protected in India, but often driven out due to their droppings' strong odor and feeding habits.

##### 4.2. The Great Indian Bustard:

- **A Critically Endangered Bird**
- The Great Indian Bustard (*Ardeotis nigriceps*) is a majestic, large bird with a declining population, making it a critically endangered species.
- **Habitat:** Arid and semi-arid grasslands with scattered short shrubs and low-intensity cropping. Avoids irrigated areas.
- Historically found throughout western India, its range is now restricted mainly to Rajasthan and Gujarat. Small populations exist in Maharashtra, Karnataka, and Andhra Pradesh.

**Conservation Efforts:**

- **Description:**
  - Tallest flying bird in India, reaching up to 1.2 meters (4 feet) in height.
  - Weight: 15 kg (33 lbs)
  - Sexes are similar in size, with males distinguished by a black crown and throat patch.
  - Females have a buff-colored crown and lack the black throat patch.
  - Primarily insectivorous, feeding on grass seeds, insects, lizards, and small mammals.
- **Threats:**
  - Habitat loss and degradation due to agriculture, infrastructure development, and overgrazing.
  - Collisions with power lines.
  - Hunting and poaching
- The Great Indian Bustard is listed in **Schedule I of the Wildlife (Protection) Act, 1972**, offering it the highest degree of legal protection.

**4.3. The Mainland Serow:**

## Antelope-like mammal from Bhutan recorded at lowest elevation in western Assam

GS Paper III:  
Environment

The **mainland serow**, a mammal that looks like a cross between a goat and an antelope, has been recorded at the lowest elevation beyond Bhutan, its natural home, in Assam.

A team of scientists recorded a lone mainland serow (*Capricornis sumatraensis thar*) at 96 metres above the mean sea level at the **Raimona National Park in western Assam**. Also, the elusive animal has been found for the first time within a radius of 1 km from a human habitation.

The finding with photographic proof was published as a scientific paper in the latest issue of the *Journal of Threatened Taxa*. The paper was authored by M. Firoz Ahmed,



**Lone ranger:** A mainland serow at the **Raimona National Park** in western Assam. SPECIAL ARRANGEMENT

senior scientist at biodiversity conservation group Aaranyak; senior conservation biologist Dipankar Lahkar; Nibir Medhi; Nitul Kalita; Bhanu Sinha, Divisional Forest Officer, Kachugaon; forest officials Pranjal Talukdar, Biswajit Basumatary, and Tunu Basumatary; Ramie H. Begum, Associate Professor, Assam University; and

Abhishek Harihar, the director of Tiger programme, Panthera.

According to the **International Union for Conservation of Nature**, the **mainland serow inhabits areas at altitudes of 200 metres to 3,000 metres**. Its habitat is across the border in the **Phibsoo Wildlife Sanctuary and the Royal Manas National Park in Bhutan**.

## Science and Technology

### 1. Space Technology:

#### 1.1 JWST spots oldest galaxy yet, from Cosmic Dawn:

- NASA's James Webb Space Telescope (JWST) has discovered the earliest-known galaxy.
- The galaxy, named **JADES-GS-z14-0**, formed only **2% of the universe's current age, about 290 million years after the Big Bang**.
- JWST observed the galaxy during the period known as **cosmic dawn, just a few hundred million years after the universe began**.
- This discovery challenges previous understanding as galaxies of this size and brightness were not expected to exist so early.
- JADES-GS-z14-0 is about 1,700 lightyears across with a mass equivalent to 500 million stars like our Sun.
- The galaxy was rapidly forming stars, around 20 per year, making it highly active in star formation.
- JWST's observations have revolutionized the study of the early universe since its operational debut in 2022.
- The findings were made by the JWST Advanced Deep Extragalactic Survey (JADES) research team.
- Scientists involved in the study expressed surprise at the luminosity of early galaxies observed by JWST.
- The study was published online ahead of formal peer-review, highlighting the significance of JWST in early universe research.
- Previously, the earliest-known galaxy dated to about 320 million years after the Big Bang.
- The newly discovered galaxy, JADES-GS-z14-0, is significantly larger than other galaxies observed at similar distances.
- It measures about 1,700 light years across and has a mass equivalent to 500 million Sun-sized stars.
- The discovery challenges understanding of how such a large galaxy could form in the early universe within a few hundred million years.
- Despite its size for its era, JADES-GS-z14-0 is much smaller than present-day galaxies like our Milky Way, which is about 100,000 light years across.
- Star formation in the early universe was intense and violent, with massive hot stars forming and dying quickly, releasing significant energy.
- Researchers have proposed three main hypotheses to explain the luminosity of early galaxies, including supermassive black holes, which seem unlikely based on the new findings.
- The study was led by the JWST Advanced Deep Extragalactic Survey (JADES) team and published ahead of formal peer-review.

#### 1.2. Modified Newtonian Dynamics (MOND):

To prevent galaxies from flying apart, additional gravity is needed. So the idea of an invisible substance called dark matter was proposed. But nobody has ever seen the stuff, leading to a rival idea, called MODIFIED NEWTONIAN DYNAMICS (MOND), that the galactic discrepancies are caused instead by a breakdown of Newton's laws

**Galactic Rotation Problem:**

- Galaxies rotate faster than expected based on Newton's law of gravity and visible matter.
- This suggests there is extra gravity, which prevents galaxies from flying apart.

**Dark Matter Hypothesis:**

- Proposed to explain the extra gravity observed in galaxies.
- Dark matter is an invisible substance that hasn't been directly observed.
- There are no particles in the Standard Model of physics that could be dark matter.

**Modified Newtonian Dynamics (MODIFIED NEWTONIAN DYNAMICS (MOND)):**

- Proposed by Mordehai Milgrom in 1982.
- Suggests that gravity behaves differently at very weak levels, like at the edges of galaxies.
- MODIFIED NEWTONIAN DYNAMICS (MOND) can predict galaxy rotation without needing dark matter.

**Challenges with MODIFIED NEWTONIAN DYNAMICS (MOND) :**

- Recent research suggests MODIFIED NEWTONIAN DYNAMICS (MOND) is facing difficulties.
- While it can predict galaxy rotation without dark matter, other observations can also be explained by dark matter.

**Conclusion:**

- The debate continues between dark matter and MODIFIED NEWTONIAN DYNAMICS (MOND) to explain the galactic rotation problem.
- Dark matter remains a leading hypothesis despite its mysterious nature and lack of direct observation.

**Testing MODIFIED NEWTONIAN DYNAMICS (MOND) :**

- MODIFIED NEWTONIAN DYNAMICS (MOND) predicts changes in gravity behavior at low accelerations, not at specific distances from objects.
- You feel lower acceleration further away from any celestial object, like a planet, star, or galaxy, compared to being close to it.
- The amount of acceleration predicts where gravity should be stronger, rather than the distance.

**Scale of MODIFIED NEWTONIAN DYNAMICS (MOND) Effects:**

- MODIFIED NEWTONIAN DYNAMICS (MOND) effects typically appear several thousand light years away from a galaxy.
- On the scale of an individual star, MODIFIED NEWTONIAN DYNAMICS (MOND) effects become significant at a tenth of a light year, which is a few thousand times larger than an **astronomical unit (AU)** — the distance from Earth to the Sun.
- Weaker MODIFIED NEWTONIAN DYNAMICS (MOND) effects should also be detectable at smaller scales, such as in the outer Solar System.

