

INDEX

GEOGRAPHY	4
1. Dust Storms (Source: The Indian Express)	4
2. Tsunami (Source: The Indian Express)	5
3. Reasons Why Earthquakes Are Common in the Philippines (Source: The Indian Express)	6
4. Mountain Passes in News (Source: The Hindu)	7
5. Hindu Kush Himalaya (HKH) Region (Source: The Indian Express)	8
6. Factors Influencing the Indian Monsoon (Source: The Indian Express)	9
7. Coal (Source: PIB)	13
8. Flash Flood (Source: The Hindu)	13
9. Omega Block (Source: The Indian Express)	14
10. Teesta River (Source: The Hindu)	14
11. Earthquake (Source: The Hindu)	15
12. How are Islands Formed? (Source: PIB)	16
 HISTORY/ART & CULTURE.....	 19
1. Birsa Munda (Source: PIB)	19
2. Rani Lakshmibai (Manikarnika) (Source: The Indian Express)	19
3. Battle of Plassey (Source: The Indian Express)	20
4. Harappa Settlement and Finding (Source: The Hindu)	20
5. Bankim Chandra Chattopadhyay (Source: PIB)	23
6. Jantar Mandir (Source: The Hindu)	24
 POLITY	 25
1. Right To Privacy (Source: The Hindu)	25
2. Right to Information Act, 2005 (Source: The Hindu)	25
3. Anti - Defection Law (Source: The Indian Express)	26
4. National Emergency (Article 352) (Source: The Hindu)	27
5. Telecommunications Act, 2023 (Source: The Hindu)	28
6. National Education Policy (Source: The Hindu)	29
7. Allocation of Election Symbols (Source: The Indian Express)	31
8. Armed Forces (Special Powers) Act (AFSPA) (Source: The Hindu)	32

INTERNATIONAL RELATIONS.....	33
1. IMEC Corridor (Source: The Hindu).....	33
2. Kalapani-Limpiyadhura-Lipulekh Trijunction(Source: The Hindu)	34
3. G7 Grouping (Source: The Hindu)	34
4. Indian Ocean Rim Association (IORA) (Source: The Hindu).....	35
5. Exercise Pitch Black 2026 (Source: The Hindu)	36
6. Ganga Water Sharing Treaty (Source: The Hindu).....	36
7. International Atomic Energy Agency (IAEA) (Source: The Hindu)	37
8. Financial Action Task Force (FATF) (Source: The Hindu)	38
9. European Union (EU) (Source: The Hindu).....	38
10. Antarctic Treaty (Source: The Hindu)	39
11. United Nations Security Council (UNSC) (Source: The Hindu)	39
12. Organization of the Petroleum Exporting Countries (Source: The Hindu).....	40
 ECONOMY	 41
1. Fiscal Deficit (Source: The Hindu).....	41
2. Wholesale Price Index and Producer Price Index (Source: The Hindu).....	41
3. Circular Economy (Source: The Hindu)	42
4. Insolvency and Bankruptcy Code (Source: The Indian Express)	43
5. Liquidity Adjustment Facility (Source: The Hindu)	43
6. Foreign Direct Investment (FDI) (Source: The Hindu)	44
7. Retail Inflation and Consumer Price Index (Source: The Hindu)	44
8. Windfall Tax (Source: The Hindu)	45
9. Index of Services Production (ISP) (Source: The Hindu)	46
10. Index of Industrial Production (IIP) (Source: The Hindu).....	46
11. Depreciation and Appreciation of Currency and Impact upon Economy (Source: The Indian Express)	47
12. Government Security (G-sec) (Source: PIB)	48
 ENVIRONMENT.....	 49
1. Ethanol Blending (Source: The Hindu)	49
2. Shendurney Wildlife Sanctuary (Source: The Hindu)	50
3. Similipal Tiger Reserve (Source: The Hindu).....	50
4. Kaziranga National Park (Source: The Hindu)	51
5. Sambhar Lake (Source: The Hindu).....	52
6. United Nations Framework Convention on Climate Change (UNFCCC) (Source: Down To Earth)	52
7. Impact of Increased Peacock Population (Source: The Hindu)	53
8. Great Indian Bustard (Source: PIB).....	54

9. Udanti Sitanadi Tiger Reserve (Source: The Indian Express)	54
10. Green Sea Turtles (Source: The Hindu)	54
11. Biofuel (Source: The Hindu)	56
12. Carbon Credit Trading (Source: PIB)	57
13. Elephants and Ecological Significance of Elephants(Source: The Hindu)	58
 SCIENCE AND TECHNOLOGY	60
1. Coal Gasification (Source: The Hindu)	60
2. James Webb Space Telescope (Source: The Hindu).....	60
3. Chandrayaan-3 Mission (Source: The Indian Express).....	61
4. Neglected Tropical Disease (NTD) (Source: The Hindu)	61
5. Black Box (Source: The Hindu).....	62
6. What are India's ballistic missile shield components? (Source: The Hindu)	63
7. Border Gateway Protocol (BGP) (Source: The Indian Express)	63
8. Sickle Cell Disease (Source: PIB)	64
9. Application of Drones in Sectors (Source: The Indian Express).....	66
10. Deuterium (Source: PIB).....	67
11. Use of Ammonia Gas (Source: The Hindu)	68
12. DNA Profiling (Source: The Hindu)	69
 SCHEMES	70
1. PM SVANidhi Scheme (Source: PIB)	70
2. Jal Jeevan Mission (Source: Down To Earth).....	71
3. Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (PIB)	72
 FACTS	73
1. FIFA World Cup (Source: The Hindu)	73
2. Yoga (Source: PIB)	74
 PLACES IN NEWS	75
1. Venezuela (Source: The Hindu).....	75
2. Zimbabwe (Source: PIB).....	75
3. Galathea Bay (Source: The Hindu).....	76
4. Armenia (Source: The Indian Express)	76
5. Estonia (Source: The Hindu)	77

GEOGRAPHY

1. Dust Storms (Source: The Indian Express)

Dust storms are meteorological events where extremely high winds lift up dust and soil from the ground and transport them over long distances. These kinds of dust storms are quite common in arid and semi-arid regions.

Causes

- **Natural Causes:** Droughts, arid conditions, low vegetation, and strong pressure gradients.
- **Human-Induced Factors:** Overgrazing, deforestation, unsustainable farming, and land degradation.

Mechanisms For Formation

- **Saltation:** The process by which wind lifts particles, which then fall back to the ground, loosening smaller dust particles.
- **Suspension:** Extremely fine particles are lifted high into the atmosphere and can travel thousands of kilometers.

Geographical Distribution

- **Global:** The Sahara Desert (source of "Harmattan"), the Gobi Desert, and the Middle Eastern deserts.
- **India:** Primarily the Thar Desert region (Rajasthan, Haryana, Punjab). In North India, these are locally known as Andhi or Loo (when accompanied by extreme heat).

Impact

- **Environment:** Reduce albedo
- **Health:** Increases respiratory issues (Asthma, Bronchitis) and spreads particulate matter.
- **Economy**
 - Causes soil erosion and crop damage.
 - Disrupts aviation, road transport, and solar power generation (by coating panels).

Management and Mitigation

- **Green Belts:** Planting shelterbelts and windbreaks to reduce wind velocity.
- **Soil Moisture Management:** Using drip irrigation and mulching to keep soil intact.
- **Early Warning Systems:** Using satellite data (like INSAT-3DR) for real-time tracking and alerts.
- **Global Initiatives:** The United Nations Convention to Combat Desertification (UNCCD) works specifically on Sand and Dust Storms (SDS) as part of land degradation neutrality.

2. Tsunami (Source: The Indian Express)

A Tsunami (a Japanese word meaning "harbour wave") is a series of giant ocean waves caused by a large-scale, sudden displacement of water, usually in an ocean.

Causes of Tsunami

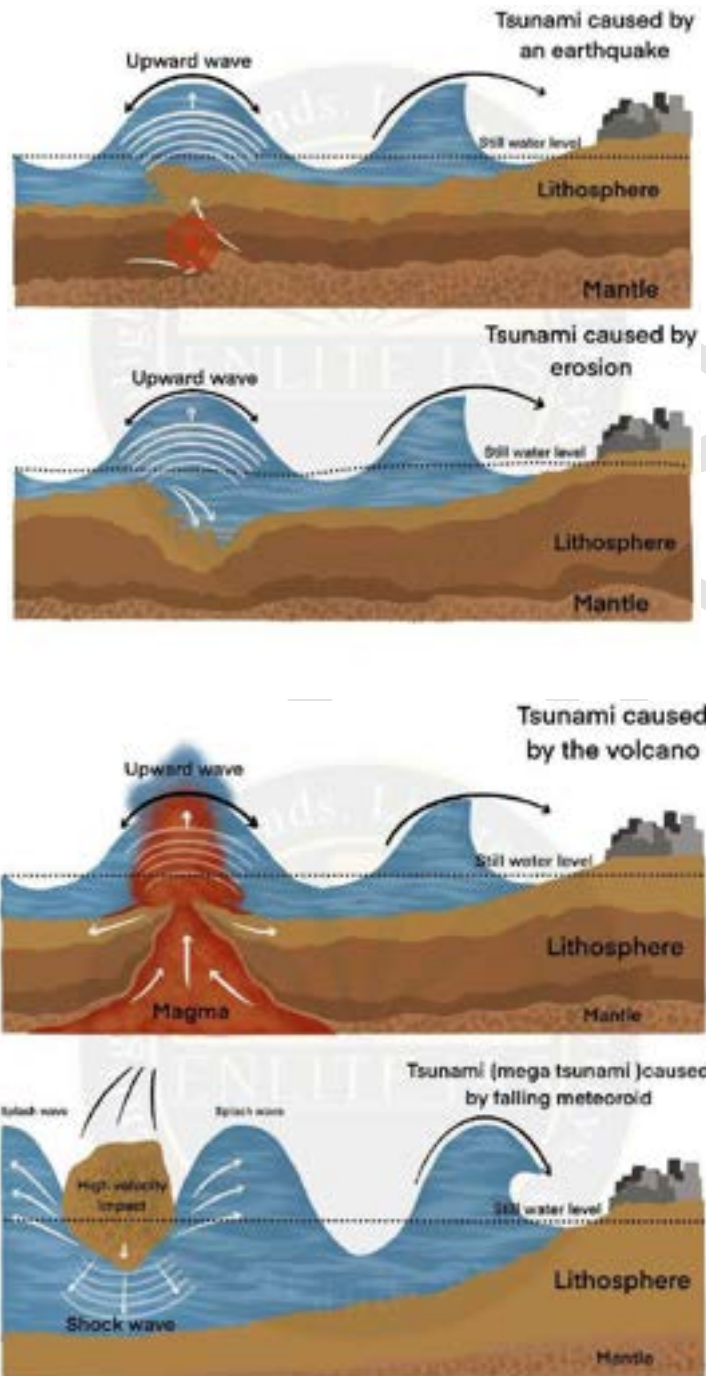
- **Undersea Earthquakes (Most Common):** Occur primarily at convergent plate boundaries (subduction zones) where one tectonic plate slides under another. The sudden vertical displacement of the seabed displaces the water column above.
- **Underwater Landslides:** Massive slumping of marine sediments or volcanic flanks displaces water rapidly.
- **Volcanic Eruptions:** Submarine eruptions or violent coastal eruptions (e.g., the Hunga Tonga-Hunga Ha'apai eruption in 2022) can trigger tsunamis through explosive displacements or caldera collapses.
- **Meteorite Impacts:** Rare, but highly catastrophic potential causes.

Vulnerable Regions

- **Global**
 - **The Pacific "Ring of Fire":** Around 80% of the world's tsunamis occur here due to intense tectonic activity and subduction zones (e.g., the 2011 Tohoku Tsunami in Japan).
- **India**
 - **Andaman-Sumatra Subduction Zone:** Triggered the catastrophic December 26, 2004 Indian Ocean Tsunami.
 - **Makran Subduction Zone:** Located in the Arabian Sea (off the coast of Pakistan/Iran).

Management and Mitigation

- **India**
 - **ITEWS (Indian Tsunami Early Warning System):** Established in 2007, it is operated by the Indian National Centre for Ocean Information Services (INCOIS) in Hyderabad.
- **Global**
 - **Sendai Framework for Disaster Risk Reduction (2015-2030):** Emphasizes "Building Back Better" and reducing global disaster mortality.
 - **UNESCO's "Tsunami Ready" Program:** A community performance-based program



3. Reasons Why Earthquakes Are Common in the Philippines (Source: The Indian Express)

- **Pacific Ring of Fire:** The Philippines is located on this horseshoe-shaped zone surrounding the Pacific Ocean, which accounts for ~90% of global earthquakes and ~75% of active volcanoes

- **Multiple Plate Boundaries:** Movement of multiple tectonic plates in the region, like the Philippine Sea Plate, Eurasian Plate, and Sunda Plate.
- **Subduction Zones:** The country has several major trenches where one plate sinks beneath another, like the Cotabato Trench, Manila Trench, Negros Trench, and Sulu Trench.
- **Philippine Mobile Belt:** The entire archipelago lies within this seismically active zone, where plates constantly collide, slide, and crash, building enormous stress that releases as earthquakes



4. Mountain Passes in News (Source: The Hindu)

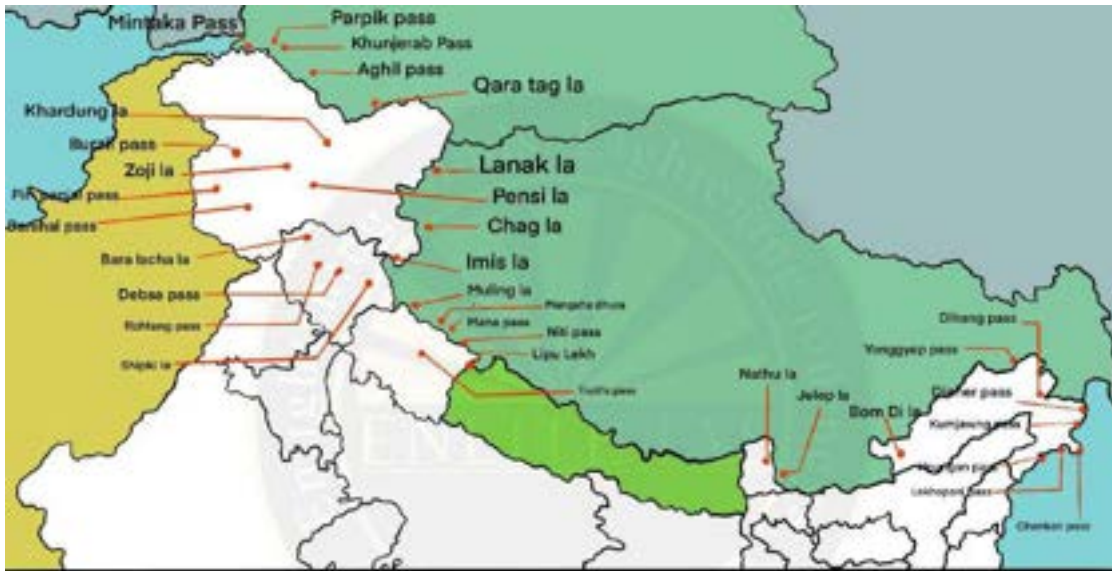
Zoji La

- *Zoji La is a high mountain pass located in the Kargil district of Ladakh (Western Himalayas).*
- The pass links Leh and Srinagar.
- Zoji La is known as the “Mountain Pass of Blizzards”.

