# CURRENT AFFAIRS WEEKLY

**WEEK 5 JANUARY 2025**

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# DISCLAIMER

*T*he current affairs articles are segregated from prelims and mains perspective, such separation is maintained in terms of structure of articles. Mains articles have more focus on analysis and prelims articles have more focus on facts.

However, this doesn't mean that Mains articles don't cover facts and PT articles can't have analysis. You are suggested to read all of them for all stages of examination.

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# MAINS ISSUES

## INDIA-INDONESIA RELATIONS

### Context

Indonesian President Prabowo Subianto will be the **chief guest** at India's **Republic Day** celebrations in **2025**. This is his **first visit** to India as the **Head of State**. This visit highlights the growing relationship between **India and Indonesia** in **defence**, **trade**, and **cultural exchanges**.

### Key Focus of President Prabowo Subianto's Visit

During his visit to India, **President Prabowo Subianto** of Indonesia is expected to focus on a few key areas to further enhance bilateral ties:

▪ **Defence and Security Cooperation:**

➤ **Brahmos Missiles Sale**: The **$450 million deal** for the sale of **Brahmos supersonic missiles** is a top priority. This will significantly strengthen military ties.

➤ **Maritime Security**: Focus on increasing **military and maritime security cooperation** between the two countries.

➤ **Joint Exercises and Patrols**: Furthering cooperation through **joint military exercises** and **maritime patrols** to maintain stability in the Indo-Pacific region.

◉ **Trade and Economic Cooperation**: Both countries will explore new avenues for **trade** and **investment**, especially in sectors like **energy**, **infrastructure**, and **digital technology**.

◉ **Cultural and People-to-People Engagement**: With **6,00,000 Indian tourists** visiting **Bali**, the focus will be on

boosting tourism and strengthening **people-to-people ties**. **Educational and cultural exchanges** will also be a focus, with continued collaboration in **education** and **healthcare**.

◉ **Regional and Global Cooperation**: The visit will provide a platform to discuss regional issues, including cooperation in **regional security** and the **Indo-Pacific region**.

➤ Indonesia's role in regional groupings like **BRICS** will also be a point of discussion, especially in light of global geopolitical shifts.

### Current Status of India-Indonesia Relations

◉ India and Indonesia share a **strong and growing relationship**, which spans multiple areas, including **defence**, **trade**, **cultural exchange**, and **regional security**. The relationship has evolved significantly in recent years, with both countries deepening their cooperation under the framework of a **Comprehensive Strategic Partnership established in 2018.**

◉ **Cultural Relations:** Indian religions, such as **Hinduism and Buddhism**, along with Sanskrit language, greatly influenced Indonesia, particularly from the 1st to the 14th centuries.

➤ Indonesian kingdoms, like the **Srivijaya Empire (7th to 13th century)** and the **Majapahit Empire (1293-1527),** were heavily influenced by Indian culture, literature, and religion. These empires maintained maritime trade routes with India.

➤ The stories from Indian epics, particularly the **Ramayana and Mahabharata**, also have a significant place in Indonesian art, drama, and folklore.

◻ **Key Areas of Cooperation:**

➤ **Defence and Security**: India and Indonesia engage in joint military exercises like **Garuda Shakti** (Army) and **Samudra Shakti** (Navy).

♦ Their navies have been conducting **joint patrols** in the **Indian Ocean** since 2002 under the **India-Indonesia Coordinated Patrol (CORPAT)**.

♦ India is in talks to sell **Brahmos supersonic missiles** to Indonesia, strengthening defence ties.

➤ **Trade and Investment**: Bilateral trade reached **$29.40 billion** in **2023-24**, and **India's investments** in Indonesia total approximately **$1.56 billion**. Both countries have robust economic engagement in sectors like **infrastructure**, **automotive**, **banking**, and **pharmaceuticals**.

♦ Indonesia is India's second-largest trading partner in the ASEAN (Association of Southeast Asian Nations) region.

➤ **People-to-People Connectivity**: Direct flight connections between **India** and **Indonesia** began in **2023**, making travel easier. India has become the **second-largest source of tourists** to **Bali**, with over **6,00,000 tourists** visiting in **2023-24**.

➤ **Space Cooperation**: Both countries have strong collaboration in **space technology**, with **ISRO** providing satellite tracking through stations in **Papua**, Indonesia.

## Why Indonesia is Important for India?

◎ **Strategic Location & Maritime Security**: Indonesia's proximity to India, especially with the Andaman Islands located just 100 km from Indonesia's Aceh province, enhances cooperation in **maritime security**. Both countries collaborate on issues like **marine pollution**, **overfishing**, and **maritime security management** in the Indo-Pacific region.

◎ **Shared Vision for a Stable Indo-Pacific**: Both India and Indonesia support a **free, inclusive, and rules-based Indo-Pacific**, emphasizing **ASEAN centrality**. They share concerns over regional security, particularly regarding **China's influence**, and cooperate on **regional security issues**.

◎ **Economic and Trade Ties**: Indonesia is India's largest trading partner in ASEAN. Indonesia is 40% of ASEAN territory, 40% of ASEAN market, and 40% of its population.

◎ **Natural complement to India's growing manufacturing industry:** Indonesia's mineral-rich economy is among the world's major exporters of thermal coal, rubber, palm oil, nickel (essential for EV batteries), and tin, as well as a substantial exporter of natural gas.

◎ **Climate Change & Blue Economy Cooperation**: Both nations face **climate challenges** and are committed to **net-zero emissions** (India by 2070, Indonesia by 2060). They can collaborate on **renewable energy** projects, especially **solar** and **wind energy**. Indonesia is also a **leader in the blue economy**, and both countries have opportunities to work together on **marine resources** and **sustainable ocean use**.

◎ **Technology & Digital Cooperation**: Both India and Indonesia are **digitally advanced** and can collaborate on **cybersecurity**, **e-governance**, and **digital infrastructure**. India's expertise in **Digital Public Infrastructure (DPI)** offers support for Indonesia's own digital transformation.

◎ **Cultural & People-to-People Ties**: The **strong cultural links** between India and Indonesia, along with a growing **Indian diaspora** and tourism, help strengthen mutual understanding and people-centric cooperation.

◎ **Geopolitical Significance**: As **Indonesia joins BRICS**, it boosts India's influence in multilateral forums. Indonesia's key role in **ASEAN** aligns with India's **Act East Policy**, making it an essential partner for **regional and global influence**.

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### UPSC PYQ

**Q:** **Discuss the geopolitical and geostrategic importance of the Maldives for India with a focus on global trade and energy flows. Further, discuss how this relationship affects India's maritime security and regional stability amidst international competition. (2024)**

**Q:** **Between India and East Asia, the navigation-time and distance can be greatly reduced by which of the following? (2011)**

(1) Deepening the Malacca straits between Malaysia and Indonesia.

(2) Opening a new canal across the kraisthmus between the gulf of Siam and Andaman Sea.

**Which of the statements given above is/are correct?**

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

**Solution: (b)**

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# INDIA-CHINA'S STRENGTHENED TIES

### Context

India and China have made significant progress in their diplomatic relations by agreeing to resume the **Kailash Mansarovar Yatra, restore direct flights, and ease visa restrictions**. The two countries also agreed to restart discussions on **cooperation related to trans-border rivers** and the sharing of **hydrological data**, which China had previously withheld. The upcoming year will also see enhanced efforts in public diplomacy as both nations commemorate the 75th anniversary of diplomatic ties.

## Key-Points of Agreement

- **Kailash Mansarovar Yatra to Resume:** India and China have agreed to restart the Kailash Mansarovar Yatra, which is a pilgrimage that Indian devotees undertake to visit the sacred site in Tibet. This is an important decision for the Hindu community in India.

- **Restoration of Direct Flights and Easing Visa Restrictions**: Both sides also decided to restore direct flights between India and China, which were disrupted due to the pandemic and other issues. Additionally, visa restrictions will be eased, facilitating travel between the two countries.

- **Hydrological Data Sharing Resumed:** China had previously withheld important hydrological data about rivers that flow across the border into India, notably data on the **Brahmaputra River.** The two countries have now agreed to resume sharing this data, addressing concerns in India about China's construction of a hydropower project on the **Brahmaputra in South Tibet.**

  - India and China do not have an agreement for sharing of water of transboundary rivers.