**Cassini Mission and Saturn's Orbit:**

- **Cassini orbited Saturn from 2004 to 2017.**
- Saturn orbits the Sun at a distance of 10 AU.
- According to MODIFIED NEWTONIAN DYNAMICS (MOND), the gravity from the rest of our galaxy should cause Saturn's orbit to deviate from Newtonian expectations in a subtle way.

**Testing MODIFIED NEWTONIAN DYNAMICS (MOND) with Cassini:**

- The Cassini mission measured the Earth-Saturn distance by timing radio pulses between Earth and the spacecraft.
- Despite expectations, Cassini did not find any anomaly in Saturn's orbit that MODIFIED NEWTONIAN DYNAMICS (MOND) would predict.
- Newton's laws of gravity still accurately describe Saturn's orbit around the Sun.

**Study by Harry DesModified Newtonian Dynamics (MOND):**

- Harry DesModified Newtonian Dynamics (MOND) published a study exploring MODIFIED NEWTONIAN DYNAMICS (MOND)'s fit with Cassini data.
- The study suggested that tweaking how we calculate galaxy masses from their brightness might affect MODIFIED NEWTONIAN DYNAMICS (MOND)'s ability to match the data.
- This adjustment would impact the boost to gravity that MODIFIED NEWTONIAN DYNAMICS (MOND) provides to fit models of galaxy rotation, influencing our expectations for Saturn's orbit.

**Uncertainties and Gravity Effects:**

- Gravity from surrounding galaxies has a minor effect on the Cassini data.
- Despite uncertainties, the study concluded that MODIFIED NEWTONIAN DYNAMICS (MOND) cannot fit both galaxy rotation models and the Cassini radio tracking results simultaneously.

**Probability of MODIFIED NEWTONIAN DYNAMICS (MOND) Matching Cassini Results:**

- According to the study's standard assumptions and considering a wide range of uncertainties, the probability of MODIFIED NEWTONIAN DYNAMICS (MOND) matching the Cassini results is extremely low.
- It's likened to a flipped coin landing heads up 59 times in a row.
- This probability is more than twice the "5 sigma" gold standard for a discovery in science, which corresponds to about 21 consecutive coin flips landing heads up.

**More bad news for MODIFIED NEWTONIAN DYNAMICS (MOND)****Wide Binary Stars Test:**

- MODIFIED NEWTONIAN DYNAMICS (MOND) predicted that wide binary stars should orbit around each other 20% faster than expected according to Newton's laws.
- Indranil Banik led a detailed study that contradicts this prediction.
- The chance of MODIFIED NEWTONIAN DYNAMICS (MOND) being correct based on these results is as unlikely as a fair coin landing heads up 190 times in a row.

**Outer Solar System Test:**

- MODIFIED NEWTONIAN DYNAMICS (MOND) fails to explain the behavior of small bodies in the distant outer Solar System.
- Comets from this region have a narrower distribution in energy than predicted by MODIFIED NEWTONIAN DYNAMICS (MOND) .
- Their orbits are usually only slightly inclined to the plane where all planets orbit, whereas MODIFIED NEWTONIAN DYNAMICS (MOND) would predict much larger inclinations.

**Newtonian Gravity vs. MODIFIED NEWTONIAN DYNAMICS (MOND) :**

- Newtonian gravity is preferred over MODIFIED NEWTONIAN DYNAMICS (MOND) for length scales below about a light year.
- MODIFIED NEWTONIAN DYNAMICS (MOND) also fails on scales larger than galaxies, such as within galaxy clusters.

**Galaxy Clusters:**

- Dark matter was proposed to explain the random motions of galaxies within galaxy clusters, like the Coma Cluster.
- MODIFIED NEWTONIAN DYNAMICS (MOND) cannot provide enough gravity in the central regions of galaxy clusters, but it provides too much gravity in the outskirts.

**Dark Matter Model:**

- The standard dark matter model fits well with observations by assuming five times as much dark matter as normal matter.
- Despite its success, the standard dark matter model struggles to explain certain aspects of cosmology.

**Future of Dark Matter and MODIFIED NEWTONIAN DYNAMICS (MOND):**

- Dark matter is likely to remain an essential concept, but its nature might differ from what the Standard Model suggests.
- MODIFIED NEWTONIAN DYNAMICS (MOND), as it is currently formulated, cannot be considered a viable alternative to dark matter anymore.
- The idea that gravity might behave differently on very large scales remains a possibility.

**1.3. ISRO releases images of sun captured by Aditya-L1 during May (11 June)**

- **India's solar mission, Aditya-L1**, captured images of the sun and its dynamic activities during a solar storm in May.
- Between May 8 and 15, several **X-class and M-class solar flares** erupted in the active region AR13664 on the sun.
- These eruptions were associated **with coronal mass ejections (CMEs)** on May 8 and 9.
- During the eruptive events, **two remote sensing instruments aboard Aditya-L1, Solar Ultra Violet Imaging Telescope (SUIT) and Visible Emission Line Coronagraph (VELC)**, were in baking and calibration modes on May 10 and 11.
- **SUIT and VELC doors** were opened on May 14 to capture images and make observations.
- On June 10, ISRO released six images of the sun taken by the SUIT payload at different wavelengths, acquired on May 17.
- The **images captured by the SUIT payload** aboard India's Aditya-L1 solar mission will aid in studying solar flares, energy distribution, sunspots, space weather prediction, and monitoring solar activity and UV radiation across various wavelengths.
- These images will also contribute to the study of long-term solar variations.
- The **VELC payload conducted observations** in one of its spectroscopic channels for the emission line at 5303 Angstrom.
- On May 14, raster scans of the solar corona were performed by VELC to capture coronal activities in this specific spectral line.
- Two other remote sensing payloads, **SoLEXS and HELIOS**, captured these solar events between May 8 and 9.
- The **in-situ payloads ASPEX and MAG captured the solar event** on May 10 and 11 while passing through the sun-earth L1 point (L1).

**1.4. Physical Research Laboratory scientists find three new craters on Mars surface**

- Scientists at **Ahmedabad's Physical Research Laboratory (PRL)** discovered three new craters on Mars in the Tharsis volcanic region.
- The International Astronomical Union (IAU) Working Group for Planetary System Nomenclature approved naming these craters.
- "**Lal crater**" is named after **Devendra Lal**, a prominent Indian geophysicist and former Director of PRL, with a diameter of 65 km.
- "**Mursan crater**" is named after a town in **Uttar Pradesh**, measuring 10 km wide, located on the eastern side of the Lal crater's rim.
- "**Hilsa crater**" is named after a town in **Bihar**, also 10 km wide, situated on the western side of the Lal crater's rim.
- The Lal crater's scientific significance lies in its coverage with lava across its entire area in the Tharsis volcanic region on Mars.

#### Thick Sediment

- Geophysical evidence in Lal crater on Mars shows a 45-meter thick sedimentary deposit beneath its surface.
- This discovery indicates that water has transported significant amounts of sediment into the crater.
- The finding confirms that Mars had a wet past where water flowed on its surface.