Nathu La Pass

- *Nathu La is a crucial, high-altitude Himalayan mountain pass connecting the Indian state of Sikkim with the Tibet Autonomous Region of China.*
- It is located in the Eastern Himalayas
- Part of the ancient Silk Route.

- Nathu La serves as a motorable route for the Kailash Mansarovar Yatra.



Mountain passes in Himalayas

5. Hindu Kush Himalaya (HKH) Region (Source: The Indian Express)

Stretching over 3500 kilometres and across eight countries: Afghanistan, Bangladesh, Bhutan, China, India, Nepal, Myanmar, and Pakistan.

- Often referred to as the "**Third Pole**" due to its vast ice reserves after the Arctic and Antarctic.
- *It runs northeast to southwest and divides the valley of the Amu Darya to the north from the Indus River valley to the south.*
- Source of Major River Systems
 - The Indus, Ganga, and Brahmaputra flow towards the Arabian Sea and the Bay of Bengal
 - Syr Darya and Amu Darya towards the now-dead Aral Sea
 - The Tarim toward the Taklamakan
 - The Yellow River towards the Gulf of Bohai
 - The Yangtze towards the East China Sea
 - The Mekong towards the South China Sea
 - The Chindwin, Salween, and Irrawaddy towards the Andaman Sea



6. Factors Influencing the Indian Monsoon (Source: The Indian Express)

Somali Jet

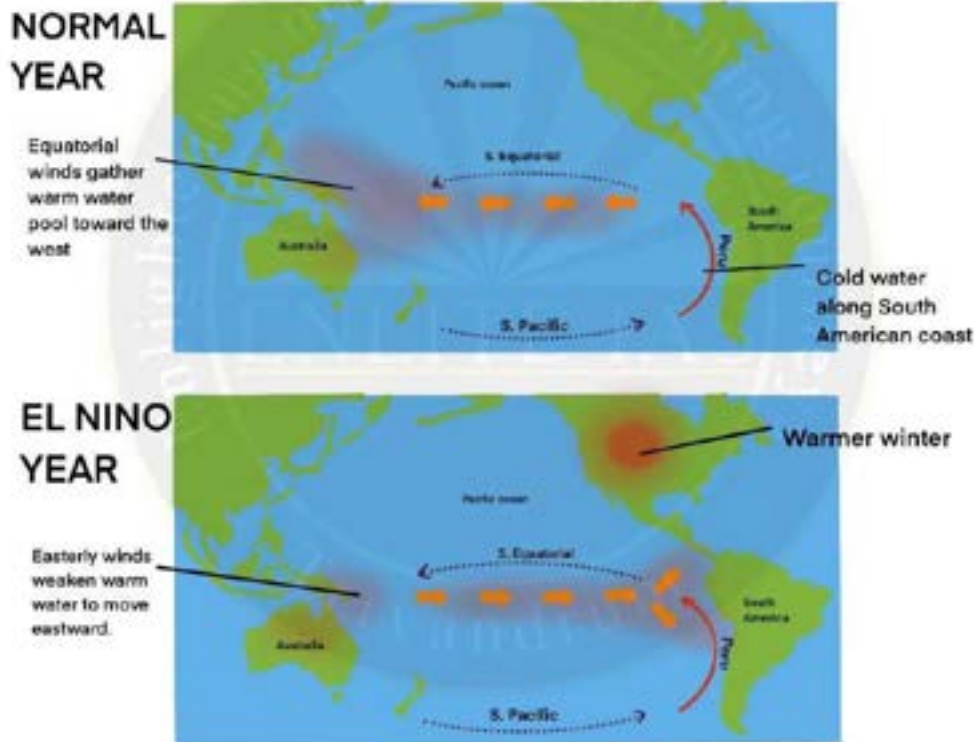
- *The Somali Jet is a fast-moving air stream over the Horn of Africa, flowing from southwest to northeast over the Arabian Sea during the Southwest Monsoon (June to September).*
- It plays a vital role in the onset of the Indian Southwest Monsoon, helping to pull moist air from the Indian Ocean toward India, initiating monsoon rains.
- The jet is crucial for moisture transport, delivering moist air into the Indian subcontinent, which brings heavy rainfall during the monsoon.
- The strength and direction of the Somali Jet affect the distribution and amount of rainfall, with a strong jet ensuring more rainfall and a weak jet causing droughts or reduced rainfall.
- Monsoon breaks (dry spells during the monsoon) are influenced by shifts or weakening of the Somali Jet.
- The Somali Jet is impacted by climate phenomena like El Niño and La Niña, with El Niño weakening the jet and reducing monsoon rains, while La Niña strengthens it.
- The jet also interacts with the Indian Ocean Dipole (IOD), which can influence the jet's strength and the monsoon's performance.

EL -Niño / La – Nina

- **El Niño:**
 - Causes monsoon deficit and reduced rainfall in India.
 - Weakens the Somali Jet, decreasing moisture flow to India.
 - Leads to droughts, delayed monsoons, and crop failures.
- **La Niña:**

- Causes above-average rainfall and intense monsoons in India.
- Strengthens the Somali Jet, bringing more moisture to the subcontinent.
- Results in heavy rains and flooding in some areas.

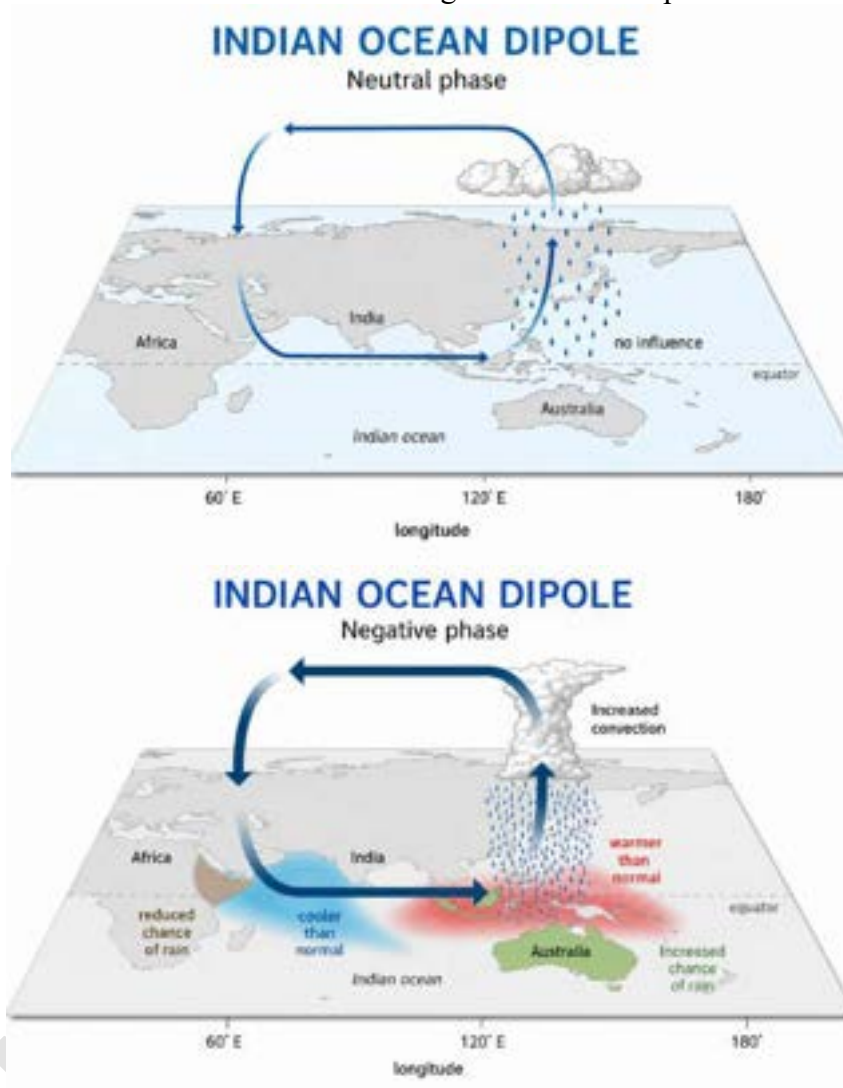
THE EL NINO PHENOMENON

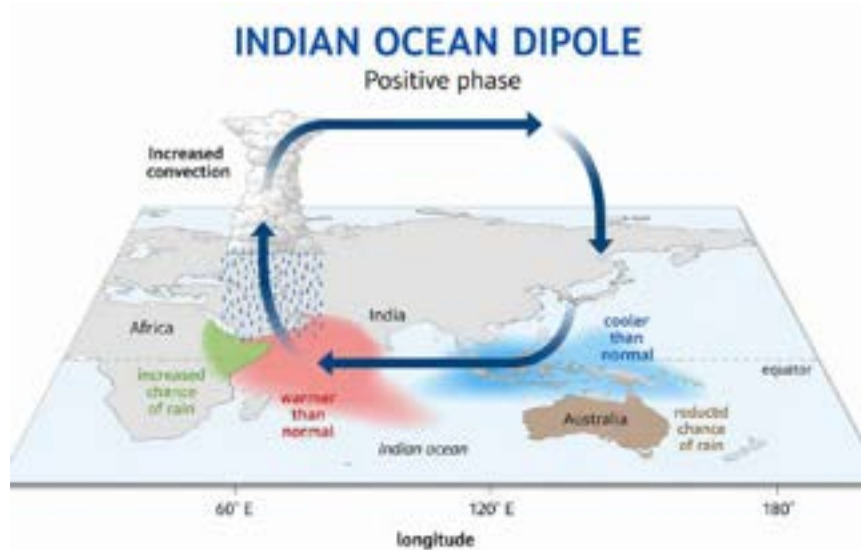


Indian Ocean Dipole (IOD)

- *The Indian Ocean Dipole (IOD) is a climatic phenomenon in the Indian Ocean that influences the monsoon season in India. It refers to the difference in sea surface temperatures between the western and eastern parts of the Indian Ocean.*
- **Impact**
 - **Positive IOD:**
 - Warmer western Indian Ocean, cooler eastern Indian Ocean.
 - Enhances monsoon rainfall over India.
 - Leads to stronger monsoon winds and better moisture supply.
 - Associated with above-average rainfall.
 - **Negative IOD:**
 - Cooler western Indian Ocean, warmer eastern Indian Ocean.

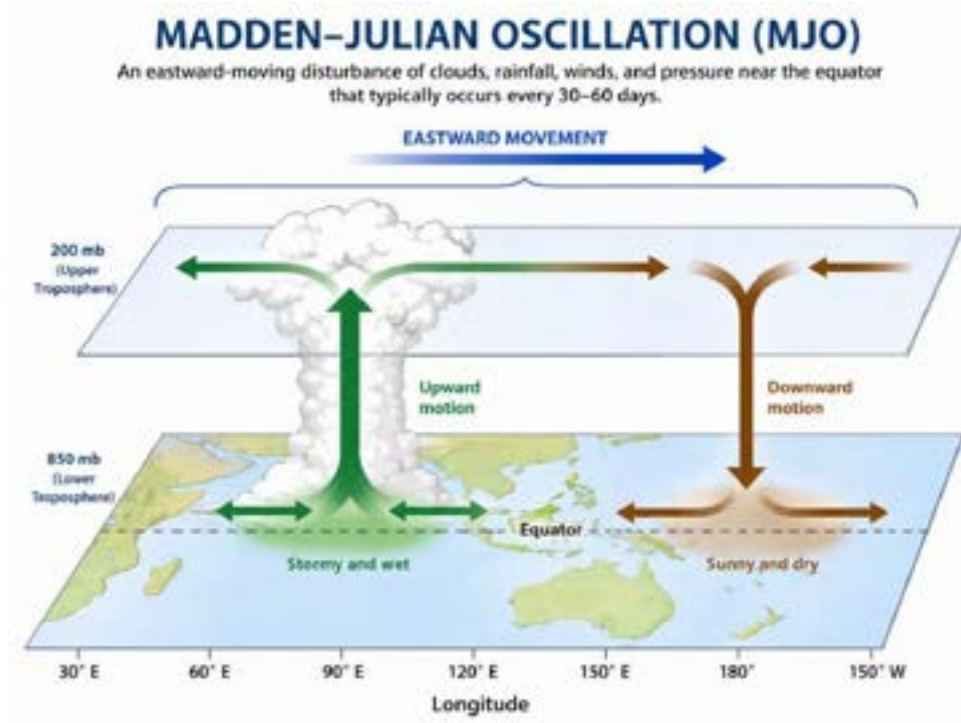
- Weakens the monsoon and causes below-average rainfall.
- Can lead to drought conditions in parts of India.





Madden Julian Oscillation (MJO)

- *A tropical atmospheric phenomenon with an eastward-moving pulse of convection and circulation, typically taking 30-60 days for a complete cycle.*
- **MJO Phases:**
 - **Phase 1 (Convective):** Enhances monsoon rainfall over India.
 - **Phase 2 (Suppressed):** Reduces monsoon rainfall, causing dry spells.
 - **Phase 3 (Convective):** Strengthens monsoon, leading to increased rainfall.
 - **Phase 4 (Suppressed):** Causes drier conditions, leading to a break in the monsoon.
- **Monsoon Impact:**
 - **Active Phases (Phase 1 & 3):** Result in enhanced rainfall and stronger monsoon conditions.
 - **Suppressed Phases (Phases 2 & 4):** Lead to dry spells and reduced rainfall.



7. Coal (Source: PIB)

Coal is a combustible rock with high carbon and hydrocarbons, formed over millions of years from plant material.

Types of Coal (Based on Carbon Content)

- **Anthracite:** Best quality, high carbon (80-95%), rare in India (mainly in Jammu & Kashmir).
- **Bituminous:** Most widely used, carbon content 60-80%, used in coke production.
- **Lignite:** Brown coal, 40-55% carbon, high moisture, low heat.
- **Peat:** Early stage of coal formation, low carbon content.

8. Flash Flood (Source: The Hindu)

A flash flood is a sudden, rapid flooding event that occurs within minutes to a few hours.