  - The two nations had in 2002 and 2005 inked two MoUs, creating frameworks for China to share with India hydrological information during monsoon seasons on **Yarlung Tsangpo (Brahmaputra/ Siang) and Langqên Tsangpo (Sutlej) respectively.**

  - The two MoUs could not be renewed after they expired – one on Sutlej in 2020 and the other on Brahmaputra in 2023 – due to the strains in ties over the military stand-off along the LAC.

## Background (Border Tensions and Clashes in Galwan Valley (2020))

- In June 2020, the relationship between India and China escalated when **violent clashes occurred between Indian and Chinese soldiers in Galwan Valley**, located along the **Line of Actual Control (LAC) in Ladakh**.

  - This resulted in the deaths of 20 Indian soldiers, and China reported the deaths of four of its soldiers. Following these clashes, both countries deployed thousands of troops and heavy artillery along the LAC.

- Since the Galwan clash, India and China have held multiple rounds of military and diplomatic talks to ease the tension along their shared border.

- In October 2023, the two countries reached an agreement on a patrolling arrangement, which led to disengagement in certain areas of eastern Ladakh.

- **Recent Developments and Stability:** India and China have reached a significant agreement to restore patrolling rights to each in the **Depsang Plains and Demchok region**, these are areas where the problems are called **legacy issues**, predating the **2020 Chinese incursions.**
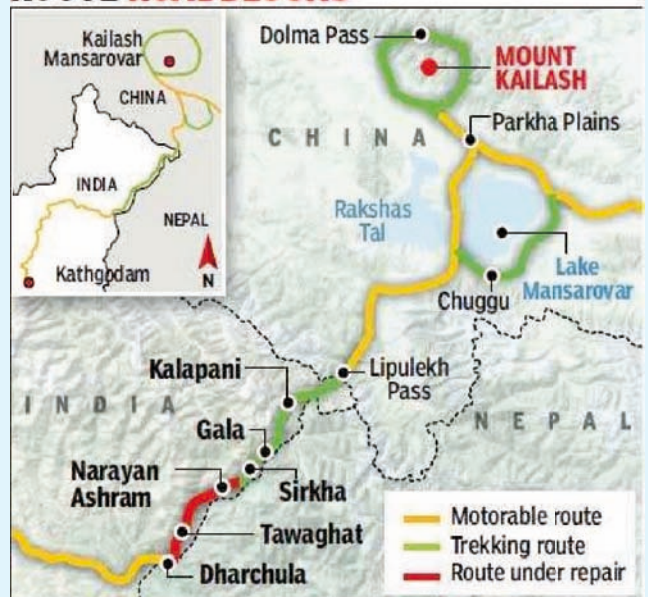
## FACT BOX

### India-China Dispute

- India and China have disputed border in the Himalayan region.

- The root cause is an ill-defined, 3,440km (2,100-mile)-long disputed border.

- The LAC has never been demarcated.

- The India-China border is divided into three sectors

  - **Western:** The boundary dispute in the Western Sector pertains to the Johnson Line proposed by the British in the 1860s that extended up to the Kunlun Mountains and put Aksai Chin in the then princely state of Jammu and Kashmir.

  - **Middle:** In the Middle Sector, the dispute is a minor one. It is the only one where India and China have exchanged maps on which they broadly agree.

  - **Eastern:** The disputed boundary in the Eastern Secstor of the India-China border is over the **MacMahon Line.**

### Kailash Mansarovar yatra

- The **Kailash Mansarovar Yatra** is one of the most significant spiritual pilgrimages for Hindus, Buddhists, Jains, and Tibetans. It involves visiting two sacred sites in Tibet:

  - **Mount Kailash**: Mount Kailash is considered the celestial home of **Lord Shiva** and **Goddess Parvati**. It is believed that Lord Shiva meditates on the mountain's summit.

    - **Height**: 21,778 feet (6,714 meters), located in Tibet at the center of the Himalayas.

♦ **Significance for different religion**:

➤ **Buddhism**: Mount Kailash is revered as the home of the **Buddha Demchok**.

➤ **Jainism**: Mount Kailash is considered the site of spiritual enlightenment for **Rishabhanatha**, the first Tirthankara (spiritual leader).

♦ The mountain is also described as the **cosmic axis** (or Mount Meru) connecting heaven and earth in Tibetan Buddhism.

➤ **Mansarovar Lake**: It is a sacred lake situated at the foot of Mount Kailash, it holds a special place in **Hinduism, Buddhism, and Jainism**. According to Hindu belief, the lake was first visualized by **Lord Brahma** and later materialized on Earth.

♦ It is said that **Goddess Sati's hands** fell near the lake, making it one of her **51 Shaktipeeths** (sacred spots).

◎ **The Pilgrimage (Yatra)**: The journey to **Mount Kailash** and **Mansarovar Lake** is believed to be a path to **Moksha** (salvation) and spiritual renewal. The pilgrimage includes the ritual of **Kailash Kora** or **Kailash Parikrama**, a 2-3 day trek around Mount Kailash that is said to bring good fortune and spiritual benefits.

# GEOPOLITICS OF LNG

## Context

Recent developments in the **global energy market**, especially in the wake of the **Russia-Ukraine war, U.S. policy changes, and the EU's energy strategy**, have significantly altered the **global supply and demand dynamics for oil and natural gas.** As the world adjusts to these changes, **India's energy security, economic growth, and transition to cleaner energy** are at stake.

## Key Developments

◎ **U.S. Energy Policy**: President Trump's executive orders in his second term aimed at boosting U.S. oil and gas production, extending the use of fossil fuels and increasing exports. This aligns with his **withdrawal from the Paris Climate Agreement.**

◎ **Russia-Ukraine War Impact**: Russia halted gas exports to the EU in January 2024. The EU cut its reliance on Russian gas by 80%, reducing imports from 132 bcm in 2021 to 26 bcm in 2023, replacing it with LNG from the U.S. and Norway. This pushed LNG prices up 2-3 times normal levels.

◎ **U.S. as Global LNG Leader**: The U.S. became the **world's top LNG exporter** in 2023, supplying 114 bcm, with 56.2 bcm directed to the EU. This increased U.S. influence in global energy markets.

## What is LNG?

◎ Liquefied Natural Gas (LNG) is natural gas cooled to a liquid state, making it easier to transport globally. Unlike pipeline gas, LNG can be shipped anywhere.

◎ **India's LNG Imports:** In 2024, India became the world's fourth-largest LNG importer, accounting for 7% of global LNG imports.

➤ The growth in demand was primarily driven by the industrial and oil refining sectors, followed by residential, commercial, and transport sectors.

➤ India aims to increase natural gas's share in its energy mix to 15% by 2030, up from under 7% currently.

◎ **Qatar** remains India's largest supplier of LNG, the **United Arab Emirates (UAE)** is second, and the **United States (US)** is a close third. Together, they constitute nearly 80 per cent of our gas imports. Offtakes were slightly up from all three nations in 2023.

◎ **Reasons for Increasing LNG Imports:**

➤ Slowing Domestic Production

➤ Rising Demand for Natural Gas

➤ Increased temperatures and higher electricity consumption

## Impact on Major Regions

◎ **European Union**: The EU reduced Russian gas imports but faced economic slowdown due to high energy prices. Germany's economy contracted in 2023, and growth is projected at zero in 2024.

◎ **Russia**: Russia lost its largest energy export market (the EU), leading to a sharp decline in energy exports, from USD 193 billion in 2021 to USD 55 billion in 2023.

◎ **Developing Countries**: Countries like **India, Pakistan, and Bangladesh**, which depend on LNG imports, face higher costs, slowing their transition to cleaner energy. Gas price hikes also impact food prices due to increased fertilizer costs.

◎ **U.S. and LNG Export Growth**: U.S. LNG exports have boosted its geopolitical role, benefiting from high prices. The U.S. is now a dominant player in global energy markets.

## Global Impact

◎ **LNG Market**: Liquefied natural gas (LNG) allows flexible global trade, which benefits exporters like the U.S., Australia, and Qatar.