#### 1.5. ISRO develops new PraVaHa software for aerodynamic design:

- ISRO has developed a **Computational Fluid Dynamics (CFD) software called PraVaHa** at the Vikram Sarabhai Space Centre (VSSC).
- PraVaHa is designed for aerospace vehicle aerodynamic and aerothermal analysis.
- It can simulate both external and internal flows on various vehicles including launch vehicles and re-entry vehicles.
- The software helps in conducting initial aerodynamic design studies for launch vehicles by evaluating numerous configurations.
- Aerospace vehicles **experience severe aerodynamic and aerothermal loads** during launch and re-entry due to external pressure and heat flux.
- Understanding airflow around these vehicles is crucial for designing their shape, structure, and Thermal Protection System (TPS).
- Unsteady aerodynamics around rocket bodies causes flow issues and generates significant acoustic noise during missions.
- Computational Fluid Dynamics (CFD) is **used to predict aerodynamic and aerothermal loads** by solving equations of conservation of mass, momentum, energy, and state.
- PraVaHa, developed by ISRO, **is employed in the Gaganyaan program** to analyze aerodynamics of human-rated launch vehicles such as HLVM3, Crew Escape System (CES), and Crew Module (CM).
- The PraVaHa software currently simulates airflow under Perfect Gas and Real Gas conditions.
- Validation processes are ongoing to simulate the effects of chemical reactions during air dissociation and combustion in scenarios **like earth re-entry and scramjet vehicles**.

**CRYOGENIC AND SEMI-CRYOGENIC**

- Both cryogenic and semi-cryogenic engines are powerful technologies used in upper stages of launch vehicles to achieve greater efficiency and payload capacity.

**CRYOGENIC ENGINES:**

- **Propellants:** Liquid hydrogen (LH2) as fuel and liquid oxygen (LOX) as oxidizer.
- **Temperatures:** LH2 is stored at around -253°C (-423°F), requiring complex insulation systems. LOX is kept at around -183°C (-297°F).
- **Performance:** Offer the highest fuel efficiency among all rocket propellants, translating to higher payload capacity.
- **Challenges:** LH2's extreme coldness poses engineering difficulties in storage, handling, and leaks.
- **Advantages:**
  - **High Efficiency:** They offer the highest fuel efficiency among all rocket engines, allowing them to carry heavier payloads into space.
  - **Clean Burning:** The propellants (hydrogen and oxygen) produce only water vapour as exhaust, making them a relatively clean burning option.
- **Disadvantages:**
  - **Complex Technology:** Developing and maintaining cryogenic engines is a technological challenge due to the extremely low temperatures involved.
  - **Storage and Handling:** LH2's low boiling point necessitates special insulated tanks and continuous refueling to prevent boil-off, making storage and handling complex and expensive.
- **Examples:** Used in upper stages of vehicles like the Space Launch System (SLS) and Delta IV Heavy.

**SEMI-CRYOGENIC ENGINES:**

- **Propellants:** Refined kerosene (like RP-1 or ISROSENE) as fuel and LOX as oxidizer.
- **Temperatures:** Kerosene is stored at room temperature, simplifying handling and infrastructure. LOX remains at -183°C (-297°F).
- **Performance:** Less efficient than cryogenic engines but offer a good balance between performance and ease of use.
- **Advantages:**
  - **Simpler Technology:** They are easier to develop and maintain compared to cryogenic engines due to the less extreme propellant temperatures.
  - **Cost-Effective:** Kerosene is cheaper and easier to store than LH2, making semi-cryogenic engines a more economical option.
  - **Increased Thrust:** Semi-cryogenic engines can produce higher thrust than solid-fuelled engines, allowing them to carry heavier payloads.
- **Disadvantages:**
  - **Lower Efficiency:** They are less efficient than cryogenic engines, resulting in a lower thrust-to-weight ratio and limiting payload capacity.
- **Examples:** Used in vehicles like India's GSLV Mk III and China's Long March 2 family.

- The choice between a cryogenic and semi-cryogenic engine depends on mission requirements.
- Cryogenic engines provide the ultimate thrust for heavy payloads, while semi-cryogenic engines offer a more cost-effective and manageable option for moderate payloads.
- As space exploration continues, both technologies will likely play a vital role in propelling humanity further into the cosmos.

**2. Diseases and Control:**

**2.1 Hydroxyurea to treat sickle cell disease:**

- The **Indian Council of Medical Research (ICMR)** is seeking Expressions of Interest (Eoi) from eligible organizations to jointly develop and commercialize a **low dose or paediatric oral formulation of hydroxyurea**.
- This initiative aims to address the **treatment challenges of sickle cell disease in India**, which has the **highest prevalence of the disease in South Asia**, affecting over 20 million people.
- Currently, **hydroxyurea is available in India primarily in 500-mg capsules or 200-mg tablets**, posing challenges for paediatric use due to the lack of suspension forms.

- **Sickle cell disease is a common monogenic disorder affecting haemoglobin.** Hydroxyurea, a **myelosuppressive agent, is effective in treating both sickle cell disease and thalassemia patients.**

**Risk of low dose**

- The Indian Council of Medical Research (ICMR) highlights challenges with existing hydroxyurea tablets, which are primarily high-dosage and not suitable for paediatric use.
- Currently, healthcare providers must break down tablets to administer appropriate doses based on body weight, risking efficacy and accurate dosing.
- There is a critical need for a paediatric formulation of hydroxyurea due to the high prevalence of sickle cell disease (SCD) in India and the launch of the National Mission to eliminate SCD by 2047.
- In India, healthcare providers are cautious in initiating hydroxyurea therapy due to limited availability of paediatric doses and concerns about potential toxicity.
- The prescribed dose for children is typically 10 mg to 15 mg per kilogram of body weight after two years of age, but accurately administering this dose remains challenging with current methods.
- The ICMR emphasizes the importance of developing a paediatric formulation to ensure accurate and effective treatment of SCD in children, minimizing dose-related side effects.

**Titration of drug:**

- The availability of a paediatric formulation of hydroxyurea can improve the titration of the drug.
- It aims to reduce dose-related side effects associated with current methods of administration.
- The Indian Council of Medical Research (ICMR) is open to entering into exclusive or non-exclusive agreements with eligible manufacturing companies.
- The goal is to jointly develop and commercialize paediatric oral formulations of hydroxyurea specifically for treating sickle cell disease

**Sickle Cell disease:**

- It is a group of inherited haemoglobin-related blood disorders.
- The most common type is sickle cell anemia.
- It causes an abnormality in haemoglobin, leading to a rigid, sickle-like shape in red blood cells under certain conditions.
- Problems typically begin around 5 to 6 months of age.

**Health issues include:**

- Pain attacks (sickle cell crisis) in joints
- Anemia
- Swelling in hands and feet
- Bacterial infections
- Dizziness
- Stroke
- In 2023, new gene therapies were approved.
- A small percentage of people can be cured by a bone marrow transplant.

## 2.2. Tussle over COVAXIN IPR:

- Bharat Biotech, maker of Covaxin, admitted an error in patent filings.
- The error involved not including scientists from ICMR as co-inventors.
- This omission pertained to protecting the vaccine's Intellectual Property Rights (IPR).