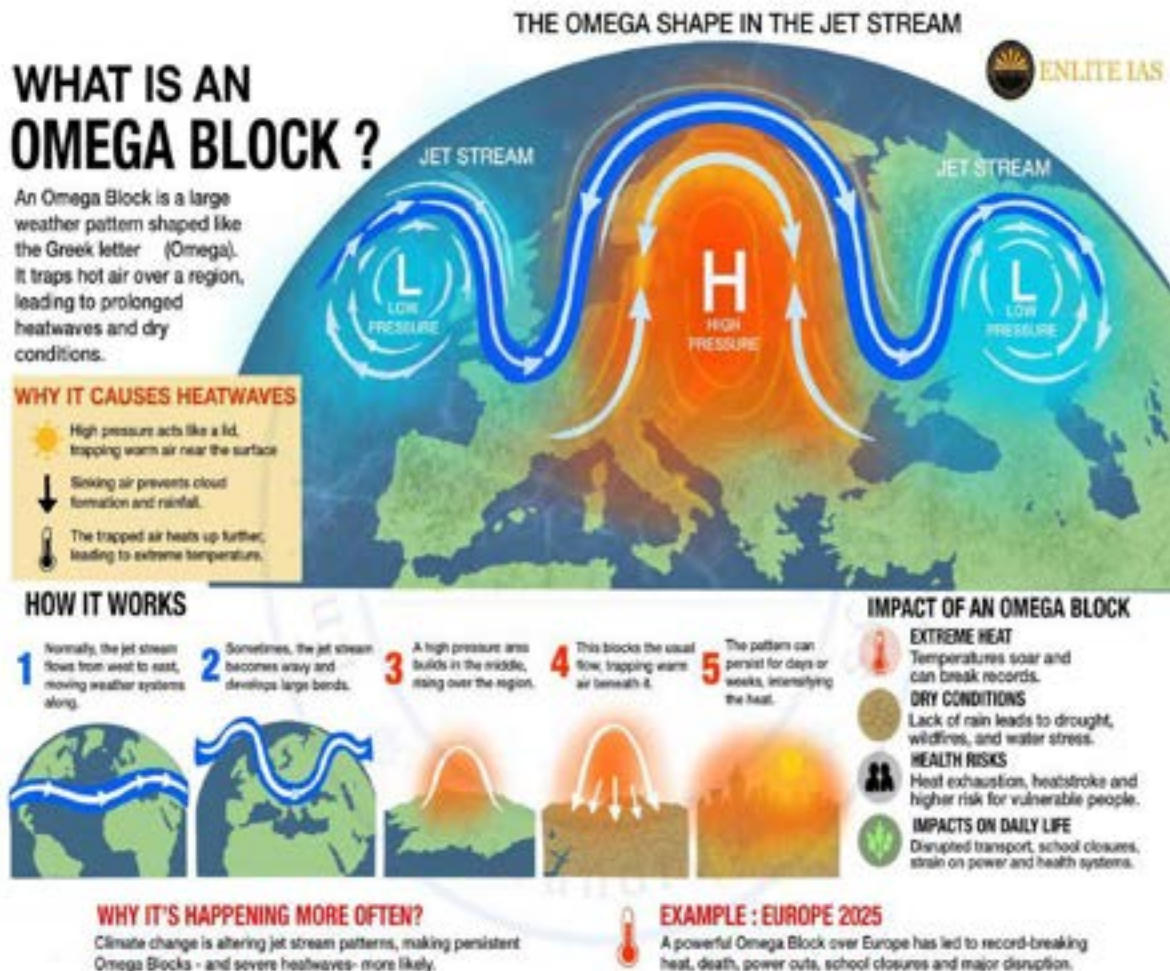
Cause

- Cloudburst or intense localised rainfall.
- Glacial Lake Outburst Floods (GLOFs) in the Himalayan regions.
- Dam or embankment failure.
- Urbanisation leading to impervious surfaces and blocked drainage.
- Deforestation and slope destabilisation in hill areas.

Areas Generally Affecting

- **Hilly Terrain:** Flash floods in the Himalayas (Uttarakhand) and Afghanistan.
- **Urbanised Region:** Flash flood in an urban region like Chennai.
- **Arid and Semi-Arid:** Rajasthan dry river beds

9. Omega Block (Source: The Indian Express)



10. Teesta River (Source: The Hindu)

- It is a trans-Himalayan River flowing through the Indian states of Sikkim and West Bengal, and Rangpur in Bangladesh.
- Originates as Chhomo Chhu from a glacial lake Khangchung Chho in Sikkim.
- It is a right bank tributary of the **Brahmaputra River** (Jamuna in Bangladesh).
- It has a total length of about 309 kilometres.

- The main tributary is the Rangeeta River

Teesta Treaty:

- In 2011, a draft agreement was proposed where India would get 42.5% and Bangladesh 37.5% of Teesta's water during the dry season.
- Implementation was halted due to objections from West Bengal.

11. Earthquake (Source: The Hindu)

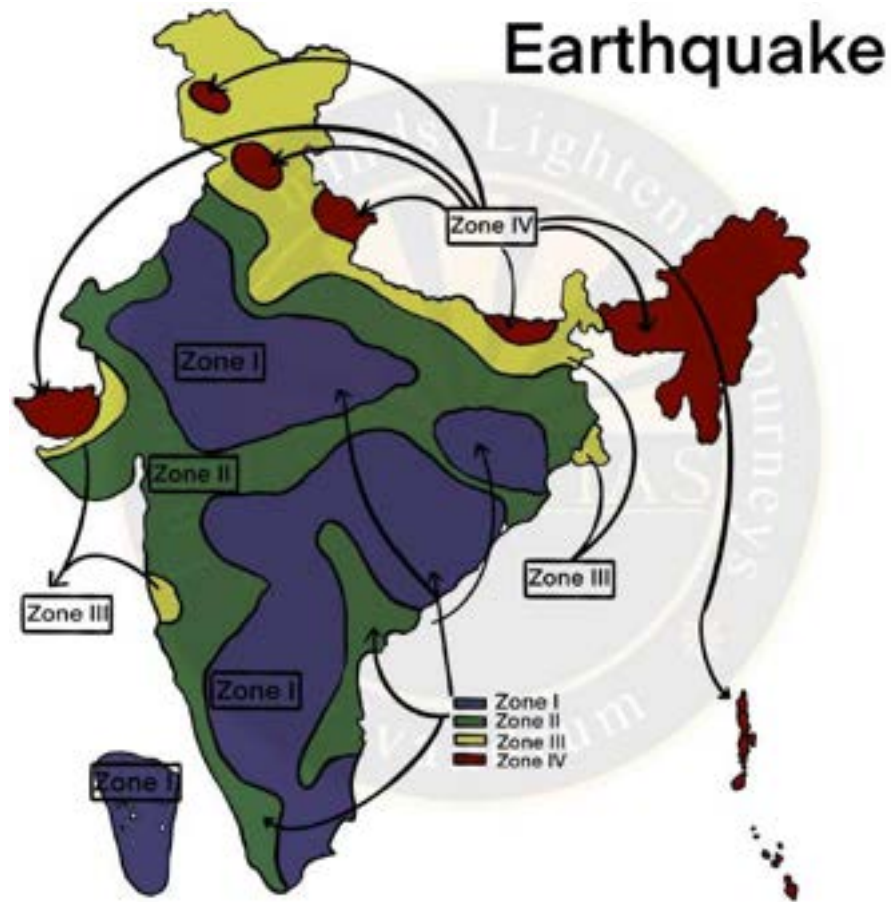
An earthquake is the violent shaking of the earth's surface due to the release of energy by the breaking of rocks under the surface, and these are tectonic in origin.

Causes of Earthquake

- **Natural Causes:** Tectonic activities, volcanic eruption, rockfall, landslides, etc.
- **Man-made Causes:** Mining, construction of dams.

Seismic Zones in India

Zones	Explanation
Seismic Zone I	• Safe zone
Seismic Zone II	• Areas with minor damage from earthquakes corresponding to intensities V to VI of the MM scale (MM-Modified Mercalli Intensity scale).
Seismic Zone III	• Moderate damage corresponding to intensity VII of the MM scale.
Seismic Zone IV	• Major damage corresponds to intensity VII and higher on the MM scale.
Seismic Zone V	• Earthquake zone V is the most vulnerable to earthquakes, where historically some of the country's most powerful shocks have occurred. • Earthquakes with magnitudes over 7.0 have occurred in these areas and have had intensities higher than IX.



Impact of Earthquakes

- On Ground
 - Fissures in the crust of the earth.
 - Disrupting population settlements, loss of lives and livelihoods, and migration to safer areas.
 - Loss of agricultural productivity.
- Destruction of Manmade Structures
- On Nature
 - Trigger tsunami
 - Trigger avalanche, landslides
 - Change in the river courses

12.How are Islands Formed? (Source: PIB)

Formation of Volcanic Islands

- **Hotspot Volcanism:** Volcanic islands form when an oceanic plate moves over a stationary mantle plume (hotspot). Repeated eruptions create a chain

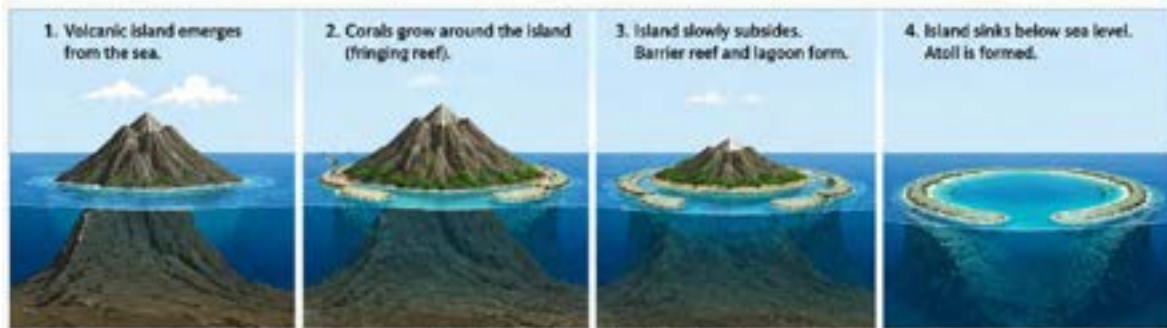
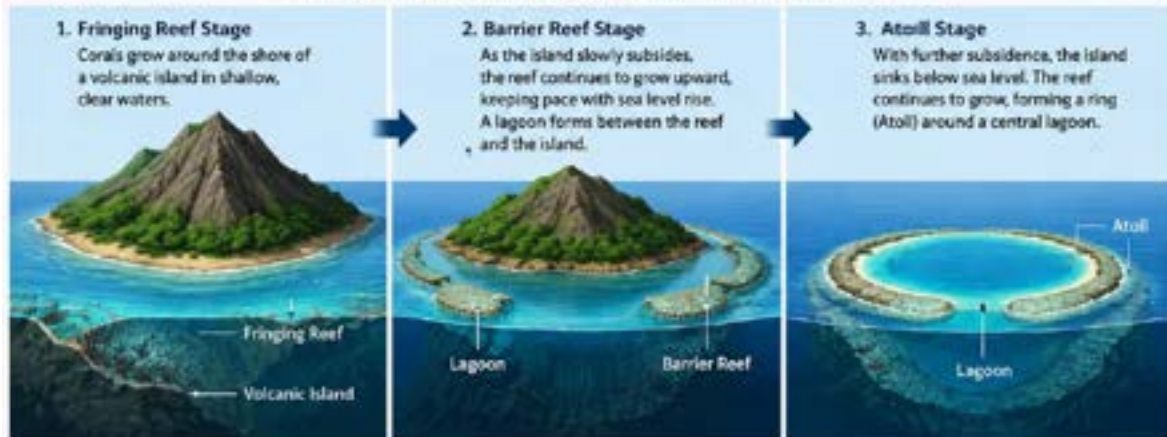
of volcanic islands, with the youngest island located directly above the hotspot. Example: Hawaiian Islands.

- **Divergent Plate Boundary:** At divergent boundaries, tectonic plates move apart, allowing magma to rise through the gap and solidify. Continuous volcanic activity can build submarine volcanoes into islands. Example: Iceland on the Mid-Atlantic Ridge.
- **Convergent Plate Boundary:** At convergent boundaries, one oceanic plate subducts beneath another plate. The subducted plate melts, producing magma that rises to form volcanic island arcs. Examples: Japan, Indonesia, and the Philippines.

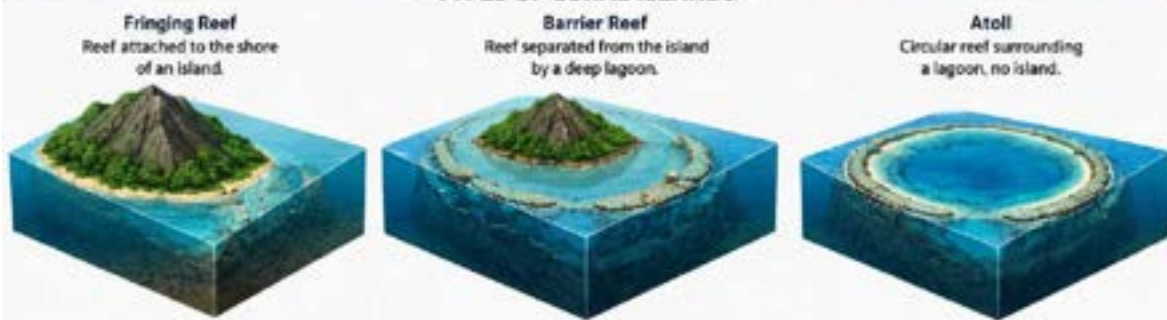
Stages of Formation

- **Volcanic Island Emergence:** A submarine volcano erupts and rises above sea level, forming a volcanic island. The island is surrounded by shallow, warm tropical waters suitable for coral growth.
- **Fringing Reef Formation:** Coral polyps colonize the shallow waters around the volcanic island. A fringing reef develops, attached directly to the island's coast with little or no lagoon.
- **Barrier Reef Formation:** The volcanic island gradually subsides (sinks) or the sea level rises. Corals continue growing upward toward sunlight. A lagoon forms between the island and the reef, creating a barrier reef.
- **Atoll Formation:** The volcanic island sinks completely below sea level. Only the ring-shaped coral reef remains, enclosing a central lagoon. This structure is called an atoll.
- **Coral Island Formation:** Waves and currents deposit coral sand, shells, and reef debris on the atoll. Vegetation gradually establishes itself, leading to the formation of a low-lying coral island.

FORMATION OF CORAL ISLANDS



TYPES OF CORAL ISLANDS



HISTORY/ART & CULTURE

1. Birsa Munda (Source: PIB)

He was an Indian tribal freedom fighter, reformer, and religious leader in the Deccan region.

- Also called 'Dharti Abba' or Father of the Earth
- **Leader of Munda Rebellion ('Ulgulan' or the 'Great Tumult' (1899-1900))**

Religious

- He renounced Christianity and protested against the conversion of Tribals by Christian missionaries.
- He created a new religion called "Birsait", which worshipped only one god and was used to spread strong anti-British feelings.

Reformer

- He stressed the need for the tribals to study their religion and not forget their cultural roots.
- He convinced people to give up superstition, alcohol, theft, lying, murder, and begging under his new religion.

Death

- Birsa died of cholera in the jail in 1900

2. Rani Lakshmibai (Manikarnika) (Source: The Indian Express)

She was the queen of the princely state of Jhansi

- Born in 1828 at Varanasi, Uttar Pradesh.
- At the age of 14, Manu got married to the Maharaja of Jhansi, Gangadhar Rao Newalkar. Hence, Manikarnika became Laxmibai, Rani of Jhansi.