◎ **Sanctions on Russia and Iran**: Both countries, with large gas reserves, are excluded from the LNG market due to U.S. sanctions, limiting their global energy influence.

### India's Petroleum Industry

◎ India's petroleum journey began in **1867** with the first oil well drilled in **Digboi, Assam**.

◎ The establishment of **Indian Oil Corporation (IOC)** in 1959 marked the start of a more structured and efficient refining and distribution system.

◎ The **Jamnagar Refinery** in Gujarat stands as a key landmark, solidifying India's position as one of Asia's leading refining hubs.

◎ At present, India has 19 Public-Sector Undertaking (PSU) refineries, 3 Private-Sector refineries, and 1 Joint Venture refinery.

- The country's refining capacity increased from 215.066 Million Metric Tons per annum (MMTPA) in April 2014 to 256.816 MMTPA in April 2024.
- **Recent Developments**
  - ➤ **Exploration and Expansion**: India plans to expand its exploration acreage to **1 million square kilometers** by 2030, with a 16% increase expected by 2025.
  - ➤ **LPG Subsidies**: The **Pradhan Mantri Ujjwala Yojana (PMUY)** continues to provide affordable LPG, with subsidized rates for targeted households.
  - ➤ **Simplified Approval Process**: In 2024, India reduced the number of approvals for exploration and production activities from **37** to **18**, streamlining operations.
  - ➤ **Refining Capacity**: India's refining capacity now exceeds **250 MMTPA**, enabling the country to meet domestic demand and boost its export potential.
- **Economic Contribution:** The petroleum sector significantly contributes to India's economy. The **Gross Value Added (GVA)** by the petroleum products manufacturing sector grew from **Rs. 1.56 lakh crore** in 2012-13 to **Rs. 2.12 lakh crore** in 2022-23. This growth has bolstered the country's **GDP**, created millions of jobs, and supported sectors like **petrochemicals**, **logistics**, and **manufacturing**.

## Government Initiatives

- **Pradhan Mantri JI-VAN Yojana** spports bio-ethanol projects, including second and third-generation plants, to promote sustainable fuel production.
- **Strategic Petroleum Reserves (SPR)** enhances energy security with underground storage facilities in **Visakhapatnam, Mangalore**, and **Padur (Karnataka)**, holding **5.33 MMT** of crude oil.
- **Ethanol Blending Program** aims for **20% ethanol blending** in petrol by **2025-26**. Ethanol blending has increased from **38 crore litres** in 2013-14 to **707.4 crore litres** in 2023-24.
- **City Gas Distribution Network Expansion** extends **PNG** and **CNG** infrastructure to **733 districts** across 34 states/UTs, covering nearly **100%** of India's mainland.
- **Energy Security Initiatives** focus on overseas oil block acquisitions and exploration to enhance energy security.

### Greener Fuel Initiatives

- ➤ **SATAT Initiative** encourages investment in **Compressed Biogas (CBG)** production from agricultural waste, cattle dung, and municipal solid waste, boosting rural income.
- ➤ **Mission Green Hydrogen** aims to produce **Green Hydrogen** to meet global demand (over **100 MMT** by 2030), with potential exports of **10 MMT/year**. Targeted investments of ₹**8 lakh crore** and **6 lakh jobs** created.

  - ➤ **National Bio-Energy Programme** promotes bio-energy production and waste reduction.
  - ➤ **Hydrocarbon Exploration and Licensing Policy (HELP)** attracts private investment in exploration and production to enhance domestic energy production.

## UPSC PYQ

**Q:** Do you think India will meet 50 percent of its energy needs from renewable energy by 2030? Justify your answer. How will the shift of subsidies from fossil fuels to renewables help achieve the above objective? Explain. (2022)

# M23 REBEL GROUP AND THE CRISIS IN GOMA, DRC

### Context

The **M23 rebel group** has reportedly taken control of the city of **Goma** in the **Democratic Republic of the Congo (DRC)**. Goma is an important city in **North Kivu** province, and its capture is a major setback for the **Congolese government**. This marks a serious escalation in the ongoing conflict, which has already caused the deaths of hundreds and displaced millions of people.

## Brief Background

- The conflict in **eastern DR Congo** is not new and has been ongoing for more than 30 years, since the aftermath of the **Rwandan genocide.**
- The region is home to over 100 armed groups, all fighting for power, ethnic dominance, and control over DR Congo's vast mineral wealth.
- **Rwanda and Uganda** have a history of **military interventions in DR Congo**, dating back to 1996 and 1998, when both countries invaded, saying they were targeting Hutu militias.
- These conflicts turned into two devastating wars, often called **"Africa's World Wars,"** that killed millions of people.
- **Global implications:** The conflict in DR Congo is more than a regional issue and can have severe global implications. The country is one of the world's largest sources of **coltan, gold, and other minerals** used in everyday electronics. The ongoing fighting disrupts supply chains and could lead to rising prices for tech products.

## Who are the M23 Rebels?

- The **M23** is a rebel group made up mostly of **Tutsi fighters**.
- They first emerged in 2012 when a group of soldiers from the **Congolese army** (FARDC) left their positions, claiming they were treated unfairly.

- The group is mainly focused on controlling parts of the **eastern DRC**, a region rich in **minerals**. M23 claims to fight for the rights of the **Tutsi population** in DRC.

- **Rwanda** is accused by the **United Nations (UN)** and the **DRC** of supporting M23, providing them with **training, weapons**, and sometimes **soldiers**.

- The conflict has been complicated by historic tensions between Rwanda and DRC, with both sides blaming each other for the violence.

## FACT BOX

### Goma City

- Goma is the biggest city in the eastern **Democratic Republic of the Congo (DRC).**

- Goma is not just any city – it is a strategic hub located on the border with Rwanda and on the shores of **Lake Kivu.**

- The city is a gateway to rich mining areas that produce valuable resources like **gold, tin, and coltan** – a key mineral used in mobile phones and batteries for electric vehicles.



# SC BANS MANUAL SCAVENGING & MANUAL SEWER CLEANING

**Context**

The Supreme Court ordered a **complete stop to the** **practice of manual scavenging and hazardous manual cleaning of sewers and septic tanks** in top metros across the country.

## What is Manual Scavenging?

- Manual scavenging is a deeply stigmatized and hazardous practice where individuals manually clean human excreta from dry latrines, sewers or septic tanks.

- This practice, considered a **grave violation of human dignity and health**, is a form of forced labor that exposes workers to severe health risks.

- In India, manual scavenging is primarily associated with caste-based discrimination, as it is overwhelmingly carried out by Dalits.

- India formally banned this practice through the Prohibition of Employment as **Manual Scavengers and their Rehabilitation Act, 2013 (PEMSR).**

- Despite the ban, the practice persists in some regions, mainly due to lack of enforcement, societal inequalities, and inadequate alternatives for those involved in this work.

## Why Does Manual Scavenging Continue Despite the Ban?

- **Lack of Enforcement of Laws:** Despite legal measures and the requirement for safety gear (44 types), the enforcement of laws is weak.

  ➤ Data from the Union Ministry of Social Justice and Empowerment reveals that between 2018 and 2023, over **400 people died while performing manual scavenging**.

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### Sewer Gas

Sewer gas is a mixture of both toxic and non-toxic gases produced by the **microbial decomposition of organic matter** in environments where oxygen is scarce, such as in sewers and septic tanks. The main gases in sewer gas are:

- **Hydrogen Sulfide ($H_2S$):** A highly toxic gas responsible for the "rotten egg" smell.

- **Methane ($CH_4$):** Flammable but odorless, posing explosion risks.

- **Ammonia ($NH_3$):** Causes respiratory irritation.

- **Carbon Dioxide ($CO_2$) and Carbon Monoxide (CO):** Produced through organic matter degradation and incomplete combustion.

- **Others: esters, sulphur dioxide and nitrogen oxides.**

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- **Limited Employment Opportunities and Social Exclusion**: For many manual scavengers, limited access to education and skill development keeps them trapped in poverty.

  ➤ **Without alternative employment** options, these workers have no choice but to continue in this hazardous occupation.

> ➤ **Social Exclusion of these communities** exacerbates the problem, leaving them without social and economic mobility.