### What kind of rights govern vaccine patents?

- India's patent laws cover both product and process patents.
- Product patents grant exclusivity over a specific drug or product.
- Process patents prevent others from using the same method to create a similar product.
- Bharat Biotech (BBIL) stated it patented the process of making Covaxin from virus strains provided by ICMR-NIV.
- ICMR-NIV specializes in virus extraction, characterization, and testing.
- Industrial-scale vaccine production requires advanced facilities beyond lab capabilities.
- Covaxin is an inactivated coronavirus vaccine that stimulates antibody production.
- An adjuvant enhances vaccine potency.
- Companies seek patents to prevent competitors from copying processes.
- Patents are granted after regulatory approval and confirmation of novelty and inventiveness.
- BBIL has not yet been granted patents for Covaxin.

### What were the roles of BBIL and ICMR?

- Bharat Biotech (BBIL) collaborated with ICMR-NIV for developing Covaxin.
- An agreement between BBIL and ICMR outlined their respective roles and responsibilities.
- ICMR transferred virus strains and funded clinical trials with ₹35 crore.
- ICMR was to receive 5% royalties from Covaxin sales.
- Initially, BBIL did not include ICMR scientists as co-inventors in patent filings.
- Public disclosure requests for the collaboration agreement were made in July 2021.
- BBIL later acknowledged the omission and planned to correct it by filing new patent applications.
- The issue raised questions about joint intellectual property rights between BBIL and ICMR.

### Why does being cited as an inventor matter?

- Intellectual Property Rights (IPR) covers all aspects of product invention.
- Pharmaceutical development often involves diverse expertise, making in-house development challenging.
- Collaborations like BBIL-ICMR involve multiple entities and licensing agreements.
- Being listed as an inventor affects IP rights, royalties, and usage permissions of products.
- Disputes over IPR are pervasive across all fields.
- Incomplete inventor listings in patent filings, especially in the U.S., can lead to application rejection.

## 2.3. Novel Biomarkers:

- Biomarkers have become indispensable tools in medicine, aiding diagnosis, treatment monitoring, and **understanding disease progression**.

- However, the quest for even more powerful tools has led to the exploration of novel biomarkers.
- These emerging indicators hold the promise of revolutionizing healthcare.

#### What are Biomarkers?

- Biomarkers are measurable biological characteristics that **reflect a specific biological state or process**.
- They can encompass molecules, genes, proteins, or even physiological changes.

These indicators can reveal information on:

- **Normal functioning of the body**
- **Development of disease**
- **Response to a treatment**

#### Why are Novel Biomarkers Important?

- **Earlier Detection:** They might enable identifying diseases at earlier stages, allowing for prompt intervention and potentially better outcomes.
- **Enhanced Diagnosis:** More accurate and specific diagnoses can lead to more effective treatment plans.
- **Personalized Medicine:** These biomarkers could pave the way for treatments tailored to individual patients' unique needs.
- **Improved Treatment Monitoring:** Novel biomarkers can help assess how well a therapy works and identify potential side effects.

#### Examples of Novel Biomarkers (under research):

- **Circulating Tumor DNA (ctDNA):** Fragments of DNA released by tumors into the bloodstream. ctDNA holds potential for **non-invasive cancer detection**.
- **MicroRNAs (miRNAs):** Tiny regulatory molecules involved in gene expression. They have potential applications in cancer diagnosis and prognosis.

**Exosomes:** Extracellular vesicles containing proteins, RNA, and other molecules. They are being explored for disease diagnosis and monitoring.

## 2.4. Methanol Poisoning?

#### Why in News?

- At least **38 people died and 82 others were hospitalized in Kallakurichi, Tamil Nadu, after consuming spurious liquor**.
- Chief Minister M.K. Stalin took immediate action by transferring the Collector and suspending the district superintendent of police.
- The State deployed 2,000 police personnel in the district following the incident.
- This tragedy resembles a similar incident a year ago in Chengalpattu and Villupuram districts, where over 20 people died from consuming spurious liquor.
- Liquor sales in Tamil Nadu are regulated by the State through approximately 5,000 outlets.

#### What is the alcohol in liquor?

- Liquor contains varying levels of **alcohol content: beer around 5%, wine around 12%, and distilled spirits around 40%**.

- The primary psychoactive substance in these beverages is ethanol.
- Ethanol acts by reducing neurotransmission in the body, leading to intoxicating effects at low doses.
- According to the World Health Organization, no level of ethanol consumption is considered safe for health.
- Long-term use of ethanol can lead to dependence, increase the risk of certain cancers and heart disease, and may result in death.
- Chemically, **ethanol (C<sub>2</sub>H<sub>5</sub>OH) consists of carbon, hydrogen, and hydroxyl groups.**
- In the body, ethanol is metabolized by enzymes like alcohol dehydrogenase (ADH) into acetaldehyde.
- Acetaldehyde, in turn, is further metabolized into acetate by aldehyde dehydrogenase (ALDH) enzymes.
- The negative effects of alcohol consumption, including hangovers and health risks like cancer, are primarily attributed to acetaldehyde.

#### What is spurious liquor?

- **Spurious liquor contains methanol**, which is added to increase intoxicating effects or bulk volume.
- In previous incidents like Chengalpattu and Villupuram, methanol sourced from factories was added to arrack sold by local sellers.
- Following the Kallakurichi incident, Chief Minister Stalin appointed a one-man commission led by former High Court judge B. Gokuldas to investigate.
- Homemade liquor historically included methanol to enhance potency or volume.
- The Food Safety and Standards (Alcoholic Beverages) Regulations 2018 specify allowable methanol limits: absent in coconut fenny, 50 grams per 100 litres in country liquor, and 300 grams per 100 litres in pot-distilled spirits.

#### What is methanol?

- **Methanol (CH<sub>3</sub>OH)** consists of one carbon atom bonded with three hydrogen atoms and one hydroxyl group.
- Schedule I of the Manufacture, Storage, and Import of Hazardous Chemical Rules, 1989 includes methanol as a hazardous chemical.
- **Indian Standard IS 517 outlines the quality standards for methanol**, and the Tamil Nadu Denatured Spirit, Methyl Alcohol, and Varnish (French Polish) Rules 1959 specify packaging and signage requirements for methanol.
- Methanol is primarily produced by combining carbon monoxide and hydrogen with copper and zinc oxides as catalysts, under specific conditions of pressure and temperature.
- Historically, methanol was produced by heating wood to high temperatures, a process known since ancient times, including in ancient Egypt.
- Industrial uses of methanol include its role as a precursor to acetic acid, formaldehyde, aromatic hydrocarbons, as well as its applications as a solvent and antifreeze.
- In Tamil Nadu, the manufacture, trade, storage, and sale of methanol require licenses under the regulations established in 1959.

#### How does spurious liquor kill?

- Methanol is the lethal component in spurious liquor, responsible for numerous hooch tragedies in India and globally since 1945.
- Ingesting more than 0.1 ml of pure methanol per kilogram of body-weight can be devastating for adults.
- In the body, alcohol dehydrogenase (ADH) enzymes metabolize methanol into formaldehyde (H-CHO), which is further converted by aldehyde dehydrogenase (ALDH) enzymes into formic acid (HCOOH).
- Accumulation of formic acid causes metabolic acidosis, leading to acidaemia, where blood pH drops below normal levels.
- Formic acid disrupts cellular oxygen use by interfering with cytochrome oxidase, contributing to lactic acid build-up and worsening acidosis.
- Methanol consumption can lead to methanol-induced optic neuropathy, potentially causing long-term or irreversible visual impairment or blindness.
- Methanol poisoning may also result in cerebral edema, hemorrhage, and death, particularly affecting poorer societies in developing countries.