Way to Struggle

- After the death of her child, she adopted a son, Damodar Rao, from Gangadhar Rao's extended family.
- In 1853, when the Maharaja of Jhansi died, Lord Dalhousie refused to acknowledge the (adopted) child and applied the Doctrine of Lapse, and annexed the state, which led to conflict as part of the 1857 revolt.
- She died fighting on the battlefield on 17th June 1858.

Need To Know

- When the Indian National Army started its first female unit (in 1943), it was named after the valiant queen of Jhansi.
- Doctrine of Lapse - Link

3. Battle of Plassey (Source: The Indian Express)

The Battle of Plassey (1757) was fought between the British and Bengal Nawab Siraj Ud Daulah.

Reasons for the Battle of Plassey

- The misuse of trade privileges given to the company by the Mughals led to financial problems for the Nawab.
- The English fortified Calcutta without the permission of the Nawab and propagandised the Black Hole tragedy.
- Alliance of the Nawab with the French.

Result of the Battle of Plassey

- English monopolised trade and commerce in Bengal.
- The English established military supremacy in Bengal.
- The British acquired financial control in the Bengal region.
- English outshone French in Bengal.

4. Harappa Settlement and Finding (Source: The Hindu)

Site	Location	Important Findings
Harappa	Situated on the banks of the river Ravi in Punjab (Pakistan).	• Sandstone statues of Human anatomy • Granaries • Bullock carts • Mother Goddess
Mohenjo-Daro (Also called Mound of the Dead) (UNESCO World Heritage Site)	Situated on the Banks of the River Indus in Punjab (Pakistan)	• Great bath • Granary • Bronze dancing girl • Seal of Pasupathi Mahadeva • Steatite statue of a bearded man • A piece of woven cotton
Suktagendor	In southwestern Balochistan province, Pakistan, on the Dast River	• A trade point between Harappa and Babylon

Chanhudaro	Sindh (Pakistan) on the banks of the Indus River	● Bead making ● The footprint of a dog chasing a cat
Amri	Sindh is on the banks of the Indus River	● Evidence of Antelope
Kalibangan	Rajasthan on the banks of the Ghaggar River	● Fire altar ● Camel bones ● Wooden plough
Lothal	Gujarat is on the banks of the Bhogva River near the Gulf of Cambay	● Dockyard ● Rice husk ● Fire altars ● Chess playing
Surkotada	Gujarat	● Bones of horses ● Beads
Banawali	Haryana	● Beads ● Barley ● Evidence of both the pre-Harappan and Harappan cultures
Dholavira (UNESCO World Heritage Site)	Gujarat in the Rann of Kachchh	● Water harnessing system ● Water reservoir
Rakhigarhi	Haryana	● Granary ● Cemetery ● Drains ● Terracotta bricks
Ropar (The first site to be excavated after independence.)	On the banks of the River Sutlej in Punjab, India	● Dog buried with human in oval pit burials ● copper axe.
Alamgirpur	Meerut, Uttar Pradesh, on the banks of the Yamuna – Easternmost site of IVC.	● broken blade made of copper ● ceramic items

		● Impression of a cloth on a trough
Mehrgarh	Pakistan	● Pottery ● copper tools
Kot Diji	Pakistan	● Statues of Bull
Daimabad (the southernmost site of IVC)	Maharashtra	● Bronze Chariot
Mand (Northernmost site)	Jammu and Kashmir	

Major IVC Sites



5. Bankim Chandra Chattopadhyay (Source: PIB)

Bankim Chandra Chattopadhyay (also known as Bankim Chandra Chatterjee) was one of India's most celebrated novelists, poets, essayists, and journalists.

- **Birth:** Born on June 27, 1838, in a traditional Bengali family in Naihati, West Bengal.
- **Death:** April 8, 1894, in Calcutta.
- He was also part of the British administration.

Literary Works

- **Durgeshnandini (1865):** His first major Bengali romance novel.
- **Anandamath (1882):** A historical novel set against the backdrop of the 18th-century Sannyasi Rebellion.
- **Devi Chaudhurani:** Novel emphasizing women's strength and active resistance against oppressive British tax-collecting systems.
- **Bangadarshan:** A radical literary monthly magazine that he founded in 1872. It served as a major engine for the Bengali Renaissance, introducing essays on science, history, and social philosophy to the masses.

Other Works

- Wrote **Vande Mataram** (a beautiful blend of Sanskrit and Bengali, the poem personified India as a nurturing yet powerful mother goddess) and **Amar Sona Bengala** (National Song of Bangladesh).

6. Jantar Mandir (Source: The Hindu)

JANTAR MANTAR

The Astronomical Marvels of India

A collection of 19 architectural astronomical instruments built by Maharaja Sawai Jai Singh II.

HISTORY

- Built between 1724 and 1734 by Maharaja Sawai Jai Singh II, the Rajput king of Amber (Jaipur).
- Jai Singh II was a great scholar of astronomy and mathematics.
- The observatories were constructed to compile accurate astronomical data and to prepare the "Zij-e-Muhammadi", an astronomical table.
- Five Jantar Mantars were built in India.

FIVE JANTAR MANTARS IN INDIA

- Jaipur (Rajasthan)
- Delhi (Delhi)
- Ujjain (Madhya Pradesh)
- Varanasi (Uttar Pradesh)
- Mathura (Uttar Pradesh)

The Jaipur Jantar Mantar is the largest and best preserved.

PURPOSE & SIGNIFICANCE

- To observe celestial positions with the naked eye.
- To measure time, predict eclipses, track planetary movements and determine astrological calculations.
- Demonstrates the scientific temper and advanced knowledge of medieval India.
- A unique blend of science, architecture and traditional Indian knowledge systems.

MAJOR INSTRUMENTS

- SAMRAT YANTRA**
The world's largest stone sundial. It can measure time with an accuracy of about 2 seconds.
- JAI PRAKASH YANTRA**
Consists of two hemispherical structures used to measure the positions of celestial bodies.
- RAM YANTRA**
Measures the altitude and azimuth of celestial bodies.
- MISRA YANTRA**
A combination of five different instruments for various astronomical calculations.
- NADIVALAYA YANTRA**
Used to determine the time by the position of the sun.

ARCHITECTURAL FEATURES

- Built using large stone and masonry without any mechanical devices.
- Instruments are fixed with great precision aligned with celestial coordinates.
- Combines geometric accuracy with aesthetic design.

QUICK FACTS

Built by	Maharaja Sawai Jai Singh II
Period	1724 - 1734
Total Instruments	19
Material	Stone, limestone, marble, brass
UNESCO Status	Jaipur Jantar Mantar is a UNESCO World Heritage Site (2010).

DID YOU KNOW?

Jantar Mantar is an outstanding example of India's rich scientific heritage and the vision of Maharaja Jai Singh II, who saw astronomy as a means to understand the universe and serve humanity.

"These instruments are a testimony to India's ancient scientific brilliance and its timeless quest to measure the cosmos."

POLITY

1. Right To Privacy (Source: The Hindu)

The Right to Privacy is a fundamental right in India, protected as an intrinsic part of Article 21 (Right to Life and Personal Liberty) and the freedoms guaranteed under Part III of the Constitution.

Stand of the Judiciary

- M.P. Sharma v. Satish Chandra (1954) & Kharak Singh v. State of UP (1961), which denied privacy as a fundamental right
- Justice K.S. Puttaswamy (Retd.) vs Union of India (2017) – a 9-judge bench unanimously declared it a fundamental right

Applicability

- Available to all persons in India (not just citizens) and protected under Articles 32 & 226.

Restrictions as per the Judiciary

- The right may be restricted only by state action that passes each of the three tests:
 - Such state action must have a legislative mandate,
 - It must be pursuing a legitimate state purpose, and
 - It must be proportionate, and such state action, both in its nature and extent, must be necessary in a democratic society, and the action ought to be the least intrusive of the available alternatives to accomplish the ends.

2. Right to Information Act, 2005 (Source: The Hindu)

To secure access to information for citizens under the control of public authorities, the government introduced the Right to Information Act, 2005.

Why was it introduced?

- It will ensure greater transparency for the functioning of the government. The common man can get to know what the government does and seek information from the authorities without fear. It will convert the working of the government from a culture of secrecy into a culture of openness and transparency.

Key Provisions

- Any citizen can request information by making an application in writing or through electronic means.
- Every public Authority will designate a Central Assistant Public Information Officer (CAPIO) at various levels, and a necessary number of Central Public Information Officers (CPIOs) in all the offices who will arrange for providing necessary information to the public as permitted under the Act.
- As per sections 8 & 9 of the Act 2005, certain categories of information are exempt from disclosure to the citizens.
- The act calls for the constitution of a Central Information Commission and a State Information Commission.
- The information seeker has to pay a fee of Rs. 10 for an RTI application. A BPL category person is not required to pay any fees.

3. Anti - Defection Law (Source: The Indian Express)

- Introduced in India in 1985 under the **52nd Amendment to the Constitution of India.**
 - Mention in the **Tenth Schedule to the Constitution**
- **What is it?:** It lays down the process by which legislators may be disqualified on grounds of defection.
- **Aim:** The main aim of this schedule was to prevent political defections and to strengthen democracy by bringing stability in politics and making members of parliament more responsible and loyal to their parties.
- **Deciding Authority:** Presiding officer of the house.
- **Grounds of Disqualification**
 - He voluntarily gives up his membership in a political party.
 - He disobeys the directions of his political party or votes or does not vote in the legislature contrary to the directions of his political party.
 - After the election, he joined another political party.
 - If a nominated member joins any political party after 6 months from the day he becomes a member of the legislature.
- **Exemption**
 - Disqualification of a member is not applied in case of a merger, provided that this merger with or into another party shall be done with the consent of at least two-thirds of its legislators.
 - It exempts the speaker, chairman, and deputy chairman of various legislative houses from disqualification on the grounds of defection.

4. National Emergency (Article 352) (Source: The Hindu)

Conditions

- The President can declare a national emergency when the security of India or a part of it is threatened by war, external aggression, or armed rebellion.
- It may be noted that the president can declare a national emergency even before the actual occurrence of war, external aggression, or armed rebellion, if he is satisfied that there is an imminent danger.

Type of National Emergency

- **External Emergency:** When a national emergency is declared on the grounds of 'war' or 'external aggression', it is known as 'External Emergency'.
- **Internal Emergency:** When it is declared on the grounds of 'armed rebellion', it is known as 'Internal Emergency'.

Parliamentary Approval and Duration

- Both houses of parliament must approve the proclamation of emergency within one month from the date of its issue.
- Suppose the proclamation of emergency is issued at a time when the Lok Sabha has been dissolved, or the dissolution takes place during the period of one month without approving the proclamation. In that case, the proclamation survives until 30 days from the first sitting of the Lok Sabha after its reconstitution, provided the Rajya Sabha has in the meantime approved it.
- If approved by both houses, the Emergency continues for 6 months and can be extended to an indefinite period with the approval of the Parliament for every six months.

Revocation of Proclamation

- A proclamation of Emergency may be revoked by the President at any time by a subsequent proclamation. Such a proclamation does not require parliamentary approval.

Majority Needed

- **Approval:** Need special majority
- **Revocation:** Simple majority

Effects of National Emergency

- **Effects on the Centre-State Relations**
 - **Executive:** Centre becomes entitled to give executive directions to a state on 'any' matter
 - **Legislative:** The parliament becomes empowered to make laws on the state list.
 - **Financial:** The president can modify the constitutional distribution of revenues between the centre and the states.
- **Effect on the life of the Lok Sabha and the State Assembly**

- The life of the Lok Sabha may be extended beyond the normal term for one year at a time, but this extension cannot continue beyond a period of six months after the emergency has ceased to operate.
- This provision is also applicable in the case of the Legislative Assembly in the same way.
- **Effect on Fundamental Rights**
 - **Suspension of Article 19**
 - As per Article 358, when a proclamation of National Emergency is made, fundamental rights under Article 19 are automatically suspended, and they will automatically be revived after the expiry of the emergency.
 - The 44th Amendment Act laid out that Article 19 can only be suspended when the National Emergency is declared on the grounds of war or external aggression, and not in the case of armed rebellion.
 - **Suspension of other Fundamental Rights**
 - Under Article 359, the President is authorised to suspend, by order, the right to move any court for the enforcement of Fundamental Rights during a National Emergency. Thus, remedial measures are suspended and not the Fundamental Rights.
 - The 44th Amendment Act mandates that the President cannot suspend the right to move the court for the enforcement of Fundamental Rights guaranteed by Articles 20 and 21.

Do You Know?

- The 38th Amendment Act of 1975 made the declaration of a National Emergency immune to judicial review. But this provision was subsequently deleted by the 44th Amendment Act of 1978.
- The 44th Amendment of the Indian Constitution removed the term internal disturbance and added armed rebellion.

5. Telecommunications Act, 2023 (Source: The Hindu)

Unified Authorisation

- The Act replaces the old fragmented licensing system with a simpler, unified authorisation framework.
- This is meant to reduce compliance burden and make telecom regulation more technology-neutral.
- It supports easier entry and smoother expansion for telecom operators.

Spectrum Management

- The Act gives a clearer legal framework for spectrum assignment and use.
- It supports efficient use through measures like re-farming and harmonisation.
- This is important because spectrum is a scarce national resource.

Right of Way

- The law strengthens provisions for the right of way on public and private property.
- This helps speed up the laying of cables, the installation of towers, and rollout of telecom infrastructure.
- It aims to reduce delays, disputes, and duplication in network expansion.

Consumer Protection

- The Act includes provisions for user protection and grievance redressal.
- It also addresses issues like spam and unwanted communications.
- These measures are meant to improve service quality and user trust.

National Security

- The Act allows lawful interception, monitoring, and access in specified cases.
- It gives the government powers to safeguard public safety and national security.
- This also creates a policy debate on the balance between security and privacy.

Adjudication and Penalties

- The Act provides for adjudicating officers and a structured penalty mechanism.
- This is intended to ensure quicker resolution of violations and disputes.
- It reduces dependence on prolonged court processes for routine telecom issues.

Innovation and Growth

- The law supports innovation through regulatory sandboxes.
- It encourages investment, digital infrastructure growth, and adoption of new technologies.
- This is useful for 5G, future telecom services, and broader digital inclusion.

6. National Education Policy (Source: The Hindu)

The National Education Policy 2020 aims to address issues of quality, equity, access, and affordability across all levels of education. It replaced the 34-year-old NEP of 1986.

- It is based on the recommendations of the **Dr. K. Kasturirangan Committee**.

Targets

- Universalization of Early Childhood Care and Education (ECCE) to Secondary Education by 2030, in line with SDG 4.

- By 2025, the National Mission will have achieved Foundational Learning and Numeracy Skills.
- By 2030, the Pre-School to Secondary Level will be 100% Gross Enrolment Ratio (GER).
- By 2035, higher education will have a 50% GER.
- Bring 2 billion kids back into the mainstream by using the open-schooling method.
- By 2023, teachers must be ready for evaluation reforms, and by 2030, there will be an inclusive and equitable educational system.