⊙ **Unequal social structure:** Indian society's deeply unequal social structure based on caste hierarchy and patriarchy is equally culpable. *97% of manual scavengers in India are Dalits.*

⊙ **Rich segment:** Moreover, the moral culpability equally lies with the 'neo-middle' and other affluent classes who have been so engulfed in their own lives that they do not care about the issue or question the government and ensure accountability.

⊙ **Media:** The media too can be blamed, for not giving adequate importance to social issues such as manual scavenging.

⊙ **Dry Latrines**: There are still 2,600,000 dry-latrines in the country which require humans to remove the excreta from them, almost 770,000 manual scavengers who physically clean the sewers and drains and about 8,025 manual scavengers operating at railway stations in the country.

## Required Steps to Eradicate Manual Scavenging

⊙ **Comprehensive Rehabilitation and Skill Development**: To eliminate manual scavenging, it is essential to rehabilitate workers through skill development programs, empowering them to find alternative employment. Connecting rehabilitation efforts to existing schemes like MNREGA can provide immediate income opportunities.

⊙ **Embrace Technology**: Modern sanitation technologies such as automated sewer cleaning machines and robots can significantly reduce the dependence on human labour for cleaning sewers and septic tanks.

> ➤ **For example: Homosep Atom** solves manual cleaning methods and transforms it to robotic cleaning methods.

⊙ **Collaboration Between Government and Civil Society**: Both the state and society need to join forces to eliminate manual scavenging. The government must strengthen the enforcement of laws, and civil society should advocate for the rights of sanitation workers. Efforts should focus on ensuring dignity, safety, and social integration for these workers.

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## Legislative and Policy Measures Against Manual Scavenging

⊙ **Legal Prohibition**: India's first law to ban manual scavenging was introduced in 1993 under the **Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act**. This was followed by the **Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013 (PEMSR),** which made the practice illegal.

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> ➤ The 2013 Act explicitly defines manual scavenging as a "dehumanizing practice" and mandates the provision of safety gear and rehabilitation for affected individuals.

⊙ **Court Intervention (Safai Karamchari Andolan Case, 2014):** The Supreme Court intervened in 2014, ordering the government to identify and compensate the families of those who have died while working as manual scavengers since 1993. Each family was to receive Rs. 10 lakh as compensation.

⊙ **Article 21** guarantees the 'Right to Life' and also with dignity.

⊙ **National Action for Mechanized Sanitation Ecosystem (NAMASTE) Scheme (2023):** In 2023, the government launched the NAMASTE Scheme, a central initiative aimed at formalizing the rehabilitation of individuals engaged in hazardous sanitation work. The scheme focuses on providing dignity, safety, and sustainable livelihoods for sanitation workers.

⊙ **Emergency Response Sanitation Units (ERSU):** The government has advised all states to set up Emergency Response Sanitation Units (ERSU) to provide well-trained, equipped, and professional teams to handle hazardous sanitation work, reducing the need for human intervention in sewers and septic tanks.

⊙ **Skill Development and Workshops:** Under the Self-Employment Scheme for the Rehabilitation of Manual Scavengers (SRMS), workshops are held in municipalities to educate workers and officials about safer methods of sanitation work and the legal provisions of the PEMSR Act. This program has now been subsumed under the NAMASTE scheme.

⊙ **National Safai Karamcharis Finance & Development Corporation (NSKFDC):** The NSKFDC works under the **Ministry of Social Justice and Empowerment**, offering loans and schemes aimed at the socio-economic upliftment of sanitation workers. Additional initiatives such as the **Rashtriya Garima Abhiyan** focus on the welfare of these workers.

▫ **Others**

> ➤ Swachh Bharat Abhiyaan (Clean India initiative)
> ➤ Safaimitra Suraksha Challenge
> ➤ Swachhta Abhiyan App

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## UPSC PYQ

Q: **'Rashtriya Garima Abhiyaan' is a national campaign to (2016)**

(a) rehabilitate the homeless and destitute persons and provide them with suitable sources of livelihood

(b) release the sex workers from their practice and provide them with alternative sources of livelihood

(c) eradicate the practice of manual scavenging and rehabilitate the manual scavengers

(d) release the bonded labourers from their bondage and rehabilitate them

**Solution: (c)**

# DENOTIFIED, SEMI-NOMADIC, AND NOMADIC TRIBES IN INDIA

## Context

The **Anthropological Survey of India (AnSI)**, in collaboration with **Tribal Research Institutes (TRI)**, completed a **three-year study** and for the **first time** comprehensively categorized **268 denotified, semi-nomadic, and nomadic tribes** that were not classified previously.

## Brief Background

- After the **Criminal Tribes Act of 1924** was repealed in **August 1949**, certain communities that were labeled as "criminal" were **denotified**.

- However, successive government commissions (including the **Kalelkar Commission**, **Mandal Commission**, **Renke Commission**, and **Idate Commission**) struggled to properly classify these tribes.

- The **Idate Commission (2017)** had already identified **267 unclassified communities** but was unable to finalize their categorization.

- The **Prime Minister's Office** set up a **Special Committee in 2019** to push forward this classification process, which tasked AnSI and TRI with the study, leading to the submission of the final report in **August 2023**.

### Denotified Tribes (DNTs)

- **Denotified Tribes (DNTs)** refer to communities that were historically labeled as **"criminal tribes"** under the British colonial **Criminal Tribes Act of 1871**.

- These groups were stigmatized as **"born criminals"** by colonial rulers and were subjected to legal and social discrimination.

- The Act was later repealed in 1952 by the **Habitual Offenders Act**, but the stigma continued to affect these communities.

- Today, these communities are referred to as **denotified** or **nomadic tribes** and continue to face systemic neglect and exclusion, despite being legally denotified.

- **Government Schemes:**

  - **Scheme for the Economic Empowerment of Denotified Tribes/Nomadic/Semi-Nomadic Communities (SEED),** launched in 2022, was designed to provide livelihood, education, healthcare, and housing support.

  - **Ayushman Bharat health cards:** By late 2024, over 7,000 Ayushman Bharat health cards were distributed, and coaching centres had started operating in Tamil Nadu and Gujarat.

## Key-details of the Study:

- The AnSI-TRI study found and categorized **268 communities** that had never been classified before.

- **Recommendations**: Of these, **179 communities** have been recommended for inclusion in the **Scheduled Castes (SC), Scheduled Tribes (ST), and Other Backward Classes (OBC)** lists. Among them, **85** communities have never been classified before.

- **63 Communities Untraceable**: Some communities were **not traceable**, meaning they had likely merged into other communities, changed their names, or migrated.

## What is the need for categorization?

- **Unresolved Classification**: Over the years, many communities had been incorrectly classified or left unclassified. Early census practices by colonial authorities often confused tribes with castes.

- **Government Welfare Schemes**: Without proper classification, many communities could not benefit from government schemes meant for **SCs**, **STs**, or **OBCs**, leading to **social and economic marginalization**.

- **Parliamentary Standing Committee**: In **December 2022**, the committee highlighted the **delay** in classifying these communities and stressed that it exacerbated their suffering, preventing them from accessing welfare schemes.

- **Debate on Classification**:

  - **One View**: Some advocate completing the classification process to ensure these tribes benefit from reservations and government schemes under SC, ST, or OBC categories.

  - **Alternative View**: Others suggest creating a **separate classification** for **denotified tribes**, possibly as a **new Schedule** in the Constitution, instead of categorizing them under SC, ST, or OBC.

## Impact:

- If the recommendations are accepted, it will simplify the process of including these communities in state-level welfare schemes.

- This will also aid policy formulation for their upliftment and ensure they are properly integrated into social and economic benefits.

# UNIFORM CIVIL CODE (UCC)

## Context

Uttarakhand becomes India's first state to implement a Uniform Civil Code, aiming for equal rights in marriage and inheritance, amid political controversy.

## What is UCC (Uniform Civil Code)?

- **UCC (Uniform Civil Code)** refers to a **single set of laws** that applies uniformly to all citizens of a country, regardless of their **religion**, **caste**, or **community**.

- The idea is to replace personal laws, which are based on religion, with common laws for important issues like **marriage**, **divorce**, **inheritance**, and **adoption**.