#### How can methanol-poisoning be treated?

- Methanol, once ingested, is absorbed completely through the gastrointestinal tract and reaches peak blood levels within about 90 minutes.
- Approximately 33% of ingested methanol remains in the body after 48 hours.
- Treatment for methanol poisoning involves administering pharmaceutical-grade ethanol.
- Ethanol competes with methanol for alcohol dehydrogenase (ADH) enzymes, slowing down methanol metabolism and preventing its conversion to toxic formaldehyde.
- Fomepizole and pharmaceutical-grade ethanol are treatment options for methanol poisoning.
- Fomepizole slows down ADH enzymes, reducing the formation of toxic formaldehyde from methanol.
- Pharmaceutical-grade ethanol competes with methanol for ADH enzymes, preventing its conversion to formaldehyde.
- Both treatments are limited by availability and require expert supervision.
- Dialysis may be used to remove methanol and formic acid from the blood, reducing kidney and retinal damage.

#### 2.5. H5N1 – Avian Influenza:

- The **highly pathogenic avian influenza (HPAI) H5N1** strain is affecting cattle in several U.S. states.
- For the **first time, three dairy farm workers in the U.S. have been infected with H5N1.**
- This raises concerns about the virus spreading from cattle to humans.
- In Kerala, India, the districts of **Alappuzha, Kottayam, and Pathanamthitta** have reported **H5N1 outbreaks in 19 locations since April.**
- These areas have ecosystems with water bodies, migratory birds, fowls, and integrated farms.
- A large number of crows have died in Alappuzha, and the H5N1 virus was found in their carcasses. There are concerns that the virus could spread widely.

#### How dangerous is it?

- H5N1 emerged in 1996, **causing the mass killing of billions of wild birds and fowls.**
- The virus has spread to 26 mammalian species, including cattle.

- New evidence shows H5N1 can infect humans, increasing fears of a potential global pandemic. In the U.S., H5N1 is spreading from herd to herd in 12 states.
- The virus has been found in raw milk and milking machines.
- Scientists say the virus hasn't yet changed to easily transmit between humans, so the risk to human health is low.
- However, influenza viruses can evolve quickly, and the wide spread of H5N1 suggests more human infections could happen.

**What is the level of risk to humans?**

- H5N1 spreads from birds/animals to humans, especially with close interaction and inadequate protection.
- **WHO reports nearly 900 human infections from H5N1 between 2003 and April 1, 2024, in 23 countries.** More than half of these infections were fatal.
- Although the current risk to humans is low, it could increase as the virus spreads to more animals like cows or domestic mice.
- In districts like Alappuzha, where waterfowl, chickens, dairy cows, and humans coexist, the risk of human infection is considered high.

**What are the symptoms of H5N1?****Symptoms of H5N1:**

- Similar to Influenza-A: respiratory difficulties, fever, cough, sore throat, and pneumonia.
- Can worsen in immunocompromised individuals or those with underlying conditions.
- In the U.S., a farm worker **reported only conjunctivitis (pink eye).**

**CDC Health Advisory:**

- Clinicians should consider H5N1 in patients with respiratory illness or conjunctivitis if they had exposure to livestock or dead birds.
- Early detection and containment are crucial to prevent virus spread.

**Containment Strategy in Kerala:**

- So far, only poultry affected in outbreaks.
- Mass culling of birds within a certain radius of infection sites.
- Mass death of crows suggests possible spread beyond current surveillance zones.
- Continuous surveillance needed: testing environmental samples (water, bird faecal matter) and human samples with flu-like symptoms.
- People with livestock and birds at home advised to wear masks.
- Antiviral Tamiflu prescribed as a preventative measure in areas with H5N1 cases.

**What are the necessary precautions?**

- Avoid contact with infected birds/animals or their environments without protection.
- Monitor for respiratory illness symptoms, including conjunctivitis, for 10 days if exposed.
- Seek medical advice if symptoms appear.
- Use only pasteurized milk.
- Cook poultry meat and eggs thoroughly.
- The Lancet calls for a coordinated response to H5N1.
- Emphasizes the need to prioritize the 'One Health' approach.
- Kerala's 'One Health' initiative is part of the World Bank-aided 'Rebuild Kerala' project in four districts.
- Community-based disease surveillance network established.
- 250,000 volunteers trained to report unusual events or animal/bird deaths.
- Aims for early warning and preventive/control measures.

### 3. Defence Technology:

#### 3.1. Aircraft Career:

- Recent reports indicate that the **Indian Navy is moving closer to getting a third aircraft carrier**, with Cochin Shipyard Limited (CSL) set to begin construction.
- CSL will build an add-on to **the Vikrant-class, weighing around 40,000 tonnes, known as Indigenous Aircraft Carrier-2 (IAC-2)**.
- IAC-2 will have upgrades, modifications, and higher local content compared to the first carrier, **IAC-1 Vikrant**.
- The navy aims to prevent the decline of CSL's carrier-building expertise, which happened previously with **Mazagaon Dock Shipbuilder's submarine construction skills**.
- Between 1995 and 2005, Mazagaon Dock Shipbuilder's submarine facilities deteriorated due to a corruption scandal involving the purchase of German submarines.
- To recover, **Mazagaon Dock began building French Scorpene submarines at a high cost**, of which five are already in service and the sixth will join by year-end.
- The Indian Navy wants to avoid a similar situation with CSL by building a larger carrier of around 65,000 tonnes, but will settle for the interim IAC-2 for now.

#### Future, concerns

- The Indian Navy plans to build IAC-2 to complement **its existing carriers: INS Vikramaditya, a refurbished Russian vessel, and Vikrant**, a 40,262 tonne short-take-off barrier-arrested recovery (STOBAR) carrier.
- The navy needs one carrier for each of its seaboard (eastern and western) and another as a reserve.
- There are concerns about IAC-2, including its high cost estimated at \$5-6 billion and doubts about its effectiveness in countering anti-access/area denial (A2/AD) strategies used by China and Pakistan. **A2/AD is a defence strategy that aims to prevent enemy aircraft carriers from operating freely**.
- China and Pakistan have advanced their A2/AD capabilities, particularly with modern cruise missile technology, making it more challenging and less expensive to conduct such operations.
- The U.S. Navy also views China's A2/AD strategy as a significant threat to its fleet and is cautious about engaging in areas where these defences are strong.
- The Indian Navy faces a division in opinion regarding strategic priorities: **pursuing a 'sea denial' strategy using submarines or a 'sea control' approach** with carrier battle groups that are costly and more vulnerable.
- There is debate over the financial logic of building a new aircraft carrier instead of investing in **additional 'killer-hunters' submarines (SSKs)**. Currently, the Navy operates 16 SSKs, fewer than the 24 projected by 2030.
- **The shortage of critical surface combatants** like corvettes, mine-sweepers, destroyers, and frigates is also a concern, along with a lack of naval utility helicopters, unmanned aerial vehicles, and various missiles and ordnance.
- **Financial constraints** have compelled the Navy to reduce its target of operating 200 warships by 2027, as outlined in its Maritime Capability Perspective Plan (MCP).
- The Navy has also adjusted its plans for mine counter-measures and the procurement of Boeing P-8I Neptune long-range maritime aircraft due to budget limitations.
- **The Indian Air Force (IAF) and Indian Army have been competing for a larger share of the defense budget**, which has been decreasing.