Features

- Providing Universal Access at All Educational Levels from Pre-K to Grade 12.
- Ensuring all children between the ages of 0 and 3 receive high-quality early care and education.
- The age ranges for the New Curricular and Pedagogical Structure (5+3+3+4) are 3–8, 8–11, 11–14, and 14–18 years, respectively.
- There are no clear boundaries between the arts and sciences.
- Promoting multilingualism and Indian languages is prioritised.
- A new National Assessment Centre called PARAKH (Performance Assessment, Review, and Analysis of Knowledge for Holistic Development) has been established.
- Special Education Zones and a distinct gender inclusion fund for underprivileged areas and organisations.



7. Allocation of Election Symbols (Source: The Indian Express)



8. Armed Forces (Special Powers) Act (AFSPA) (Source: The Hindu)

ARMED FORCES (SPECIAL POWERS) ACT (AFSPA)

A LAW WITH EXTRAORDINARY POWERS IN DISTURBED AREAS

WHAT IS AFSPA?

The Armed Forces (Special Powers) Act, 1958 empowers the Armed Forces to maintain law and order in "disturbed areas".

APPLICABLE IN

- ASSAM
- NAGALAND
- MANIPUR
- ARUNACHAL PRADESH
- JAMMU & KASHMIR

LEGAL BASIS

- Enacted in 1958
- Applicable in "Disturbed Areas" declared by the Governor/Administrator
- Extended periodically (e.g., parts of Assam, Nagaland, Manipur, Arunachal Pradesh, J&K, etc.)

POWERS GRANTED

- Use force, even to the extent of causing death, to maintain public order.
- Arrest without warrant any person suspected of committing an offense.
- Search and seize without warrant any premises.
- Destroy arms dumps, fortifications or shelters.

OBJECTIVES

- Restore and maintain public order.
- Enable quick action in conflict-prone areas.
- Support peace and stability.

CRITICISMS

- Allegations of human rights violations and excesses.
- Lack of accountability – prosecution requires central government sanction.
- Perceived as a law of impunity by critics.

SUPPORTERS' VIEW

- Essential for security forces to operate in hostile conditions.
- Helps save lives of soldiers and civilians.
- Necessary to combat terrorism and insurgency effectively.

AFSPA – BALANCING SECURITY NEEDS WITH HUMAN RIGHTS

INTERNATIONAL RELATIONS

1. IMEC Corridor (Source: The Hindu)

India-Middle East-Europe Economic Corridor (IMEC) is a proposed corridor that was recently introduced by PM Modi during his address to the Israeli Parliament. IMEC aims to foster economic cooperation and green development through sustainable infrastructure projects.

What do you need to know?

- It was first announced during the G20 meet in New Delhi.
- It is an infrastructure project connecting India, the Middle East, and Europe.
- It will utilise both the railways and the shipping sector.
- The corridor would pass through India, the United Arab Emirates, Saudi Arabia, Jordan, Israel, and Europe.

How will it be helpful?

- It serves as economic insurance to future-proof global trade in an era marked by supply-chain shocks, geopolitical fragmentation, and climate stress.
- It can help India in finding an alternative to the Red Sea-Suez Canal corridor through which a large chunk of India's trade happens. It will complement the existing routes and not replace them.
- In contrast to BRI(Belt and Road Initiative), the IMEC corridor is inherently multilateral, market-oriented, and standards-driven.



2. Kalapani-Limpiyadhura-Lipulekh Trijunction (Kalapani Region) (Source: The Hindu)

- *This is a 35-square-kilometre area in northwestern Nepal, near the tri-junction where India, Nepal, and China meet.*
- Kalapani is a valley administered by India as part of the Pithoragarh district of Uttarakhand. It is situated on the Kailash Mansarovar route.
- *The Kali River in the Kalapani region demarcates the border between India and Nepal.*
 - Border designated by the **Treaty of Sugauli (1816)**
 - Land east of the Kali River came under Nepal's control, while territory west of the river became part of British India (present-day India).

- The Treaty of Sugauli was signed by the Kingdom of Nepal and British India (after the Anglo-Nepalese War) in 1816.



3. G7 Grouping (Source: The Hindu)

The G7 (Group of Seven) is an informal forum of the world's most advanced economies — France, Germany, Italy, the UK, Japan, the US, and Canada.

Key Features

- **Informal Grouping:** No formal treaty, no permanent secretariat or bureaucracy.
- **Rotating Presidency:** Each member hosts and leads discussions in turn. Decisions by consensus: No binding laws (no legislative authority)

Facts To Know

- Initially formed as G6 (US, UK, France, West Germany, Japan, Italy) in response to the 1973 oil crisis and financial turmoil, with Canada joining in 1976 to make it G7.
 - It became G8 in 1997 with the inclusion of Russia, but reverted to G7 in 2014 after Russia's expulsion over the annexation of Crimea.

Economic Facts

- 40% of the global economy and 10% of the world's population live in G7 countries.
- 36% of global power generation capacity.
- 30% of global energy demand.
- 25% of global energy-related carbon dioxide (CO₂) emissions.

4. Indian Ocean Rim Association (IORA) (Source: The Hindu)

It is an inter-governmental organisation aimed at strengthening regional cooperation and sustainable development within the Indian Ocean region through its 22 Member States bordering the Indian Ocean and 9 Dialogue Partners.

- It was formed in 1997
- *Its secretariat is in Mauritius.*
- The IORA is a regional forum, tripartite in nature, bringing together representatives of Government, Business, and Academia, for promoting co-operation and closer interaction among them.
- *It is based on the principles of Open Regionalism for strengthening Economic Cooperation, particularly on Trade Facilitation and Investment Promotion, as well as Social Development of the region.*
- The members include Australia, Bangladesh, Comoros, India, Indonesia, Iran, Kenya, Madagascar, Malaysia, Mauritius, Mozambique, Oman, Seychelles, Singapore, Somalia, South Africa, Sri Lanka, Tanzania, Thailand, United Arab Emirates, Maldives, and Yemen.

5. Exercise Pitch Black 2026 (Source: The Hindu)

- *It is a premier multinational air combat exercise, scheduled to be held in Australia's Northern Territory from July 20 to August 7, 2026.*
- It aims to provide a platform for participating air forces to enhance operational interoperability, strengthen military cooperation, and refine air combat tactics in realistic and complex scenarios.
- Along with India, participating countries include Brunei, Canada, Fiji, Finland, France, Indonesia, Japan, Malaysia, New Zealand, Papua New Guinea, the Philippines, the Republic of Korea, Singapore, Spain, Sweden, Thailand, the United Kingdom, the United States, and host nation Australia.

Other India – Australia Exercise

- **AUSTRAHIND:** An annual bilateral army training exercise, hosted alternately by India and Australia.
- **AUSINDEX:** A biennial bilateral maritime exercise between the Indian Navy (IN) and the Royal Australian Navy (RAN).
- **Exercise Malabar:** The premier naval exercise featuring the Quad nations (India, Australia, the United States, and Japan), focusing on high-end tactical naval maneuvers.

6. Ganga Water Sharing Treaty (Source: The Hindu)

The 1996 Ganga Water Sharing Treaty is a 30-year bilateral agreement between India and Bangladesh, signed in December 1996, to share the Ganga's water during the lean season (January 1–May 31). The treaty is scheduled to expire in December 2026.

Why such an initiative?

- It ensures fair water distribution for both upstream (India) and downstream (Bangladesh) users, especially during low-flow periods.

Key Features

- It regulates the flow of water at the Farakka Barrage in West Bengal.
- Projects will be selected through a transparent and competitive challenge mode, focusing on result-oriented projects.
- Private sector participation will be encouraged through structured risk-sharing frameworks and benchmarking of service delivery standards.
- The fund will cover all cities with a population of 10 lakh or more.
- Central assistance will cover 25% of project costs.

- A minimum of 50% of the project cost should be raised from the market, including municipal bonds, bank loans, and public-private partnerships.
- A dedicated ₹5,000 crore corpus will enhance the creditworthiness of 4,223 cities.

Fact You Need to Know :

- The Farakka Barrage is essential for maintaining the navigability of the Calcutta Port.
- Calcutta Port, or Syama Prasad Mookerjee Port, is India's oldest operating and sole major riverine port, situated on the banks of the Hooghly River.

7. International Atomic Energy Agency (IAEA) (Source: The Hindu)

The International Atomic Energy Agency (IAEA) is an autonomous intergovernmental organization established in 1957 under the United Nations system.

- *Aiming to promote the safe, secure, and peaceful use of nuclear energy worldwide, while preventing its military use, including nuclear weapons proliferation.*

Objectives

- To assist its member states in applying nuclear science and technology for peace, development, and health;
- To develop and enforce nuclear safety and security standards, protecting people and the environment from ionising radiation;
- To verify through its inspection system that nuclear materials are used only for peaceful purposes, especially under treaties such as the Nuclear Non-Proliferation Treaty (NPT).

Facts To Know

- **Principle:** Formed on the principle of Atoms For Peace.
- **Headquarters:** Vienna, Austria.
- **Award:** Nobel Peace Prize in 2005.
- It reports to both the UNGA and the UNSC.
- The IAEA has 178 member states, India being one of the founding members of the IAEA.

8. Financial Action Task Force (FATF) (Source: The Hindu)

FATF is a global money laundering and terror financing watchdog set up in 1989.

Launch

- It was launched by the G7 countries in Paris.

Headquarter

- The FATF Secretariat is located at the OECD headquarters in Paris.

Functions

- FATF's main role is to review money laundering and terrorist financing techniques and improve its standards to address new risks, such as regulating virtual assets like cryptocurrencies.
- FATF also monitors countries to ensure they fully implement the FATF Standards and takes action against those that do not comply.

FATF Sessions

- The decision-making body of FATF is called the FATF Plenary, which meets three times a year.

Membership

- It is a 39-member body representing most major financial centres in all parts of the globe.
- India joined with observer status in 2006 and became a full member of FATF in 2010.

Listing

- The **Grey List** includes countries that are considered havens for supporting terror funding and money laundering.
- The **Black List** includes Non-Cooperative Countries or Territories (NCCTs) that support terror funding and money laundering activities. As of now, **Iran, North Korea, and Myanmar** are the three black listed countries.

9. European Union (EU) (Source: The Hindu)

- The European Union was established in 1993 and is a global entity comprising 27 nations from Europe.
- *Following the Maastricht Treaty, also known as the Treaty of the European Union (TEU), the EU came into force.*
 - The treaty was ratified by 28 nations, and it entered into force in 1992. Recently, Britain exited the treaty.
- *It is an economic and political bloc, out of 27 countries, 19 countries use the EURO as their official currency.*
- The EU has developed an internal single market through a standardized system of laws that apply in all member states in matters where members have agreed to act as one.

10. Antarctic Treaty (Source: The Hindu)

The Antarctic Treaty is an international agreement signed in 1959 and entered into force in 1961 to ensure that Antarctica is used only for peaceful purposes and scientific research.

- Covers all areas south of 60° South Latitude.
- Foundation of the Antarctic Treaty System (ATS).

Key Objectives

- Antarctica shall be used only for peaceful purposes.
- Military bases, weapons testing, and military maneuvers are prohibited.
- Guarantees freedom of scientific research.

India's Antarctic Research Stations

- Dakshin Gangotri (1983)
- Maitri (1989).
- Bharati (2012).

India's Status

- Joined the Antarctic Treaty in 1983.
- Became a Consultative Party in 1983

11. United Nations Security Council (UNSC) (Source: The Hindu)

The Security Council was established by the UN Charter in 1945. It is one of the six principal organs of the United Nations.

- *Its primary responsibility is to work to maintain international peace and security.*
- *The council is headquartered in New York.*

Membership

- The council has 15 members: the five permanent members and ten non-permanent members elected for two-year terms.
- The five permanent members are the United States, the Russian Federation, France, China, and the United Kingdom.
- India is a non - permanent member of the council.
- Each year, the General Assembly elects five non-permanent members (out of ten in total) for a two-year term. The ten non-permanent seats are distributed on a regional basis.

12. Organization of the Petroleum Exporting Countries (OPEC) (Source: The Hindu)

It is a permanent intergovernmental organization of oil-exporting countries.

Formation

- It was established in 1960 by the five founding members: Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela.

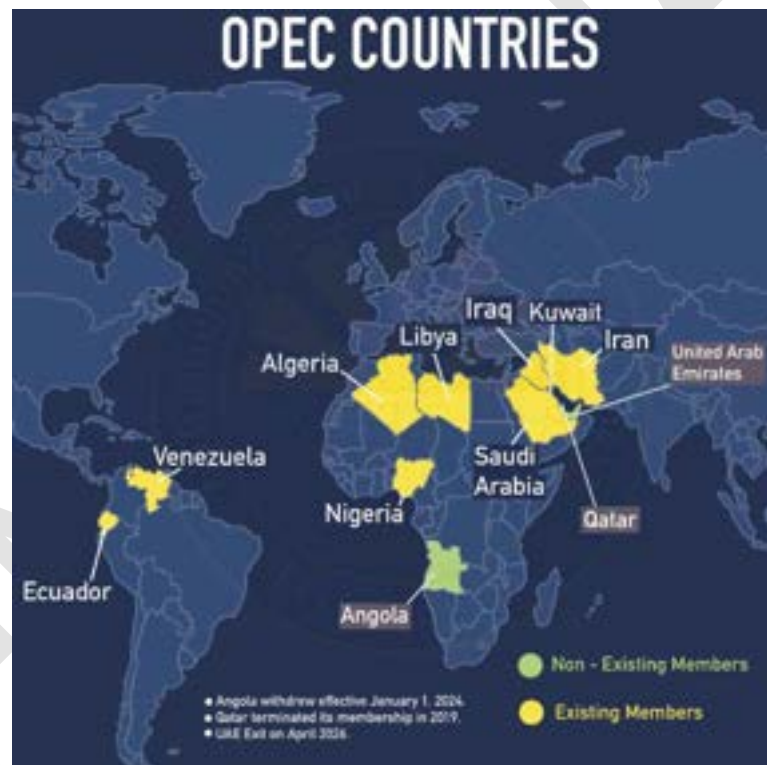
Headquarters

- Vienna, Austria.

Mission

- To coordinate and unify the petroleum policies of its Member Countries.
- Ensure the stabilization of oil prices in the international oil markets, with a view to eliminating harmful and unnecessary fluctuations.

Members



OPEC+

- It is a group of oil exporters consisting of 23 member countries which meet regularly to decide how much crude oil to sell on the world market.
- It comprises 13 OPEC countries plus Azerbaijan, Bahrain, Brunei, Kazakhstan, Russia, Mexico, Malaysia, South Sudan, Sudan, and Oman

ECONOMY

1. Fiscal Deficit (Source: The Hindu)

Fiscal Deficit is the difference between a government's total expenditure and its total revenue (excluding borrowings). It represents the total borrowing requirement of the government.

Calculation

- Fiscal Deficit = Total Expenditure - (Revenue Receipts + Non-debt Capital Receipts),

Economic Implications

- High deficits can lead to "Crowding Out" (reducing capital available for private investment), inflationary pressure, or a "Debt Trap" where a majority of revenue is consumed by interest payments.