- Goa is the **only other state of the country** that already had a common civil code, introduced when it used to be a **Portuguese colony.**

### Key Features of UCC:

- ➤ **Uniformity**: It seeks to ensure that all citizens are treated equally under the law, no matter their religious beliefs or practices.

- ➤ **Equality for Women**: A major aim of UCC is to **ensure equal rights for women**, especially in areas like **inheritance**, **divorce**, and **alimony**, where different communities may have varying laws.

- ➤ **Abolishing Discriminatory Practices**: UCC aims to eliminate practices seen as discriminatory or outdated, such as **polygamy**, **child marriage**, and **triple talaq** (instant divorce in some Muslim communities).

- ➤ **Common Laws**: It would replace personal laws (laws specific to religions like Hindu law, Muslim law, Christian law, etc.) with a common set of laws governing the mentioned personal matters.

- The UCC applies to all residents of Uttarakhand, **except Scheduled Tribes and protected authority-empowered persons and communities.**

### Different Civil Codes in India:

- In India, personal laws governing marriage, divorce, inheritance, and other such matters are based on religious texts and customs.

  - ➤ The major religious communities in India, including **Hindus, Muslims, Christians, and Sikhs**, have their own distinct personal law.

- There are three major personal law codes in India:

  - ➤ **Hindu Personal Laws**: Governed by various acts like Hindu Marriage Act 1955, Hindu Succession Act 1956.

  - ➤ **Muslim Personal Laws**: Based on their religious laws and Sharia covering marriage, succession, inheritance.

  - ➤ **Christian Personal Laws:** Regulated by Indian Christian Marriage Act 1872 and Indian Succession Act 1925.

- Personal laws in India are part of the **Concurrent List of the Constitution**, meaning that both the Centre and the states can make laws on this subject.

- However, in case of conflict, those made by the Union will apply.

- At the same time, many of the relevant jurisdictional subjects -- such as **property, land, marriage registration etc --** are part of the **state list.**

### Background in India:

- **Directive Principle of State Policy**: The **Indian Constitution** includes a directive to eventually bring in a UCC for all citizens (Article 44). However, this has not yet been implemented fully.

- **Debate**: The UCC has been a topic of **debate** in India for years.

  - ➤ **Positive aspects:** It will promote **national integration**, **equality**, and **justice**.

  - ➤ **Negative aspects**: It could **undermine religious freedom** and the **cultural identity** of different groups.

### UPSC PYQ

**Q:** **Discuss the possible factors that inhibit India from enacting for its citizens a uniform civil code as provided for in the Directive Principles of State Policy. (2015)**

# THE ROLE OF THE GOVERNOR AS CHANCELLOR OF STATE UNIVERSITIES

### Context

The role of the **Governor as Chancellor of State universities** has been a topic of debate in India. While it's often thought to protect universities from political influence, this role is actually a colonial legacy that has led to several challenges in modern India.

## Colonial Legacy of the Chancellor Role (Background)

- The British established **India's first universities in 1857 (Calcutta, Bombay, and Madras),** appointing Governors as their Chancellors to keep control over university affairs.

- **Powers of the Chancellor:** As Chancellor, the Governor had powers like appointing Vice-Chancellors, nominating members to university bodies, and overseeing university decisions. These powers were meant to limit university autonomy.

- **Post-Independence:** After independence, India inherited this system. Although it was designed to ensure academic freedom, in practice, it led to political interference, especially as Governors were appointed based on political loyalty.

## Political Role of Governors

- **From Ceremonial to Political: F**rom 1947 to 1967, Governors were largely ceremonial, with the real power lying with Chief Ministers. However, after 1967, Governors started playing more active, often politically

motivated, roles, especially when States had opposition governments.

◉ **Political Appointments: G**overnors often came from political backgrounds, which led to conflicts between the Centre and State governments. This politicisation undermined the credibility of the office.

◉ **Conflicting Roles: T**he Governor's dual role — as both a constitutional figure (under Article 163) and a statutory authority (Chancellor of universities) — allowed them to act independently, often bypassing State governments, especially in Opposition-ruled States.

## Problems Arising from the Governor as Chancellor

◉ **Lack of Accountability:** Governors have significant power in university governance but no direct accountability to the elected State governments.

◉ **Delays and Administrative Issues:** Governors' power often results in delays, particularly in the appointment of Vice-Chancellors and other university positions, causing administrative paralysis.

◉ P**olitical Interference:** Instead of protecting universities from politics, Governors sometimes bring political influence into university affairs, undermining autonomy.

## Comparisons with the President's Role

◉ **President as Visitor of Central Universities:** The President of India acts as the Visitor for Central universities. Unlike Governors, the President works with the Ministry of Education, ensuring more transparency and oversight.

◉ **Governor vs. President:** The key difference is that the President's role involves consultation and legislative oversight, while the Governor has unilateral powers in State universities, often bypassing State governments.

### Reforms and Alternative Models

Several commissions, like the Sarkaria Commission and M.M. Punchhi Commission, have recommended reforms, such as:

◉ **Governor as Ceremonial Chancellor:** Some States (e.g., Gujarat, Maharashtra) have proposed making the Governor a purely ceremonial Chancellor, reducing their discretionary powers.

◉ **Chief Minister as Chancellor: I**n States like West Bengal and Punjab, the Chief Minister may act as Chancellor, though this requires Presidential approval.

◉ **State-appointed Chancellor: T**elangana has adopted a model where the State appoints a Chancellor, usually an academician or a respected public figure, instead of the Governor.

◉ **University-elected Chancellor: I**n models like those of Oxford and Cambridge, the Chancellor is elected by the university itself, ensuring independence and academic freedom.

# POVERTY ESTIMATION IN INDIA

### Context

The recent release of the **2023-24 Household Consumption Expenditure Survey (HCES)** has sparked a significant debate around **poverty estimation in India**. The survey reports a decline in poverty levels across urban and rural areas, but questions have arisen about the accuracy of the data and whether the poverty line is being underestimated.

## What is Poverty and How is It Defined?

◉ Poverty in India was traditionally defined using the expenditure required for a **minimum calorie diet**, updated every five years based on **National Sample Survey Office (NSSO)** data.

◉ However, over time, discrepancies between the NSSO's household consumption expenditure data and national accounts data led to doubts about the reliability of poverty estimates.

## How Has Poverty Estimation Evolved?

◉ **Changes in Methodology:**

➤ **Tendulkar and Rangarajan Committees**: These committees introduced new methodologies to estimate poverty, such as using different **recall periods** for consumption data. However, such changes have made it difficult to compare poverty estimates over time.

➤ **Multidimensional Poverty Index (MPI)**: In recent years, alternative measures, like the **Multidimensional Poverty Index (MPI)**, have been adopted to capture poverty beyond income levels. This index considers factors like **health, education**, and **living standards**.

◉ **The Shift to Broader Consumption:** The scope of poverty definition has expanded beyond just calorie consumption to include other goods and services, reflecting modern consumption patterns. The updated methodology suggests that **food expenditure now constitutes less than 50% of the total consumption** basket, indicating that people now spend more on diverse needs, such as healthcare and education.

## Concerns with the 2023-24 Household Consumption Expenditure Survey (HCES)

**Divergence in Data:** A key issue with the HCES data is the divergence between NSSO estimates and national accounts data. This divergence has been caused by:

➤ **Changes in Recall Periods**: Different recall periods for various items (7 days for some, 30 days for others) make comparisons over time challenging. Previous estimates used a uniform recall period, which is now inconsistent with the updated method.

➤ **New Methodologies**: The introduction of mixed and modified mixed reference periods (MRP and MMRP) for data collection has resulted in **higher consumption estimates**, which may affect poverty estimation. The methodology also now involves visiting households multiple times for better data accuracy.

**Impact on Poverty Estimates:** Using the new methodologies with higher consumption estimates and applying them to outdated poverty lines might show a drastic reduction in poverty, which some argue is misleading. Experts stress the need for a consistent poverty line that reflects modern consumption patterns.

## Rural vs. Urban Poverty

⊙ **Changing Rural-Urban Dynamics:** Data suggests that **the consumption gap between rural and urban areas is narrowing**. This could be because many rural areas are increasingly peri-urban in nature, with consumption patterns becoming similar to urban regions. Rural areas, historically dependent on food items, now have diverse consumption baskets that resemble those of urban areas.