- Many IAF veterans believe that under current financial constraints, acquiring an aircraft carrier would be an expensive luxury. They are concerned that a carrier would be vulnerable to advanced anti-access/area denial (A2/AD) threats.
- Some IAF officers argue that SEPECAT Jaguar IM/IS and multi-role Russian Sukhoi Su-30MKI fighters, equipped with enhanced maritime strike capabilities and extended ranges, can project power more economically and securely than a carrier.
- The IAF's maritime Jaguar IM fleet is armed with AGM-84L Block II Harpoon missiles and is being equipped with Israel Aerospace Industries-Elta EL/M-2052/2060 multi-mode active electronically scanned array radar for sea operations.

#### Upgrading capabilities

- In early 2020, the Indian Air Force (IAF) commissioned its first Su-30MKI squadron armed with the BrahMos-A(Air) supersonic cruise missile at Thanjavur, located on India's southeast coast.
- This squadron was tasked with monitoring India's seacoasts and the wider Indian Ocean Region.
- Military planners believed that the Su-30MKI squadron would enhance the IAF's capability to engage potential maritime targets with high precision.
- Some naval experts preferred to enhance the military capabilities of the Andaman and Nicobar archipelago. They proposed creating an anti-access/area denial (A2/AD) maritime "exclusive zone" around it to deter threats, including from the Chinese navy.
- This approach was considered more cost-effective than acquiring an aircraft carrier and would make use of the strategic advantage of the Andaman and Nicobar islands, which are considered unsinkable and strategically located.

#### 3.2. Innovation for Defence Excellence:

- The **Defence Ministry signed the 350th contract under iDEX with SpacePixxel Technologies.**
- The contract **aims to design and develop a miniaturized satellite capable of carrying various payloads**, including electro-optical, infrared, synthetic aperture radar, and hyperspectral payloads up to 150 kg. This initiative is led by the Indian Air Force.
- iDEX is the flagship initiative of the Defence Ministry aimed at fostering innovation in the defence sector by engaging startups and MSMEs (Micro, Small, and Medium Enterprises).

#### Pros of the satellite

- The 350th iDEX contract focuses on innovating in space electronics, particularly in miniaturizing payloads previously deployed on large satellites.
- The contract aims to develop a modular small satellite integrating multiple miniaturized payloads tailored to specific needs.
- Advantages include faster deployment, cost-effectiveness, easier manufacturing, scalability, adaptability, and reduced environmental impact.
- SpacePixxel Technologies specializes in building high-resolution hyperspectral imaging satellites for detailed earth observation.
- iDEX, managed by DIO under the Defence Production Department, has conducted 11 editions of the Defence India **Start-up Challenge and launched the ADITI scheme to foster innovations in critical defence technologies.**

### 3.3 Light Combat Aircraft (LCA) Tejas:

The LCA Tejas is an indigenously developed multi-role light fighter aircraft by Hindustan Aeronautics Limited (HAL) for the Indian Air Force (IAF) and Indian Navy.

- Designed to replace the aging fleet of MiG-21 fighter jets in the IAF.

#### Development:

- The project began in the 1980s under the Aeronautical Development Agency (ADA) in collaboration with HAL.
- Maiden flight took place in 2001.
- Received Initial Operational Clearance (IOC) in 2013 and Final Operational Clearance (FOC) in 2019.

#### Design and Features:

- Lightweight and highly agile with a tailless, compound delta-wing configuration.
- Constructed with advanced composite materials, reducing overall weight and enhancing durability.
- Equipped with modern avionics, digital flight control systems, and multi-mode radar.

#### Performance:

- Maximum speed of Mach 1.6.
- Capable of carrying a variety of air-to-air, air-to-ground, and air-to-ship missiles, precision-guided munitions, and bombs.
- Fitted with a 23mm twin-barrel cannon.
- Operational range of approximately 3,000 km with external fuel tanks.



**दिल्ली से भी बेहतर**

# Patriotic IAS

## IAS/PCSwali Pathshala

**Now admission open for Offline Classroom Programme.**  
Students can attend free demo classes before taking the admission for their satisfaction.

**Patriotic IAS**  
IAS/PCSwali Pathshala

**FOUNDATION COURSE (OFFLINE/LIVE)**

1. Holistic coverage of all the syllabus of the IAS Prelims & Mains, UP-PCS Prelims & mains. Also Comprehensive Material for each topics.
2. Offline class (In addition Live Class & Recorded Videos of the same class).
3. IAS Prelims Test Series (25 Tests) & IAS Mains Test Series. (20 Tests)
4. UP-PCS Prelims Test Series. (20 Tests) & UP-PCS Mains Test Series. (20 Tests)
5. Mentoring Sessions & Interview Guidance.

Address : 3rd Floor, KV Tower, Padleyganj Road, Gorakhpur  
 Email Id : [info@patrioticias.in](mailto:info@patrioticias.in)  
 Contact Number : **9971932488**  
 Website : [patrioticias.in](http://patrioticias.in)

**We are committed to providing the best preparation environment for the IAS/PCS at an affordable Fee (even better than those provided in the top institute of Delhi but at much lesser than their Fee)**

## Disaster Management

### 1. Heat Wave:

#### What is a heatwave?

- The definition of a heatwave varies depending on the geography of different regions, according to the IMD (India Meteorological Department).
- **A heatwave is officially declared by the IMD when the maximum temperature recorded at a station meets certain criteria:**
  - **For plains regions, a heatwave is declared if the temperature reaches 40 degrees Celsius or higher.**
  - **In coastal areas, the threshold is 37 degrees Celsius or higher.**
  - **For hilly areas, it's 30 degrees Celsius or higher.**
- The severity of a heatwave is determined by how much the temperature deviates from the normal range.
- A "normal heatwave" occurs when the departure from the normal temperature range is between 4.5 to 6.4 degrees Celsius.
- If the departure is greater than this range, it's classified as a "severe heatwave."
- Alternatively, a heatwave can also be declared based on the actual maximum temperature recorded:
  - A "heatwave" is declared **if the temperature exceeds 45 degrees Celsius.**
  - A **"severe heatwave" is declared if it exceeds 47 degrees Celsius.**
- The IMD considers the latter two criteria only if:
  - **At least two stations** in a meteorological subdivision report such high maximum temperatures, or
  - **At least one station records a departure from the normal range for at least two consecutive days.**

#### Who decides which disasters qualify for relief and aid? Are all heatwave deaths reported and counted?

- North India is currently experiencing its longest heatwave in the past 15 years.
- The Ministry of Health and Family Welfare has reported that at least 100 people in India have died due to heat-related illnesses between March 1 and June 18.
- Experts believe the actual number of deaths could be higher than reported.
- The significant number of fatalities has sparked renewed debates about categorizing heatwaves as natural disasters.

#### Are heatwaves a natural disaster?

- **The National Disaster Management Act (NDMA)** is the primary legislation that governs the roles of both the Central and State governments in responding to natural disasters.
- The Ministry of Home Affairs is responsible for overseeing the implementation of the NDMA.
- Various disaster management authorities derive their authority from this act, which defines the types of natural calamities eligible for state-supported compensation.
- The NDMA also establishes special funds at both the State and Central levels that can be utilized during disasters.