2. Wholesale Price Index (WPI) and Producer Price Index (PPI) (Source: The Hindu)

Wholesale Price Index (WPI)

- *Measures price changes at the wholesale level.*
- *Base year is 2022 - 2023 (previous based year is 2011 – 12).*
- *Primarily includes manufactured products, fuel, and primary articles. (service sector not included).*
- *The measurement of the WPI are based on production values.*
- *Exclude indirect tax.*
- *Released by Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Union Ministry of Commerce & Industry.*

Producer Price Index (PPI)

- *It measures the average change in the price a producer receives for his goods/services sold in the domestic market/ exports.*
- **Two Types:**
 - Output PPI: When goods/ services leave the place of production
 - Input PPI: When goods/ services enter the production process.

3. Circular Economy (Source: The Hindu)

A Circular Economy is a system where products are designed for durability, reuse, and recyclability, minimizing waste by keeping materials in continuous circulation through repairing, reusing, refurbishing, and recycling.

Six R's of Circular Economy

- **Reduce:** Minimize resource use
- **Reuse:** Extend product life
- **Recycle:** Convert waste to raw material
- **Refurbish:** Restore old products
- **Recover:** Extract energy/value from waste
- **Repair:** Fix instead of discard

Government Steps Taken

- **Swachh Bharat Abhiyan:** Waste segregation, recycling infrastructure
- **Plastic Waste Management Rule:** Ban on single-use plastics
- **EPR (Extended Producer Responsibility):** Producers responsible for end-of-life disposal
- **Make in India:** Sustainable manufacturing practices
- **2022-23 Budget:** Recognized sustainable growth & circular economy

Significance

- **Environmental Benefits**
 - Minimizes waste & pollution
 - Reduces pressure on finite natural resources
 - Helps combat climate change (COP27 relevance)
 - Protects biodiversity
- **Economic Benefits**
 - Waste-to-Wealth model
 - Lowers production costs for businesses
- **Social Benefits**
 - Achieves SDG 12 (Responsible Consumption & Production)

Challenges

- **Rapid Urbanization:** Massive waste generation
- **Informal Waste Sector:** Unorganized recycling, safety issues
- **Infrastructure Gap:** Limited recycling facilities
- **Awareness Deficit:** Low public participation

4. Insolvency and Bankruptcy Code (Source: The Indian Express)

It was enacted in 2016 based on the recommendation of 'T.K Vishwanathan Committee Report.

Objectives

- To consolidate and amend all insolvency laws that are existing in India.
- To simplify and expedite the process of resolution of Insolvency and Bankruptcy in India.
- To protect the interest of creditors, including stakeholders in a company.
- To revive the company in a time-bound manner.
- To promote entrepreneurship.
- To get the necessary relief to the creditors and consequently increase the credit supply in the economy.
- To work out a new and timely recovery procedure to be adopted by the banks, financial institutions or individuals.
- To set up an Insolvency and Bankruptcy Board of India.
- Maximization of the value of assets of corporate persons.

Insolvency

- Insolvency refers to a situation where individuals or companies cannot repay back their outstanding debt obligations.

Bankruptcy

- Bankruptcy refers to a legal status declared by a court of competent jurisdiction for a person or entity that is insolvent i.e. unable to pay off debts.
- The court issues appropriate orders to resolve the insolvency and protect the rights of creditors

5. Liquidity Adjustment Facility (Source: The Hindu)

- *A LAF is a monetary policy tool used in India by the RBI through which it injects or absorbs liquidity into or from the banking system.*
- It was introduced as a part of the outcome of the **Narasimham Committee on Banking Sector Reforms of 1998.**
- **Two Components of LAF**
 - **Repo Rate:** Repo Rate is the rate of interest at which the RBI provides short-term loans to SCBs against approved securities.
 - **Reverse Repo Rate:** Reverse Repo Rate is the rate of interest at which the RBI borrows funds from the SCBs

6. Foreign Direct Investment (FDI) (Source: The Hindu)

FDI refers to investment made by a person residing outside India through capital instruments in either an unlisted Indian company or in at least 10% of the post-issue paid-up equity capital (on a fully diluted basis) of a listed Indian company.

Routes of FDI

- **Automatic Route:** A non-resident investor or an Indian company does not require any prior approval from the Government of India or the Reserve Bank of India (RBI) to invest. The investor only needs to inform the RBI within a specified timeframe after the transaction.
- **Government Route:** Prior approval from the government is mandatory. The respective administrative Ministries/Departments consider proposals. The Foreign Investment Facilitation Portal (FIFP) acts as the single-window clearance mechanism.

Sectors with FDI Prohibitions

- Lottery Business (including Government/private lottery, online lotteries, etc.)
- Gambling and Betting (including casinos)
- Chit funds and Nidhi companies
- Trading in Transferable Development Rights (TDRs)
- Real Estate Business or Construction of Farm Houses (Note: Development of townships, roads, bridges, and educational institutions is permitted and does not fall under this prohibition)
- Manufacturing of cigars, cheroots, cigarillos, and cigarettes, of tobacco or of tobacco substitutes
- Sectors/activities not open to private sector investment (e.g., Atomic Energy and Railway Operations other than permitted infrastructure projects).

7. Retail Inflation and Consumer Price Index (Source: The Hindu)

Retail Inflation

- *Measures the change in retail prices of goods and services purchased by households for daily consumption, based on a fixed basket of goods and services.*
- Assessed using **Consumer Price Index (CPI)**.

Consumer Price Index (CPI)

- *CPI measures changes in prices of goods and services that households acquire for the purpose of consumption.*
- **Facts To Know**
 - It is used as a tool by governments and central banks for inflation targeting and for monitoring price stability.

- It is used for indexing dearness allowance to employees for an increase in prices.
- The CPI is released by the National Statistical Office under the Ministry of Statistics.
- The CPI base year is to be changed to 2024 from 2012.
- The composition of the inflation basket has changed: the weight of food and beverages has been reduced from 54% to 37%.
- The United Nations Statistical Division's (UNSD) Classification of Individual Consumption According to Purpose (COICOP 2018) will be adopted into CPI for better global comparison.
- The CPI basket now includes 358 weighted items, up from 299 earlier.
- New inclusions include rural house rent, OTT services, international air travel, and newer energy sources such as CNG and PNG.
- The number of service items has risen to 50.
- The new CPI uses the Jevons index, a chain-price method that links monthly price changes.

8. Windfall Tax (Source: The Hindu)

Windfall tax is a special tax governments impose on industries or entities earning unexpected, above-average profits due to external factors like market surges or geopolitical events.

- It is commonly levied on industries such as oil, gas, and mining.

Need To Know

- Governments use it to capture excess profits for public revenue, fund welfare, or stabilize economies.
- India first implemented windfall profit taxes on 1st July 2022.



9. Index of Services Production (ISP) (Source: The Hindu)

Index of Service Production is a proposed monthly indicator to measure output in India's services sector, which is similar to Index of Industrial Production.

- **Proposed by:** It is proposed by the Ministry of Statistics and Programme Implementation (MoSPI)
- **Developing Agency:** National Statistical Office (NSO) under MoSPI
- **Base Year:** 2024-25
- **Coverage**
 - It will track key service segments such as trade, transport, banking, insurance, hospitality, real estate, and professional services.
 - It also examines data availability, coverage, and appropriate price deflators in line with international best practices.
 - It proposes to exclude services provided by the informal sector due to the paucity of data from the data sources under consideration.
 - It also proposes a temporary exclusion of the health and education sector, which accounts for 10% of the services GVA, till results of the annual survey of incorporated service sector enterprises (ASISSE) become available.

10. Index of Industrial Production (IIP) (Source: The Hindu)

- *It is a measure of short-term changes in the volume of industrial output in India, covering mining, manufacturing, and electricity sectors.*
- *Released by the **National Statistics Office (NSO)** under the Ministry of Statistics and Programme Implementation every month.*
- **Base Year:** 2011-12
- **Components of IIP Calculation:**
 - Weightage for the sectors is in the order of manufacturing, electricity, and mining sectors.
- **Uses of IIP:**
 - Policymakers use IIP for GDP estimates, inflation analysis, and formulating industrial policy.

11. Depreciation and Appreciation of Currency and Impact upon Economy (Source: The Indian Express)



12. Government Security (G-sec) (Source: PIB)



GOVERNMENT SECURITY (G-SEC)

The most trusted investment backed by the Government of India



1 WHAT IS G-SEC?

Government Security (G-sec) is a debt instrument issued by the Government of India to raise funds for its financing requirements.

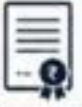
It is a promise by the Government to pay the investor periodic interest (coupon) and repay the principal amount at maturity.



Issued by
Government of India



Treasury Bills (T-Bills)
(Short-term)



Government Bonds (Dated Securities)
(Medium to Long-term)



State Development Loans (SDLs)



Sovereign Gold Bonds (SGBs)


ENLITE IAS

2 WHO CAN SELL AND WHO CAN BUY?

WHO CAN SELL?

Only the Government of India

- Through the Reserve Bank of India (RBI)
- RBI conducts auctions on behalf of the Government
- G-secs are issued in the primary market and sold to eligible participants

WHO CAN BUY?

- Banks
- Insurance Companies
- Mutual Funds
- Provident Funds & Pension Funds
- Corporates
- High Net-worth Individuals (HNIs)
- Non-Resident Indians (NRIs) & Foreign Institutional Investors (FIIs)
- Retail Investors (through platforms like RBI Retail Direct, banks, brokers)

PRIMARY MARKET (Auction)
G-secs issued by the Government through RBI

→

SECONDARY MARKET (Trading)
G-secs traded among investors on platforms like NDS-OM

3 SPECIALITY OF G-SEC COMPARED TO OTHER SECURITIES

1. HIGHEST SAFETY

Backed by the full faith and credit of the Government of India. Considered one of the safest investments with virtually no default risk.

2. STEADY RETURNS

Provides regular interest income (coupon) and return of principal at maturity.

3. LIQUIDITY

Actively traded in the secondary market. Easy to buy and sell through recognized platforms.

4. TAX BENEFITS

Interest earned is exempt from State Taxes. (Securities Transaction Tax (STT) is not applicable on G-sec trades.)

5. INFLATION HEDGE

Long-term G-secs help protect wealth over time as yields adjust with market conditions.

6. BENCHMARK FOR THE ECONOMY

G-sec yields are used as benchmark for interest rates on loans, bonds and other debt instruments in the economy.

IN SHORT

G-secs are the safest, most liquid and benchmark debt instruments in India, forming the foundation of our financial system.



Issued by Government of India



Low Risk, High Trust



Stable Returns & Liquidity



Wide Range of Investors

48

ENVIRONMENT

1. Ethanol Blending (Source: The Hindu)

Ethanol Blending involves mixing of ethanol with petrol to create cleaner, more sustainable fuel. Initially, the target was 5% blending, which has now been increased to 20% blending.

- Present target is E100 (pure ethanol) E100 needs flex-fuel vehicles that can run on varying ethanol blends.

Benefits

- Reduces the hydrocarbon emissions making atmosphere cleaner (GHG emissions in case of use of sugarcane and maize based Ethanol are less by 65% and 50%, respectively than those of petrol.)
- Saves precious foreign exchange by reducing demand for import.
- Ensures alternate source of income for farmers.

Challenge

- It can lead to a food security crisis due to food crop diversion and water usage for sugarcane cultivation.

Ethanol Blended Petrol (EBP) Programme

- Aimed at mixing ethanol with standard motor petrol. Operating under the ambit of the National Biofuel Policy (NBP) 2018, the program is driven by the Ministry of Petroleum and Natural Gas.
- Its primary goals are to reduce India's heavy reliance on imported crude oil, cut greenhouse gas emissions, and boost farmers' incomes by creating a lucrative alternate market for agricultural produce.

Generation of Ethanol

- **1st Generation Ethanol:** It is made from food crops such as cereals (rice, wheat, barley, corn, and sorghum), sugarcane, sugar beet etc.
- **2nd Generation Ethanol:** It is made from ligno-cellulosic or woody biomass, or agricultural residues/waste such as wheat straw, corn stover, wood etc.
- **3rd Generation Ethanol:** It includes those derived from aquatic biomass such as algae.
- **4th Generation Ethanol:** It is derived from engineered plants and microorganisms

2. Shendurney Wildlife Sanctuary (Source: The Hindu)

- **Location**
 - Kollam District, Kerala
 - Part of Agasthyamali Biosphere Reserve
- **Associated River:** Shendurney River
- **Vegetation:** Tropical Evergreen and Semi - Evergreen Forests
- **Key Species:** Lion-tailed macaque (endangered), Indian bison, Malabar giant squirrel.



3. Similipal Tiger Reserve (Source: The Hindu)

- **Location:** Odisha
- **Geographic Setting:** It comes under the Deccan Peninsular Biogeographic Zone.
- **Vegetation:** It is a mix of different forest types and habitats, with Northern tropical moist deciduous dominating some semi-evergreen patches. Sal forest is dominant one.
- **Notable Specie:** It is the only landscape in the world that is home to melanistic tigers.
- **Other Protection Status:** Included as a part of the World Network of Biosphere Reserves by UNESCO in the year 2009.



4. Kaziranga National Park (Source: The Hindu)

- **Location:** Assam
- **Protection Status:**
 - National Park
 - UNESCO World Heritage Site
 - Tiger Reserve
 - Important Bird Area by the Birdlife International Society
- **Associated River:** River Brahmaputra, Diphlu River
- **Big Four Species:** Rhino, Elephant, Royal Bengal tiger, and Asiatic water buffalo
- **Vegetation:** It is a mix of eastern wet alluvial grasslands, semi evergreen forests and tropical moist deciduous forests
- **Fauna:** One Horned Rhino ,Fishing Cat , Royal Bengal tiger , Barking deer, Hog deer, western hoolock gibbon.

National Parks in Assam



5. Sambhar Lake (Source: The Hindu)

- **Location:** Jaipur district, Rajasthan.
- **Fact:** It is the largest inland salt lake in India.
- **Protection Status:** Designated as a **Ramsar site** in 1990.
- **Vegetation:** Xerophytic type.
- **Fauna:** Flamingoes, pelicans and the waterfowls are commonly sighted.
- **Rivers:** Fed by streams like Samaod, Khari, Mantha, Khandela, Medtha, and Roopangarh.

6. United Nations Framework Convention on Climate Change (UNFCCC) (Source: Down To Earth)

It is an international treaty formed in the Rio Earth Summit (1992) to coordinate the global response to climate change.

- **Headquarters:** Bonn, Germany
- **Objectives**
 - The primary role of UNFCCC is to provide a framework for negotiating specific international treaties, known as “protocols.”
 - UNFCCC itself sets no binding limits but aims to stabilize greenhouse gas (GHG) concentrations in the atmosphere at a level preventing dangerous consequences.