  ➤ However, the classification of rural vs. urban areas based on the **2011 Census** is outdated. Many areas once categorized as rural are now urban or peri-urban in nature, which could influence poverty estimates.

⊙ **Public Policy Impact:** Government initiatives such as the **National Food Security Act** and flagship programs aimed at poverty reduction have likely contributed to the decrease in poverty levels. However, the definition of rural and urban must be updated to accurately reflect poverty levels across regions.

## Should the Poverty Line be Revised?

**The Debate Over Revising the Poverty Line:** There is an ongoing debate over whether the poverty line should be **upwardly revised** in India:

⊙ **Rangarajan Methodology**: According to experts, using **Rangarajan's poverty line**, which is based on a more comprehensive consumption basket, suggests that poverty in India could be as low as **10%**. However, some argue that updating the poverty line alone is insufficient without re-examining the methodology.

⊙ **International Comparisons**: Global poverty benchmarks, such as the **UNDP's $2.15/day threshold**, suggest that India's poverty rate could be around **12.9%**. This is lower than estimates that place poverty at **25%**.

**Need for a Clear, Updated Methodology:** Both experts agree on the need for a **clear, updated methodology** for estimating poverty. The methodology should reflect modern consumption patterns and include a consistent poverty line that can be applied across surveys.

## Multidimensional Poverty Index (MPI) and Criticism

⊙ **What is the MPI?** India's MPI includes 12 indicators, compared to **10 in the UNDP's global MPI**. This broader approach has been praised for capturing a wider range of deprivations beyond income, such as **bank accounts**, **maternal health**, and **access to services**.

⊙ **Criticism of MPI**: Some critics argue that the MPI doesn't capture issues like **income vulnerability** and **future deprivation risks**, which are essential for measuring long-term poverty. Additionally, once a household has access to basic services (e.g., electricity, bank accounts),

it is not considered deprived in those areas, which could understate the severity of poverty.

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### UPSC PYQ

**Q:** Though there have been several different estimates of poverty in India, all indicate reduction in poverty levels over time. Do you agree? Critically examine with reference to urban and rural poverty indicators. (2015)

**Q:** Hunger and Poverty are the biggest challenges for good governance in India still today. Evaluate how far successive governments have progressed in dealing with these humongous problems. Suggest measures for improvement. (2017)

**Q:** 'Poverty Alleviation Programmes in India remain mere show pieces until and unless they are backed by political will'. Discuss with reference to the performance of the major poverty alleviation programmes in India. (2017)

**Q:** There is a growing divergence in the relationship between poverty and hunger in India. The shrinking of social expenditure by the government is forcing the poor to spend more on non-food essential items squeezing their food-budget – Elucidate. (2019)

**Q:** "Incidence and intensity of poverty are most important in determining poverty based on income alone". In this context analyze the latest United Nations Multi Poverty Index report. (2020)

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# SHIFT IN INDIA'S PRIVATIZATION STRATEGY

### Context

The government had earlier planned to **privatize** (sell off) many state-owned companies to reduce its role in business and promote private sector growth. However, the government is now **investing billions** in reviving these state-run firms due to **slow progress** in privatization and growing **political and public resistance**.

## What is Privatization?

⊙ Privatization is the process where the government sells or transfers ownership of state-owned enterprises (SOEs) to private players.

⊙ In India, this process aims to improve efficiency, reduce fiscal deficits, and encourage private sector growth.

⊙ India went for privatization in the historic reforms budget of **1991**, also known as **'New Economic Policy or LPG policy'**.

⊙ Since the **1991 economic liberalization**, India has gradually shifted towards privatization, especially after the fiscal crisis.

➤ The government has sold stakes in several PSUs to reduce the financial burden on the state, increase competition, and improve efficiency.

| Advantages of Privatization | Disadvantages of Privatization |
|---|---|
| ⦿ **Efficiency & Innovation:** It increases operational efficiency, reduces costs, and drives innovation. | ⦿ **Risk of Monopolies**: It can lead to monopolies that exploit consumers, raising prices and reducing quality. |
| ⦿ **Economic Growth:** It raises funds for government, improves fiscal health, and attracts foreign investment. | ⦿ **Foreign Profit Drain**: Foreign acquisitions may divert profits outside the country, limiting local benefits. |
| ⦿ **Improved Customer Service:** Private companies are more responsive to consumer needs. | ⦿ **Social Inequality:** It can increase unemployment and widen wealth gaps, hurting the poor. |
| ⦿ **Reduced Corruption & Bureaucracy**: It lessens inefficiency and corruption common in public sector. | ⦿ **Political Motivations**: Privatization can be driven by political interests, leading to clientelism and corruption. |
| ⦿ **Public Participation:** It empowers citizens through shareholding and reduces state intervention. | |

## Why Privatization Was Initially a Key Focus?

⦿ **Reducing Fiscal Deficit:** One of the primary reasons for privatization was to address India's **fiscal deficit**. The sale of stakes in public enterprises could generate **revenue** for the government, which could then be used to finance other priorities, including infrastructure projects and welfare schemes.

⦿ **Reducing Subsidy Burden:** Many state-owned enterprises, particularly in sectors like **energy**, are heavily subsidized. Privatizing these firms was seen as a way to cut down on these subsidies and make the sector more self-sustaining.

⦿ **Improved Management:** Government-run companies often face problems such **as inefficiency, poor management, and slow decision-making**. The belief was that **private players**, driven by profit motives and better management practices, would improve the overall performance of these firms, leading to greater productivity and profitability.

⦿ **Boosting Competition:** Privatization is believed to introduce **competition** into sectors that were previously dominated by state-owned monopolies. This competition could enhance service quality, reduce costs, and foster innovation.

⦿ **Reducing Government's Burden:** The government would no longer need to directly manage loss-making PSUs. By offloading these enterprises to the private sector, the state could focus more on its core functions such as governance, infrastructure development, and public welfare.

## Challenges and Setbacks:

⦿ **Employee Unions:** Privatization often faces stiff resistance from the **employee unions** of public sector enterprises, who fear job losses or changes in working conditions.

⦿ **Opposition Parties:** Political opposition has also been a significant hurdle.

⦿ **Land and Asset Issues:** The process of selling state-owned companies often gets **stuck in complex legal and bureaucratic hurdles**, especially when it comes to land acquisition or the valuation of state-owned assets.

⦿ **Failed Sales:** Several privatization attempts have failed due to lack of buyer interest, unfavorable market conditions, or disagreement over terms.

⦿ **Public Sentiment and National Security Concerns:** Many people are uncomfortable with the idea of privatizing **strategic sectors** such as **defense, power, and telecommunications**. Privatization in these sectors may raise concerns over national security, especially when foreign companies are involved in the bidding process.

| UPSC PYQ |
|---|
| **Q:** **Indian railways has been the lifeline of India's growth story. Analyze the challenges, advantages and disadvantages of its privatization. (2019)** |
| **Q:** **Has the Indian governmental system responded adequately to the demands of Liberalization, Privatization and Globalization started in 1991? What can the government do to be responsive to this important change? (2016)** |

# INDIA'S BOOMING CONCERT ECONOMY

| Context |
|---|
| Recently, Prime Minister Narendra Modi highlighted the growing importance of the **concert economy** in India, especially following the record attendance at Coldplay's concerts in Mumbai and Ahmedabad. |

## What is the 'Concert Economy'?

⦿ The 'concert economy' refers to the significant economic impact of live music events on various sectors, including hospitality, transportation, food & beverages, merchandise sales, and event management.

⦿ It emphasizes how concerts go beyond being an entertainment experience, turning into an economic powerhouse that stimulates local economies.

◉ **India's Growing Concert Economy:** India's concert economy is growing rapidly. As per a report, the number of large concerts (those with over 5,000 attendees) is expected to reach **300 by 2025**, marking a **50% increase** from 2018.

◉ The revenue from concerts in India is predicted to reach **Rs 1,000 crore** by 2025, a **25% increase** from current levels.

◉ In terms of global revenue from live events, India ranks **7th** worldwide, ahead of countries like **South Korea, France, and Australia.**

➤ Another report estimates that between **Rs 1,600 crore and Rs 2,000 crore** was spent on live events in India within just three months. If the concert sector continues to expand, private spending on live events in India could reach **Rs 6,000-8,000 crore annually**.