- Currently, the Guidelines on Constitution and Administration of the State Disaster Response Fund (SDRF) and National Disaster Response Fund (NDRF) **list 12 notified disasters. These include cyclone, drought, earthquake, fire, flood, tsunami, hailstorm, landslide, avalanche, cloudburst, pest attack, frost, and cold waves.**
- Notably, heatwaves are not yet included in these guidelines, due to reasons associated with a separate governmental entity not aligned with institutions governed by the NDMA.

#### **Which is this body?**

- The 15th Finance Commission, a constitutional body, decides on revenue sharing between the Centre and States in India.
- It noted in its report that the current list of notified disasters eligible for funding from the State Disaster Response Fund (SDRF) and National Disaster Response Fund (NDRF) adequately meets the states' requirements.
- States have requested the Finance Commission to expand the list of natural calamities considered as disasters, which would make them eligible for more funds during emergencies.
- According to guidelines, a State can allocate up to 10% of its annual SDRF allocation for immediate relief to victims of natural disasters not listed among the 12 standard disasters.
- Compensation for victims of heatwaves, not currently classified as a disaster, is provided using these allocated funds.
- The upcoming 16th Finance Commission, chaired by economist Arvind Panagariya, may review new requests from states regarding the inclusion of additional natural calamities as disasters.

#### **Are heatwave deaths rising in India?**

- Heatwave deaths in India have seen fluctuations over recent years: from 1,127 in 2017 to 374 in 2021, classified as 'accidental deaths' by the National Crime Records Bureau.
- In 2022, there were 33 reported heatwave deaths, none in 2023, but at least 100 have been confirmed this year.
- While fewer than the 1,100 deaths in Andhra Pradesh in 2016, longer and more frequent heatwave periods are becoming a concern.
- State health departments are responsible for providing data on heatwave-related illnesses and deaths to the Central government.
- Classifying heatwave deaths is challenging due to many cases involving underlying health conditions like cardiovascular diseases or hypertension aggravated by high temperatures.
- Definitions of heatwaves vary; temperatures above 45 degrees Celsius or 4.5 degrees above normal are considered heatwave conditions.
- Even places with mid-30s temperatures, well above normal, have reported heatwaves in the Himalayan States, though no official deaths have been reported.
- States like Andhra Pradesh, Odisha, Telangana, Gujarat, and Rajasthan typically report the highest casualties from heatwaves.
- Medical guidelines exist to help doctors diagnose heatwave-related illnesses, but their application can vary among healthcare providers.

#### **What measures do States have in place?**

- With increasing heatwaves, State, district, and city authorities have created heat action plans (HAPs).

- The National Disaster Management Authority (NDMA) and the India Meteorological Department are collaborating with 23 States to develop these HAPs.
- HAPs include:
  - A region's heat profile with data on past heatwave events.
  - Yearly trends in summer maximum temperatures.
  - Land surface temperature information.
  - A vulnerability assessment to identify regions needing urgent attention.
  - A response plan to address heatwave impacts.

## **2. Forest Fires:**

### **What does the State need to do in order to democratise forest management and curtail raging forest fires?**

- Himachal Pradesh is experiencing widespread forest fires.
- Since April 15, there have been 1,684 forest fires according to the Himachal Pradesh Forest department.
- These fires have damaged 17,471 hectares of forest land.
- Significant loss to wildlife has been reported.
- From 2001 to 2023, Himachal Pradesh lost 957 hectares of tree cover due to fires.
- Additionally, 4.37 thousand hectares were lost due to other factors contributing to forest loss.

### **How do forest fires start in the State?**

- Forest fires in the Himalayas occur during the **pre-monsoon summer period**.
- This period experiences moisture stress due to depletion of snowmelt water.
- Moisture conditions, characterized by rainstorms, determine the severity of forest fires.
- Less moisture increases the impact of fires.
- Human activities like unattended campfires and discarded cigarettes are common causes of forest fires.
- Forest fires are a major source of pollutants, including black carbon.
- Black carbon significantly contributes to glacier melt in the Himalayas and negatively affects the regional climate.
- Faulty forestry practices and a utilitarian perspective on forests, excluding community participation, are primary causes of these fires.

### **Have the Himalayan forests undergone a transformation?**

- Himalayan forests have undergone systematic transformation over the past two centuries.
- The construction of railways in the 1850s, driven by British interests, played a pivotal role.
- Lord Dalhousie intended railways not just for trade but also to serve British capital.
- Railway construction led to the exploitation of Himalayan forests and loss of customary rights.
- Between 1853 and 1910, 80,000 km of railway track were built, severely impacting forests.
- From 1869 to 1885, 6.5 million sleepers were made from Deodar wood.
- Chir pine forests were expanded for timber and resin extraction.
- Between 1910 and 1920, the number of trees tapped for resin increased significantly.
- Resin extraction continues as a major economic activity in pine forests.

- State-managed forestry favoured Chir pine over Banj oak, impacting water retention and springs.
- Banj oak forests have higher rainwater absorption and better moisture retention.
- Currently, 17.8% of Himachal Pradesh's forest area (37,033 sq km) is covered by Chir pine trees.
- Chir pine forests are highly susceptible to forest fires.

#### What needs to be done?

- Democratisation of forests is crucial to involve local communities in forest management.
- Local communities have historically had rights to extract wood, timber, fodder, etc., from forests.
- In Himachal Pradesh (H.P.), under Schedule V of the Indian Constitution, community assent is required for development activities.
- However, large projects like hydro power generation, road widening, and highways often lead to forest diversion without adequate community involvement.
- There is a need to transition to mixed forestry and reduce the dominance of pine trees.
- Forest management should integrate scientific and community knowledge in a participatory manner.
- Implementation of check dams and other methods is necessary to revive water springs.
- Environmental services at the village level should be established.
- The Himalayan States should appeal to the ongoing 16th Finance Commission for support, including disaster mitigation funds.

### 3. IMD Colour Coding for Weather:

- Meteorological Department (IMD) uses a colour-coded warning system to effectively communicate weather forecasts and potential risks to the public. This system simplifies complex weather information and allows people to prepare for impending weather events.
- **Purpose:** To warn the public about severe or hazardous weather conditions that could cause disruptions, damage, or danger to life.
- **Dissemination:** Warnings are issued daily and updated regularly. You can access them through the IMD website, mobile app, or weather bulletins.
- **Colour Codes:** The IMD uses four distinct colour codes, each with a specific meaning:
  - **Green: No Advisory (Normal Weather)**
  - Indicates normal weather conditions with no significant threats.
  - **Yellow: Be Aware (Severe Weather):** Warns of potentially bad weather conditions that could disrupt daily activities. It suggests staying informed and following further updates.
  - **Orange: Be Prepared (Very Severe Weather):** Issued for extremely bad weather events that could lead to disruptions in transportation, power outages, and potential damage. It

### Orange alert for three districts in Kerala today

**The Hindu Bureau**  
THIRUVANANTHAPURAM

The India Meteorological Department (IMD) issued an orange alert for very heavy rain in three districts of Kerala – Kozhikode, Kannur, and Kasaragod – on Monday.