- **Funding:** Under Green Environment Fund (GEF)
- **Major COPs and Outcomes**
 - **COP 3 (1997):** Kyoto Protocol (First treaty with binding emission reduction targets for developed countries)
 - **COP 7 (2007):** Marrakech Accords (Detailed rules for Kyoto Protocol; established Adaptation Fund for developing countries)
 - **COP 11 (2005):** Montreal Action Plan (Extended Kyoto Protocol beyond 2012; negotiated deeper emission cuts)
 - **COP 13 (2007):** Bali Action Plan
 - **COP 16 (2010):** Established the Green Climate Fund (GCF).
 - **COP 21 (2015):** Paris Agreement and Nationally Determined Contributions (NDCs).
 - **COP 26 (2021):** Glasgow Climate Pact (First explicit mention of "phasing down coal")
 - **COP 27 (2022):** Loss and Damage Fund established for vulnerable nations; Sharm el-Sheikh Implementation Plan; kept 1.5°C alive
 - **COP 28 (2023):** Dubai Agreement (First Global Stocktake; signaled "beginning of the end of fossil fuel era"; tripling of climate finance)
 - **COP 29 (2024):** \$300 billion/year climate finance target by 2035 for developing countries; operationalized Paris Agreement Articles 6.2 & 6.4.
 - **COP 30 (2025):** Belém Package (Tripled adaptation funding by 2035; launched Just Transition Mechanism; strengthened tropical forest protection)

7. Impact of Increased Peacock Population (Source: The Hindu)

Positive Impact

- Key example of wildlife protection efforts.
- Control pest by eating insects, larvae, and small bugs

Negative Impact

- Peacocks feed on grains, paddy, and vegetables, causing financial loss for farmers that trigger human conflict where the farmers poison or kill peacocks to protect their fields
- More peacocks lead to increased road kills as they cross highways
- Peacocks prey on snakes, reptiles, lizards — population increase reduces these species and they eat larvae, bugs, caterpillars, threatening endangered butterflies.
- Excessive populations may compete with other bird species for food and habitat.

8. Great Indian Bustard (Source: PIB)

Rajasthan's state bird and it is one of the heaviest flying birds in the world.

Need To Know

- **Ecological Habitat:** Grasslands
- **Threats:** Electrocution with power transmission lines, Hunting and Habitat loss
- **Protection Status:**
 - **IUCN Status:** Critically Endangered
 - **CITES:** Appendix I
 - **Convention on Migratory Species (CMS):** Appendix I
 - **Wildlife (Protection) Act, 1972:** Schedule 1

Desert National Park

- It is located in Thar Desert and one of key habitat of Great Indian Bustard
- It is one of the largest national parks in India.

9. Udanti Sitanadi Tiger Reserve (Source: The Indian Express)

- **Location:** Chhattisgarh
- **Associated River:** The Udanti river flows through the Reserve.
- **Topography:** The topography of the area is a broken mass of land traversed by innumerable hill ranges intercepted by strips of plains.
- **Vegetation:** Dry Deciduous Forests, Tropical and Sub-Tropical vegetation
- **Fauna:** Tiger, Asiatic Wild Buffalo, Indian Wolf, Leopard, Sloth Bear and Mouse Deer

10. Green Sea Turtles (Source: The Hindu)

Distribution

- *Found in tropical and subtropical waters across the Atlantic, Pacific, and Indian Oceans.*
- Commonly nests on sandy beaches and feeds in shallow coastal waters, lagoons, and seagrass meadows.

Ecological Importance

- *Acts as a keystone species by maintaining seagrass bed productivity, ensuring the stability of marine ecosystems.*
- Supports nutrient cycling between marine and coastal ecosystems.

Threats Faced

- **Coastal development, pollution, fishing net entanglement, climate change, and illegal egg collection.**
- **Rising sea surface temperatures.**

Conservation Status

- **IUCN Red List:** Least Concern
- **CITES:** Appendix I – International trade prohibited.
- **Wildlife (Protection) Act, 1972:** Schedule I

11. Biofuel (Source: The Hindu)



12. Carbon Credit Trading (Source: PIB)



13. Elephants and Ecological Significance of Elephants (The Hindu)

(Source:

ELEPHANTS

— GIANTS OF THE EARTH —

Elephants are the largest land mammals on Earth. They are highly intelligent, emotional and social animals living in matriarchal herds.



GENERAL MATTER

- Elephants are the largest land mammals on Earth.
- Two types:
 - African Elephant (*Loxodonta africana*)
 - Asian Elephant (*Elephas maximus*)
- Led by a matriarch: the oldest and most experienced female guides and makes decisions for the herd.

HABITAT



- Inhabit tropical and subtropical regions.
- Found in forests, grasslands, scrublands and wetlands.
- Require large areas, access to water and movement corridors for seasonal migrations.

DISTRIBUTION IN INDIA (ASIAN ELEPHANT)

Elephants are found in several states, mainly in the forests of the Eastern, Northeastern and Southern India.

State	Estimated Population
Karnataka	6,604
Assam	5,719
Kerala	3,054
Tamil Nadu	2,806
Andhra Pradesh	2,679
West Bengal	1,971
Odisha	1,694
Jharkhand	1,227
Chhattisgarh	1,116
Andhra Pradesh	1,014
Telangana	890
Nagaland	323
Others (Sikkim, Mizoram, Meghalaya, Tripura, etc.)	265

HIGHEST DISTRIBUTION
KARNATAKA
6,604 Elephants
(24.17% of India's total)

TOTAL INDIA: 27,312

(Source: MoEF, 2017; All India Elephant Census 2022)

THREATS

- Habitat Loss and Fragmentation**
Deforestation, agriculture expansion, mining and infrastructure development reduce habitat and block movement.
- Human-Elephant Conflict**
Crop raiding, property damage and human casualties lead to retaliatory killings.
- Poaching and Illegal Trade**
Hunting for ivory and other body parts continues in some regions.
- Infrastructure Hazards**
Electrocution, train/road collisions and falling into open wells.
- Climate Change**
Altered rainfall patterns and extreme events affect habitat, water availability and food.

CONSERVATION STATUS

IUCN Red List
EN
(Endangered)
(Asian Elephant)

National Heritage Animal of India

- Protected under the Wildlife (Protection) Act, 1972 – Schedule I
- Project Elephant launched in 1992 for protection and conservation.
- Elephant Corridors identified to ensure safe movement between habitats.
- Community participation, early warning systems and conflict mitigation are key strategies.

CITES STATUS

CITES
Appendix I

- All populations of both African and Asian elephants are listed in Appendix I of CITES.
- International trade in wild-caught elephants or their parts and derivatives is prohibited, except in exceptional circumstances.
- Trade in items from captive-bred elephants is also strictly regulated.

DID YOU KNOW?

- Elephants have excellent memory and can remember people, places and routes for years.
- They move along family bonds, empathy and cooperation.
- Elephants are among the most intelligent animals on Earth.
- They can drink 100-200 litres of water in a day.
- Elephants can travel 20-100 km in search of food, water and mates.

LET US PROTECT THESE MAGNIFICENT BEINGS AND THEIR HABITATS FOR A BETTER FUTURE.

Ecological Significance of Elephant Population

- **Keystone Species:** Elephants are considered keystone species because their activities have a disproportionately large impact on maintaining ecosystem structure and biodiversity.
- **Ecosystem Engineers:** By uprooting trees, breaking branches, and clearing vegetation, elephants create grasslands, open forest patches, and diverse habitats for many other species.
- **Seed Dispersal:** They consume fruits and disperse seeds over long distances through dung, aiding forest regeneration and maintaining plant diversity.
- **Nutrient Cycling:** Elephant dung enriches soil with nutrients, supports insects, fungi, and microorganisms, and improves soil fertility.
- **Water Resource Creation:** During dry seasons, elephants dig for underground water, creating waterholes that become vital sources for many animals.
- **Habitat Connectivity:** Their regular movement creates trails through dense forests, facilitating the movement of smaller mammals and enhancing ecological connectivity.
- **Maintaining Forest Structure:** By feeding selectively on woody vegetation, elephants regulate tree density, prevent excessive forest thickening, and maintain a balance between forests and grasslands.
- **Support for Biodiversity:** The habitats modified by elephants provide food, shelter, and breeding grounds for birds, reptiles, amphibians, insects, and mammals.
- **Carbon Sequestration:** By promoting the growth and regeneration of large, carbon-rich tree species through seed dispersal, elephants contribute indirectly to carbon storage and climate regulation.
- **Indicator of Ecosystem Health:** Healthy elephant populations indicate well-connected forests with sufficient food, water, and habitat, reflecting the overall health of the ecosystem.

SCIENCE AND TECHNOLOGY

1. Coal Gasification (Source: The Hindu)

Coal gasification is a process that transforms Coal into a Synthetic gas (Syngas), consisting of mixture of gasses such as Carbon monoxide (CO), Hydrogen (H₂), Carbon dioxide (CO₂), Methane (CH₄) and Water vapor (H₂O).

- Syngas can be used to produce a wide range of Fertilizers, Fuels, solvents and synthetic materials.

Process

- **Preparation:** Coal is crushed into a fine powder to increase its surface area and enhance the chemical reactions during the process.
- **Gasification Reactor:** The crushed coal is introduced into a high-temperature and high-pressure reactor along with limited oxygen or air and steam.
- **Chemical Reactions:** In the absence of sufficient oxygen for complete combustion, the coal undergoes a series of complex chemical reactions.
- **Gas Cleaning:** The raw syngas produced from the reactor contains impurities like tar, sulfur, and dust. These impurities need to be removed through a gas cleaning process before the syngas can be used further.

Advantages

- Gasification boosts efficiency to 50%+ in integrated gasification combined cycle (IGCC) plants versus 30–40% in traditional coal plants, via gas turbine plus steam recovery.
- It cuts local pollutants (sulfur, particulates) through pre-use cleaning and enables >90% CO₂ capture potential.
- Applications include power, hydrogen, liquids (CTL), and chemicals, reducing oil import reliance.

2. James Webb Space Telescope (Source: The Hindu)

It is developed for examine every phase of cosmic history that from the Big Bang to the formation of galaxies, stars, and planets to the evolution of our own Solar System.

Facts To Know

- It is jointly developed by NASA, the European Space Agency (ESA) and the Canadian Space Agency which was launched in December 2021.
- It is currently places at Sun-Earth L2 Lagrange point.
- It's the successor to Hubble Telescope.

Objectives

- To look back around 13.5 billion years to see the first stars and galaxies forming out of the darkness of the early universe.
- To compare the faintest, earliest galaxies to today's grand spirals and understand how galaxies assemble over billions of years.
- To see where stars and planetary systems are being born.
- To observe the atmospheres of extrasolar planets (beyond our solar system), and perhaps find the building blocks of life elsewhere in the universe.

3. Chandrayaan-3 Mission (Source: The Indian Express)

Chandrayaan-3 is a follow-on mission to Chandrayaan-2 and it was launched in 2023 by ISRO.

- It was launched using LVM3-M4 rocket.

Core Objectives

- **Safe Soft-Landing:** To demonstrate a safe and soft landing of the Lander Module (Vikram) near the unexplored lunar South Pole (Shiv Shakti Point).
- **Rover Mobility:** To demonstrate the movement and operational capabilities of the Rover (Pragyan) on the rugged lunar terrain.
- **In-Situ Scientific Experiments:** To conduct on-site chemical, physical, and thermal observations of the lunar surface material.

Recent Development

- Data collected by Chandrayaan-3 has established a close chemical relationship between the soil found at Shiv Shakti Point and a lunar meteorite that had hit Antarctica's Allan Hills region of Victoria land about a million years ago.

4. Neglected Tropical Disease (NTD) (Source: The Hindu)

Neglected tropical diseases (NTDs) are diseases that occur in the tropics, typically in low and middle-income nations.

- India has the world's highest absolute burden of at least ten major NTDs, including hookworm, dengue, lymphatic filariasis, leprosy, visceral leishmaniasis or kala-azar, and rabies.
- The World Health Organization (WHO) recognizes 20 NTDs.
- Primarily persist in areas with unsafe water, poor sanitation, and limited access to healthcare.

Impacts

- **Health & Nutrition:** They cause chronic morbidity, disfigurement, malnutrition, and cognitive impairment in children (especially STH).

- **Socio-Economic Burden:** NTDs trap families in a cycle of poverty due to lost wages, high healthcare expenditures, and intense social stigma (particularly surrounding Leprosy and Lymphatic Filariasis).
- **Vulnerable Demographics:** Rural populations, women, children, and marginalized communities face the highest burden.

Government of India Initiatives

- **National Vector Borne Disease Control Programme (NVBDCDP):** The central umbrella program framing policies and surveillance for NTDs like Kala-azar and Lymphatic Filariasis.
- **Mass Drug Administration (MDA):** Periodic administration of preventive medicines to entire at-risk populations to stop the transmission of Lymphatic Filariasis and STH.
- **National Deworming Day (NDD):** Conducted bi-annually to administer Albendazole tablets to children aged 1–19 across schools and Anganwadi centers.
- **National Leprosy Eradication Programme (NLEP):** Aimed at early detection, free Multi-Drug Therapy (MDT), and reducing disability and stigma.
- **Wage Compensation Schemes:** Financial support given to patients (e.g., for Kala-azar) to cover loss of wages during treatment.

Global Frameworks and Milestones

- **WHO's NTD Roadmap (2021–2030):** Targets a 90% reduction in the number of people requiring interventions for NTDs and the elimination of at least one NTD in 100 countries by 2030.
- **The London Declaration on NTDs (2012) & Kigali Declaration (2022):** Global political commitments bringing together governments, pharmaceutical companies, and NGOs to pledge resources and donate medicines to eliminate NTDs.
- **Sustainable Development Goals (SDGs):** SDG Target 3.3 explicitly aims to end the epidemics of AIDS, tuberculosis, malaria, and *neglected tropical diseases* by 2030.

5. Black Box (Source: The Hindu)

Black Box (also called Flight Recorder) is a small, rugged device installed in every aircraft that records flight data and cockpit audio to help investigators determine the cause of aircraft incidents or crashes.

Fact To Know

- It is painted in bright orange or yellow (not black) for easy identification at crash sites
- Invented by Australian scientist David Warren
- Usually fitted at the rear end of aircraft
- After crash it works without electricity for 30 days, emitting a beeping signal for recovery
- Made of titanium alloy or stainless steel

6. What are India's ballistic missile shield components? (Source: The Hindu)

India's Ballistic Missile Defence (BMD) programme

- *India's Ballistic Missile Defence (BMD) programme is an indigenously developed, multi-layered shield designed to protect critical assets from hostile ballistic missile attacks by DRDO in 2000*
- **Tier I: Exo-Atmospheric Interception:** This tier targets and neutralizes incoming hostile ballistic missiles outside the Earth's atmosphere.
 - **Prithvi Air Defence (PAD):** Also known as Pradyumna. It handles high-altitude interceptions at altitudes between 50 km to 80 km. It is a two-stage rocket (solid first stage, liquid second stage) capable of intercepting Mach 5 class ballistic projectiles.
- **Tier II: Endo-Atmospheric Interception:** This tier engages hostile threats within the Earth's atmosphere
 - **Advanced Air Defence (AAD):** Also known as Ashwin. It intercepts targets at lower altitudes of up to 30 km. It is a single-stage, solid-fueled interceptor that moves at hypersonic speeds (Mach 4.5) to neutralize short-to-medium-range threats.