## What Does the 'Concert Economy' Entail?

The concert economy refers to the broad economic benefits generated by live music events. Beyond ticket sales, concerts lead to increased spending across multiple industries, providing a significant boost to local economies.

◉ **Hospitality**: Hotels in the cities hosting concerts experience a surge in bookings, often reaching full occupancy, especially in premium accommodations. This results in higher revenue from overnight stays.

◉ **Transportation**: Major concerts see a rise in bookings for flights, trains, and other modes of transportation. For instance, flight bookings to concert cities can soar by as much as 350%, while train bookings also witness significant increases.

◉ **Food & Beverages**: Restaurants, cafes, and food delivery services experience increased sales as concert-goers spend more on dining and snacks before or after the event.

◉ **Merchandise**: Concerts often generate substantial revenue from merchandise sales, including band T-shirts, posters, and other memorabilia.

◉ **Employment**: Large-scale events create job opportunities in event management, security, logistics, ticket sales, and more. The demand for temporary staff rises as the event nears, contributing to local employment.

◉ **Event Management**: Concerts require extensive planning, which leads to revenue for local event management firms and vendors involved in organizing the event, including sound and lighting technicians, security services, and logistics companies.

### Case Study: 'Swiftonomics'

◉ The term "Swiftonomics" was coined to describe the economic effect of Taylor Swift's world tour, which showed how a single artist's tour could stimulate an entire economy.

➤ **For example**, Swift's Eras Tour generated **over $4.6 billion** in North America alone and nearly $1 billion in the UK. Her concerts brought in revenue not just from ticket sales but from increased spending across hotels, restaurants, transportation, and retail.

◉ In Singapore, her exclusive concert deal sparked controversy when neighboring countries complained that Singapore's financial incentives prevented them from benefiting from the tourism revenue. This demonstrates how large concerts can shape national economies, often leading to negotiations for exclusive performance deals.

# CHINA'S DEEPSEEK

### Context

**DeepSeek**, a new AI model from China, has gained significant attention for surpassing other leading models like **ChatGPT**, **Gemini**, and **Claude AI** in performance. It has risen to become the top-rated free app on Apple's App Store in multiple countries, sparking interest in the tech industry and challenging the dominant position of US-based AI firms.

## What is DeepSeek?

◉ DeepSeek is developed by a Hangzhou-based research lab, founded in 2023 by **Liang Wenfeng**, an engineer with expertise in AI and quantitative finance.

◉ **Model**: Based on the **DeepSeek-V3** model, it outperforms OpenAI's ChatGPT and offers **cost-efficient**, **open-source** AI services with **unlimited free usage**.

◉ **Notable Release**: The **R1** release of DeepSeek rivals industry leaders like OpenAI and Anthropic but stands out for being more affordable and offering open-source access.

◉ **Features and Differentiation**

➤ **Affordability**: Unlike OpenAI and Meta, which rely on expensive hardware and resources, DeepSeek uses **affordable AI hardware** to reduce costs while maintaining high performance.

➤ **Transparency**: DeepSeek's chatbot is unique for **explaining its reasoning** before responding, making it more transparent compared to models like ChatGPT.

➤ **Open-Source**: DeepSeek's open-source approach allows **developers to build** on the platform, making it more accessible and flexible than other proprietary systems.

## Impact on the AI Market

◉ **Breakthrough despite Restrictions**: DeepSeek has succeeded despite the **US restrictions on semiconductor exports to China**, limiting China's access to advanced AI chips.

◉ **Disruption**: The model's success has caused stock prices of major US companies like **Nvidia**, **Meta**, and **Microsoft** to drop, as **DeepSeek's low-cost alternative** poses a potential disruption to the AI market.

## INDIA'S 76TH REPUBLIC DAY PARADE (2024)

### Context

India celebrated its 76th Republic Day on January 26, 2024, with a grand parade at Kartavya Path in New Delhi. The event showcased India's rich cultural diversity, military strength, and international ties.

### Key-highlights of the Parade

◉ **President Droupadi Murmu's Traditional Arrival:** For the first time since 1984, President Droupadi Murmu arrived at the Republic Day parade in a traditional black horse-drawn buggy.

➤ The buggy, gold-plated and with the national emblem, was previously used until 1984 but was discontinued after the assassination of Prime Minister Indira Gandhi.

### Cultural Tableaux Representing India's Diversity

◉ **UP Tableau – Kumbh Mela and Samudra Manthan:** Uttar Pradesh's tableau featured depictions of the ongoing Kumbh Mela and the legendary 'Samudra Manthan' (churning of the ocean) from Hindu mythology.

◉ **Madhya Pradesh Tableau – Cheetah Revival:** Madhya Pradesh showcased its cheetah revival project, with cheetahs from the state's Kuno wildlife sanctuary being highlighted.

◉ **Andhra Pradesh Tableau – Eco-Friendly Wooden Toys:** Andhra Pradesh's tableau focused on 'Etikoppaka Bommalu,' traditional eco-friendly wooden toys that represent the state's cultural heritage.

◉ **First Tri-Services Tableau:** Theme - 'Shashakt aur Surakshit Bharat': The first-ever Tri-services tableau highlighted India's military integration with the theme of a "strong and secure India."

◉ **Key Features: T**he tableau displayed the synergy between the Army, Navy, and Air Force, featuring elements like the Arjun Main Battle Tank, Tejas MKII fighter aircraft, Advanced Light Helicopter, INS Visakhapatnamdestroyer, and a Remotely Piloted Aircraft.

◉ **Joint Operations Room:** The tableau symbolized a coordinated operation between the three services, showcasing India's defense capabilities in land, air, and water.

### First Indonesian Contingent at the Republic Day Parade

◉ **Indonesian Participation:** This year marked the first time Indonesia participated with a military contingent. A 352-member marching contingent and band from Indonesia took part in the parade, marking a historic moment.

◉ **Foreign Contingents Tradition:** The tradition of inviting foreign contingents to the Republic Day parade started in 2016, and this year's Indonesian contingent followed this custom. Previously, foreign contingents from countries like France had also participated.

◉ **First Woman Officer's Salute**: Captain Dimple Singh Bhati became the first woman Army officer to present a salute to President Droupadi Murmu during the Republic Day parade.

➤ She achieved this feat while standing on a 12-foot ladder mounted on a moving motorcycle, setting a world record.

➤ Bhati's salute symbolized the courage, precision, and excellence of the Indian Army, particularly the Corps of Signals, also known as **"The Dare Devils."**

# RENAMING CONTROVERSY OF THE JAFFNA CULTURAL CENTRE

## Context

The **Indian High Commission** in Sri Lanka announced the renaming of the **Jaffna Cultural Centre** to the **'Thiruvalluvar Cultural Centre'**. The renaming was done to honor the Tamil poet-philosopher **Thiruvalluvar**, a respected figure in Tamil culture.

## Why the name change?

- The **Thiruvalluvar Cultural Centre** was renamed to recognize the cultural significance of Thiruvalluvar to Tamils worldwide.
- This decision was part of India's ongoing efforts to celebrate and promote Tamil culture globally.
- The renaming of the **Jaffna Cultural Centre** to **Thiruvalluvar Cultural Centre** caused controversy due to the removal of **'Jaffna'** from the name.
- Many in the Tamil community felt the change was disrespectful to their identity.
- After backlash, India compromised by reinstating the word **'Jaffna'** in the name.

### Tamil Saint-Poet Thiruvalluvar

- Thiruvalluvar, also known as **Valluvar,** is a revered figure in Tamil literature and culture of the Indian subcontinent during the **Sangam period.**
- He is known primarily for his work, the **Tirukkural**.
- The 'Tirukkural', a collection of 1,330 couplets ('kurals' in Tamil), are an essential part of every Tamil household — in the same way as, say, the Bhagavad Gita or the Ramayana/ Ramcharitmanas are in traditional North Indian Hindu households.
- The collection is divided into 3 books: **Aram (virtue), Porul (government and society), and Kamam (love).**
- Thiruvalluvar contributed the Tirukkural or "Kural" to **Sangam literature.**
- His teachings advocate for virtuous living and are celebrated for their universal relevance, transcending regional and cultural boundaries.
- **Origin:** Valluvar is believed to have lived in Madurai and later in town of Mayilapuram or Thirumayilai (present-day Mylapore in Chennai), although there is no real proof.
  - He is generally thought to have belonged either to Jainism or Hinduism. However, almost every religious group has claimed him and his work as their own.
- Thiruvalluvar is often depicted as a **symbol of Tamil identity and pride**, and his contributions are honored through various celebrations, including Thiruvalluvar Day.