A yellow alert has also been issued warning of isolated heavy rain for the remaining districts, except for Thiruvananthapuram and Kollam.

According to a weather bulletin issued by the IMD on Sunday, strong westerly and southwesterly winds prevail in the lower levels over Kerala and Lakshadweep region triggered by a trough that runs off the Maharashtra-Kerala coasts.

Under its influence, rain or thundershowers is most likely to occur at most places in Kerala until June 29.

Fishermen have been advised not to venture into the sea as squally weather with wind speeds ranging from 35 kmph to 45 kmph and gusting to 55 kmph is likely to prevail along the Kerala coast.

Meanwhile, Kudulu in Kasaragod recorded the highest rainfall of 8 cm during the 24 hours ending at 8.30 a.m. on Sunday.

emphasizes the need for preparedness measures.

- **Red: Take Action (Extremely Severe Weather):** The most critical warning, indicating imminent threats to life and property due to extremely severe weather conditions. It advises taking immediate action as per official instructions.
- **Benefits of the System:**
- **Simple and Easy to Understand:** The colour codes provide a clear and concise way for people to grasp the severity of weather warnings.
- **Actionable Information:** Each colour code suggests a specific course of action, empowering individuals to prepare for potential hazards.

#### 4. Railway Accidents:

- On June 17, a train accident occurred near New Jalpaiguri in West Bengal.
- The accident killed 10 people and injured over 40.
- A goods train hit the 13174 Down Agartala Sealdah Kanchanjunga Express from the rear.
- The collision happened at 8:55 a.m.
- The trains were manually cleared to run in the same block section due to malfunctioning automatic signalling.
- The incident took place between the Ranipatra and Chattar Hat stations under the Northeast Frontier Railway.

#### What was initial response of Railway Board?

- The Railway Board initially stated that the accident was caused by the goods train's loco pilot.
- The pilot disregarded the Railways' General and Subsidiary Rules (G&SR).
- He proceeded at normal speed, leading to the collision with the Kanchanjunga Express.
- The loco pilot of the goods train died in the accident.
- The Railways has ordered a statutory inquiry into the accident.

#### Is signal failure a routine event?

- A 2017 report by Mukesh Mehrotra stated that only 3% of Indian Railways accidents are due to equipment failure.
- During signal failures, trains can be operated under caution.
- The station master issues a TA-912 notice, authorizing loco pilots to cross a red signal during signal failures, and a 'line clear' ticket under the G&SR.
- The rule book requires the driver to proceed cautiously and stop short of any obstruction.
- Without prior indication of a defective signal, the loco pilot must stop for one minute during the day and two minutes at night if encountering a red signal.
- After stopping, the loco pilot should proceed with extreme caution at 15 kmph.
- This stopping procedure is not needed if a 'line clear' ticket is issued.
- Only one train is allowed between two block sections at any time.
- Another train can enter only after the first train has left the block section.

#### Would Kavach have prevented the accident?

- The anti-collision device, Kavach, was not installed on the route where the accident occurred.
- Kavach would have slowed down the freight train (which was moving at 45 kmph) by activating the automatic braking system.
- Progress on implementing Kavach has been slow due to a lack of vendors.
- The Kavach system is operational on only 1,500 km out of nearly 68,000 km of Indian Railways.

- Railway accidents are rare, with only 0.03 accidents per million km in 2020-21 and 2021-22.
- Despite the low rate, there were 34 consequential train accidents in 2021-22, resulting in nine deaths and 45 injuries. In 2022-23, there were 48 consequential train accidents.
- June 2023 saw the worst train accident in about two decades in Balasore, where nearly 300 passengers died.

**How big of a role does human failure play?**

- Human failure is a major cause of railway accidents.
- Recent accidents citing human failure include:
  - 2023 derailment of two passenger trains at Kothavalasa railway station near Vizianagaram.
  - The disastrous 2023 accident in Balasore involving the Coromandel Express, Bangalore-Howrah Express, and a goods train.
  - The 2018 derailment of the New Farakka Express.
- In the recent case, human failure was not applicable.
- There are thousands of vacancies for loco pilots in Indian Railways.
- As of June 20, 2023, Indian Railways reported 18,799 vacancies for loco pilots.

**What more needs to be done?**

- Several committees have examined railway safety.
- Some recommendations have been accepted, while others have not.
- **The Kakodkar Committee made a key recommendation:**
  - Division of responsibilities in railway safety.
  - Proposed creation of an independent Railway Safety Authority.
  - This authority would have oversight on railway operations.
- **Ramesh Subramanian's analysis in 2022 highlighted:**
  - Indian Railways is influenced by political needs rather than profitability.
  - Limited capital for investing in new technologies.
  - High modernization costs are not affordable for passengers.
- The Union government needs to prioritize railway safety and modernization.
- Parliamentary debates are needed to achieve political consensus on the future direction of Indian Railways.

**Kavach: National Automatic Train Protection System**

- **Developer:** Research Design and Standards Organisation (RDSO) in collaboration with three Indian vendors.
- **Purpose:** Adopted as India's National Automatic Train Protection (ATP) System.
- **Standards:** Adheres to Safety Integrity Level-4 (SIL-4).

**Key Features**

- Acts as a vigilant watchdog over the existing signaling system.
- Alerts the loco pilot when approaching a 'red signal'.
- Automatically applies brakes to prevent signal overshooting.
- Relays SoS messages during emergencies.
- Provides centralized live monitoring of train movements via the Network Monitor System.

**Centre of Excellence**

- Hosted by the Indian Railways Institute of Signal Engineering & Telecommunications (IRISET) in Secunderabad, Telangana.

**Components**

1. **First Component:**
  - Incorporates Radio Frequency Identification (RFID) technology into the tracks.
  - Uses radio waves and electromagnetic fields to identify objects or individuals and read wireless device information without physical contact.
2. **Second Component:**
  - Equips locomotives (driver's cabin) with RFID readers, a computer, and brake interface equipment.
3. **Third Component:**
  - Includes radio infrastructure, such as towers and modems, installed at railway stations to support system functionality.

दिल्ली से भी बेहतर

# Patriotic IAS

## IAS/PCSwali Pathshala



**Now admission open for Offline Classroom Programme.**  
Students can attend free demo classes before taking the admission for their satisfaction.

**FOUNDATION COURSE (OFFLINE/LIVE)**

1. Holistic coverage of all the syllabus of the IAS Prelims & Mains, UP-PCS Prelims & mains. Also Comprehensive Material for each topics.
2. Offline class (In addition Live Class & Recorded Videos of the same class).
3. IAS Prelims Test Series (25 Tests) & IAS Mains Test Series. (20 Tests)
4. UP-PCS Prelims Test Series. (20 Tests) & UP-PCS Mains Test Series. (20 Tests)
5. Mentoring Sessions & Interview Guidance.

We are committed to providing the best preparation environment for the IAS/PCS at an affordable Fee (even better than those provided in the top institute of Delhi but at much lesser than their Fee)

Address : 3rd Floor, KV Tower, Padleyganj Road, Gorakhpur  
Email Id : [info@patrioticias.in](mailto:info@patrioticias.in)  
Contact Number : **9971932488**  
Website : [patrioticias.in](http://patrioticias.in)

MRP: 110 Rs