7. Border Gateway Protocol (BGP) (Source: The Indian Express)

Border Gateway Protocol (BGP) is the routing protocol that powers the Internet, responsible for exchanging routing information between different networks (Autonomous Systems) to determine the most efficient paths for delivering Internet traffic.

How does it works?

- Routers in different Autonomous Systems establish a BGP connection (peering).
- They exchange information about reachable networks (IP prefixes).
- Each router evaluates multiple routes.
- The best route is selected using BGP attributes and policies.

- Routing information is continuously updated across the Internet.

Associated Terms

- **BGP Hijacking:** This occurs when a network maliciously or accidentally broadcasts that it owns an IP address range that it actually doesn't. Traffic meant for a legitimate service (like a bank or social media site) gets routed to the wrong destination, potentially leading to data interception or total blackouts.
- **BGP Leaks:** A configuration error where an AS inadvertently announces a set of routing prefixes beyond its intended scope, causing massive traffic bottlenecks across the internet.

8. Sickle Cell Disease (Source: PIB)

It is an inherited blood disorder caused by defective cell called sickle cell gene.

Effect

- It affects hemoglobin, the molecule in red blood cells that delivers oxygen to cells throughout the body.
- People with this disease have atypical hemoglobin molecules called hemoglobin S, which can distort red blood cells into a sickle, or crescent, shape.

Symptoms

- **Early Stage:** Extreme tiredness or fussiness from anemia, painfully swollen hands and feet, and jaundice.
- **Later Stage:** Severe pain, anemia, organ damage, and infections.

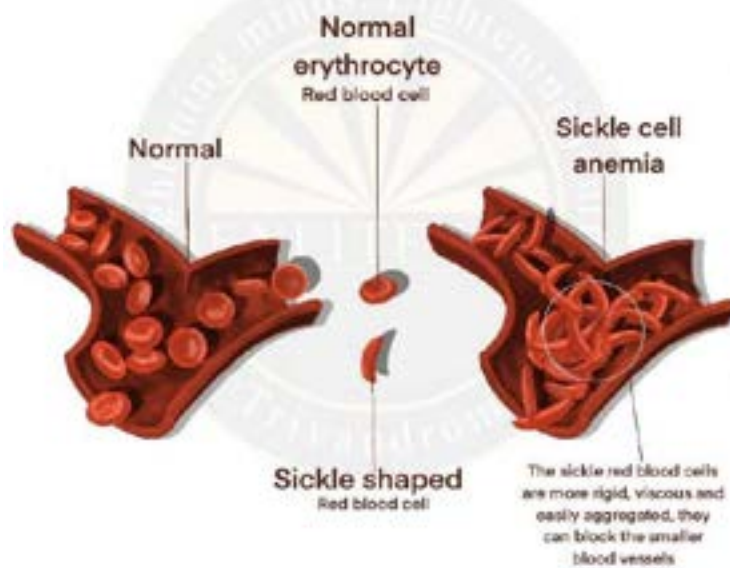
Diagnosis

- Solubility test / Dithionite test
- Hemoglobin electrophoresis
- HPLC (High-Performance Liquid Chromatography)
- Genetic testing (for prenatal diagnosis)

Treatments

- The only cure for this disease is bone marrow or stem cell transplantation.

SICKLE CELL DISEASES



9. Application of Drones in Sectors (Source: The Indian Express)



10. Deuterium (Source: PIB)

Deuterium is a stable isotope of hydrogen, also called heavy hydrogen, with the chemical symbol D or ^2H

- Discovered by **Harold C. Urey (1931)**

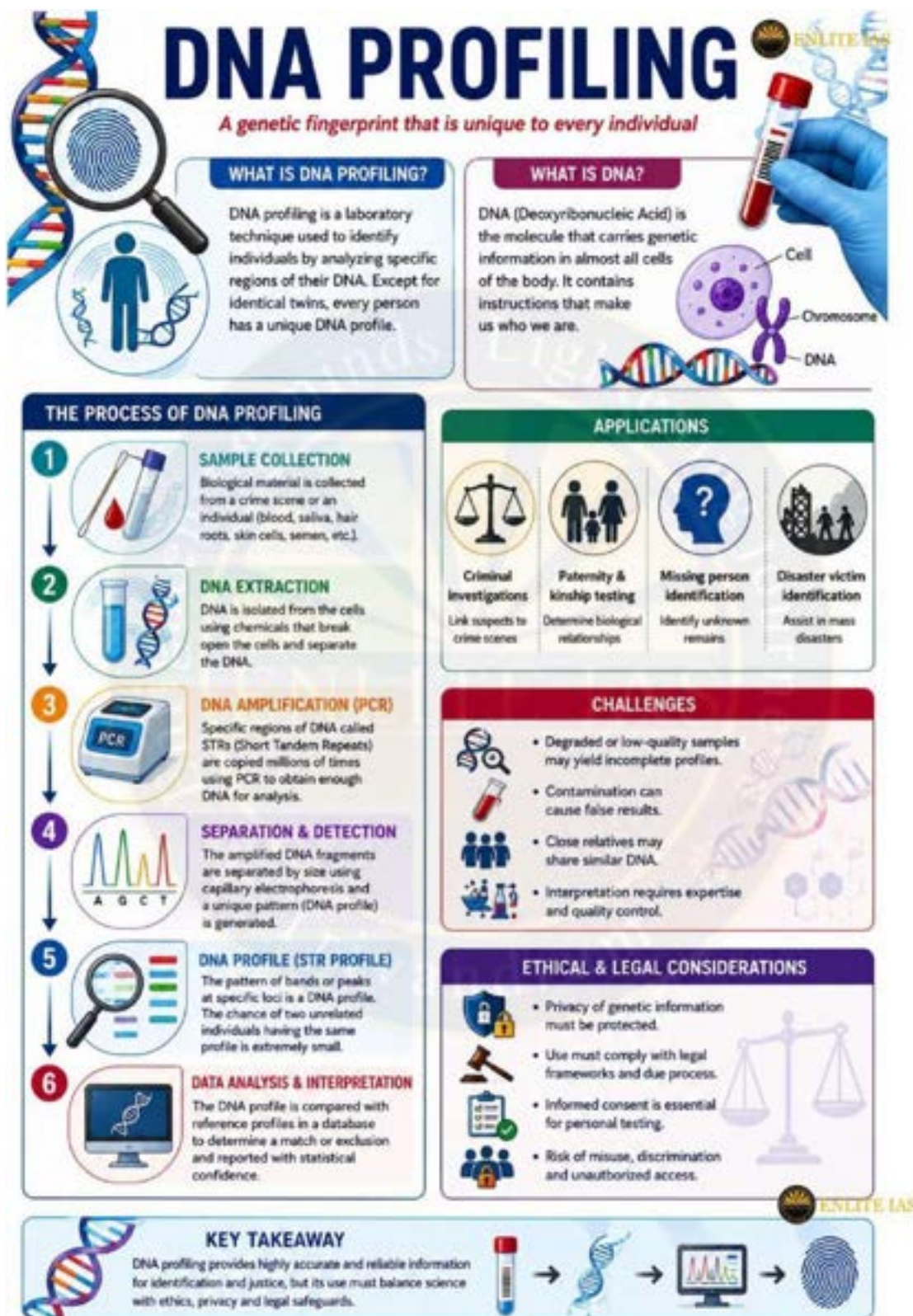
Application

- **Nuclear Fusion:** Fuel in prototype fusion reactors (with tritium) ["mini sun" on Earth]
- **Heavy Water (D_2O):** Neutron moderator in heavy water-moderated fission reactors (e.g., India's CANDU)
- **Scientific Tracer:** Used in nuclear fusion research & nutrition assessments
- **Reaction Mechanism:** Studying organic reaction mechanisms (deuterium labeling)
- **Military/Industrial:** Nuclear weapons (tritium production), scientific fields.

11. Use of Ammonia Gas (Source: The Hindu)



12.DNA Profiling (Source: The Hindu)



SCHEMES

1. PM SVANidhi Scheme (Source: PIB)

- The scheme was announced as a *part of the Economic Stimulus-II under the Atmanirbhar Bharat Abhiyan in 2020 during COVID period.*
- It is a **Central Sector Scheme** under Ministry of Housing and Urban Affairs
- **Objectives**
 - To facilitate collateral-free working capital loans to street vendors to restart their businesses.
 - Holistic development of street vendors by offering a reliable source of finance to support business expansion and opportunities for sustainable growth
 - Promote financial inclusion, digital payments, and identity/recognition to street vendors
- **Implementing Agency:** The Small Industries Development Bank of India (SIDBI)
- **Other Feature**
 - **Working Capital Loans** : Collateral-free loans provided in progressive tranches of Rs 15,000, Rs 25,000, and Rs 50,000.
 - **Interest Subsidy** : 7% annual interest subsidy for timely or early loan repayment.
 - **Digital Incentives:** Vendors can earn cashback for retail and wholesale digital transactions.
 - **Credit Expansion** : Eligible vendors who repay their second tranche can obtain UPI-linked RuPay Credit Cards with limits up to Rs 30,000.
 - **Extended Timeline:** The scheme's lending period has been extended until March 2030.
 - **SVANidhi se Samriddhi (SSS):** Conducts detailed socio-economic profiling of vendors and their families to seamlessly link them with eight selected Central Government welfare schemes, creating an institutional safety net.
 - **FSSAI Food Safety Training:** Collaborates directly with the Food Safety and Standards Authority of India (FSSAI) to provide specialized capacity building in local financial literacy, digital workflows, and hygiene standards.

2. Jal Jeevan Mission (Source: Down To Earth)

Launched on 15th August 2019, the Jal Jeevan Mission (JJM) aims to provide tap water to every rural household by 2024 (extended till 2028), targeting 55 liters per person per day.

Need To Know

- It is a **Centrally Sponsored Scheme**, implemented by the Ministry of Jal Shakti.
- It has a community-based approach.
- **Motto** - Sabka Saath, Sabka Vikas, Sabka Vishwas aur Sabka Prayas
- **Associated SDG** - SDG 6 that safe and affordable water to all
- **Strategy** - Focuses on integrated demand and supply side management of water at the local level, including creation of local infrastructure for source sustainability like rainwater harvesting, groundwater recharge, and management of household wastewater for reuse in agriculture.

3. Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (PIB)

AYUSHMAN BHARAT

PRADHAN MANTRI JAN AROGYA YOJANA (PM-JAY)

— Swasth Bharat, Samriddh Bharat —

Ayushman Bharat PM-JAY is the world's largest government funded health assurance scheme, ensuring quality healthcare for every eligible poor and vulnerable family.





KEY FEATURES

-  Health cover of ₹5 lakh per family per year for secondary and tertiary care hospitalization.
-  Cashless and paperless treatment at empanelled public and private hospitals across India.
-  No cap on family size, age or gender.
-  Portability across India – Avail treatment anywhere in the country.
-  Covers pre-existing diseases from day one.

WHO IS ELIGIBLE?

Eligible families are identified based on the Socio-Economic Caste Census (SECC) 2011 data as per deprivation and occupational criteria.

 Rural landless households	 Manual scavenger families	 Households living in kutcha houses
 Landless labour households	 Elderly without any source of income	 Disabled members and more

More than 12 crore (approx. 55 crore beneficiaries) vulnerable individuals and families are covered.

WHAT DOES IT COVER?

Covers 1,500+ medical packages across 27+ specialties including:

 Cardiology	 Neurology	 Nephrology	 Oncology
 Orthopaedics	 Paediatrics	 Ophthalmology	 ... and many more

 Pre and post hospitalization expenses are also covered.

HOW DOES IT WORK?

-  Check Eligibility: Check your eligibility online through CSC or at empanelled hospitals.
-  Get Ayushman Card: If eligible, get your Ayushman Card created.
-  Visit Hospital: Visit any empanelled hospital across India.
-  Treatment: Avail cashless treatment without any payment.
-  Get Healthy: Focus on recovery and a healthy life.

Over 4.5 crore hospital admissions authorized*
*As on May 2024

IMPACT THAT MATTERS

 55 CRORE+ BENEFICIARIES Largest health assurance scheme in the world	 4.5 CRORE+ HOSPITAL ADMISSIONS Ensuring quality healthcare for millions	 ₹70,000+ CRORE WORTH OF CARE Financial protection and dignity for vulnerable families	 24,000+ EMPANELLED HOSPITALS Wide network across India
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Ayushman Bharat PM-JAY – A Step Towards a Healthier, Stronger and Self-Reliant India

FACTS

1. FIFA World Cup (Source: The Hindu)



2. Yoga (Source: PIB)

Yoga is an ancient Indian practice that aims at the harmonious development of the body, mind, and spirit.

- The word "Yoga" is derived from the Sanskrit root Yuj, meaning "to unite" or "to join."
- Originated in ancient India and finds references in the Vedas and Upanishads.
- *Systematically codified by Patanjali in the Yoga Sutras.*

Eight Limbs of Yoga (Ashtanga Yoga)

Yama	Moral disciplines
Niyama	Physical postures
Asana	Physical postures
Pranayama	Breath control
Pratyahara	Withdrawal of senses
Dharana	Concentration
Dhyana	Meditation
Samadhi	State of spiritual absorption

International Day of Yoga

- Celebrated annually on 21 June.
- Declared by the United Nations General Assembly in 2014.
- First observed on 21 June 2015.

PLACES IN NEWS

1. Venezuela (Source: The Hindu)

- **Location:** It is a South American country.
- **Capital:** Caracas
- **Bordering Countries:** Guyana, Brazil, and Colombia.
- **Bordering Waterbodies:** Caribbean Sea and the Atlantic Ocean.
- **Rivers:** Orinoco River
- **Grasslands:** Llanos
- **Vegetation:** Part of Amazon Rainforest



2. Zimbabwe (Source: PIB)

- **Location:** Landlocked country in Southern Africa.
- **Capital:** Harare
- **Border Countries:** South Africa, Botswana, Zambia, Mozambique.
- **River:** Zambezi (Victoria Falls)
- **Topography:** Veld grasslands



3. Galathea Bay (Source: The Hindu)

- **Location:** Great Nicobar Island, Andaman & Nicobar Islands
- **Protection Status**
 - Galathea National Park
 - Part of Great Nicobar Biosphere Reserve (UNESCO), along with Campbell Bay National Park
- **Biodiversity**
 - **Fauna:** Leatherback turtles (world's largest sea turtle), Nicobar megapode, saltwater crocodiles, Nicobar macaque, giant monitor lizards
 - **Vegetation:** Dense tropical evergreen forests, mangroves

4. Armenia (Source: The Indian Express)

- **Location:** Landlocked country of Transcaucasia.
- **Capital:** Yerevan
- **Border Countries:** Georgia, Azerbaijan, Iran and Turkey.
- **Important River:** Aras River (Forming the international boundary between Armenia and Azerbaijan)

Disputed Region

- Nagorno-Karabakh is a disputed region between Armenia and Azerbaijan.



5. Estonia (Source: The Hindu)

- **Location:** A Baltic country in Northern Europe.
- **Capital:** Tallinn
- **Land Borders:** Russia and Latvia.
- **Bordering Waterbodies:** Gulf of Finland and Baltic Sea
- **International Groupings:** European Union and NATO.