- This day, observed on the second day of Thai, serves as a tribute to his philosophical teachings and impact on Tamil literature.
- There is absence of concrete historical records regarding his life and exact date of birth. Some accounts place him in the **3rd or 4th century CE;** others date him to around 500 years later, in the **8th or 9th century.**
- **15th January** is celebrates as **Thiruvalluvar Day.**

### Sangam Period

- Sangam Age is the period from the **3rd century BC** to the **3rd century AD** in south India (area laying to the south of the **Tungabhadra and Krishna rivers).**
- Sangam period is believed to be the birth place of Tamil literature.
- The Sangam literature is the earliest known literature in the Tamil language. It is also known as **"the poetry of the noble ones".**
- Three dynasties ruled during the Sangam Age:
  - Cheras
  - Chola
  - Pandyas
- The period is speculated to have lasted between **300 BC to 300 AD**.
- The Sangam was an institution to which most south Indian academics contributed, under the patronage of the Pandya kings. In fact, literature discovered of this era has been confirmed with archaeological evidence as well.

# PARIS AI SUMMIT

## Context

The regulation of **Artificial Intelligence (AI)** has become a major global challenge. Countries are trying to find ways to oversee AI development while ensuring that it doesn't harm innovation. Leaders from various nations will meet in **Paris on February 10, 2024**, for the **AI Action Summit**, which is an effort to discuss how AI can be developed and governed for the benefit of all.

## What is Paris AI Summit?

- The **Paris AI Summit** is a significant event that will be held in **Paris** on **February 10, 2024**.
- This Summit is aimed at discussing the future of **Artificial Intelligence (AI)**, its regulation, governance, and the global framework required to ensure its safe and responsible development.
- The summit is an initiative led by **French President Emmanuel Macron**, and **Indian Prime Minister Narendra Modi**.

⊙ Prime Minister Narendra Modi is set to **co-chair** the Paris Summit.

⊙ **Previous AI Summits:** This summit builds on two previous AI-focused meetings:

 ➤ **The AI Safety Summit in Bletchley Park (2023), UK:** Focused on addressing existential risks posed by AI and resulted in the Bletchley Declaration on AI Safety, which was signed by 25 countries, including the US and China.

 ➤ **The Seoul Summit (2024):** This summit, smaller in scale, focused on voluntary commitments made by AI companies to develop AI responsibly and transparently.

## What is AI and its Regulation?

⊙ Artificial intelligence (AI) is technology that enables computers and machines to simulate human learning, comprehension, problem solving, decision making, creativity and autonomy.

⊙ **Machine Learning** involves creating models by training an algorithm to make predictions or decisions based on data.

⊙ **Deep learning** is a subset of machine learning that uses **multilayered neural networks**, called **deep neural networks** that more closely simulate the complex decision-making power of the human brain.

⊙ **Generative AI,** sometimes called "gen AI", refers to deep learning models that can create complex original content—such as long-form text, high-quality images, realistic video or audio and more—in response to a user's prompt or request.

## Different regions are adopting various approaches to regulate AI:

⊙ **The European Union** has proposed strict regulations on AI based on risk levels, separating AI use cases by their potential danger.

⊙ **The United Kingdom** has taken a "light-touch" approach to regulation, focusing more on fostering innovation than on heavy regulation.

⊙ **The United States** is somewhere in between, balancing regulation with the need to encourage innovation.

⊙ **China** is also working on its own regulatory framework to control AI development.

⊙ **India** has emphasized that **AI should be safe and trustworthy**, ensuring it doesn't contribute to harm (like social media misuse) while also recognizing the potential opportunities AI brings.

⊙ **Concerns About AI:** The summit will address three major concerns about AI:

 ➤ **Privacy**: Ensuring AI does not misuse personal data.

 ➤ **Bias**: Preventing AI systems from making biased or discriminatory decisions.

⊙ **Intellectual Property**: Protecting creative works produced by AI systems.

### UPSC PYQ

Q: **With the present state of development, Artificial Intelligence can effectively do which of the following? (2020)**

 (1) Bring down electricity consumption in industrial units

 (2) Create meaningful short stories and songs

 (3) Disease diagnosis

 (4) Text-to-Speech Conversion

 (5) Wireless transmission of electrical energy

 **Select the correct answer using the code given below:**

 (a) 1, 2, 3 and 5 only

 (b) 1, 3 and 4 only

 (c) 2, 4 and 5 only

 (d) 1, 2, 3, 4 and 5

 **Solution: (b)**

# NITI AAYOG'S FISCAL HEALTH INDEX (FHI) REPORT

### Context

The **Fiscal Health Index (FHI)**, released by NITI Aayog provides a comprehensive evaluation of the fiscal health of India's states. This report for the financial year 2022-23 covers **18 major states** that contribute significantly to India's economy, focusing on their **public expenditure**, **revenues**, **debt sustainability**, and **overall fiscal stability**. The initiative aims to assess and benchmark fiscal performance across states, helping to identify areas for improvement and best practices that can be adopted for better fiscal management.

## Key Highlights of the FHI Report

⊙ **Top Performers**: **Odisha, Chhattisgarh, Goa, and Jharkhand** were ranked as the **best-performing states**, with Odisha topping the list due to its high **capital outlay**, effective **revenue mobilization**, and low **interest payments**. These states have a **revenue surplus** and strong fiscal management.

⊙ **Aspirational States**: States like **Punjab, Andhra Pradesh, West Bengal, and Kerala** are struggling with **fiscal challenges**. These states face issues such as **low revenue mobilization**, high **debt burden**, and difficulties in meeting **fiscal and revenue deficit targets**.

⊙ **Front-Runners**: **Maharashtra, Uttar Pradesh, Telangana, Madhya Pradesh**, and **Karnataka** were categorized as **front-runners** for fiscal health. These states demonstrated **high developmental expenditure**, **consistent revenue growth**, and **improved debt sustainability**.

◎ **Fiscal Indicators**: States like Odisha, Goa, Karnataka, Maharashtra, and Chhattisgarh scored highest in the FHI over the **2014-15 to 2021-22** period, showcasing stable fiscal management and strong debt profiles.

◎ **Debt Sustainability**: Odisha was recognized for its **excellent debt sustainability** with the highest scores in **Debt Index (99.0)** and **Debt Sustainability (64.0)**.

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### 🔍 FACT BOX

#### Fiscal Health Index

◎ NITI Aayog's "Fiscal Health Index 2025" evaluates the fiscal health of Indian states.

◎ **Sub-Indices Used**: The FHI report evaluates 18 major states based on five critical sub-indices:

  ➤ **Quality of Expenditure**
  ➤ **Revenue Mobilization**
  ➤ **Fiscal Prudence**
  ➤ **Debt Index**
  ➤ **Debt Sustainability**

◎ These sub-indices together provide a detailed, multi-dimensional view of a state's fiscal health.

◎ Data for the Fiscal Health Index was sourced from the **Comptroller and Auditor General (CAG).**

◎ The FHI is designed to assist policymakers by offering insights into states' fiscal health and helping identify areas requiring intervention and strategic planning.

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## PM SURYA GHAR SCHEME

### Context

India's rooftop solar potential is beginning to see more substantial progress, thanks to the **PM Surya Ghar scheme**, which aims to empower households with solar energy.

### Progress So Far:

◎ **8.5 Lakh Installations:** As of January 2025, **8.5 lakh households** have benefited from rooftop solar installations, with the **official target of one crore** installations in sight within the next two to three years.

◎ **Subsidy Structure:** The scheme offers subsidies of up to **60%** for systems up to **2 kW capacity** and **40%** for systems between **2 kW and 3 kW**, capped at **3 kW**. These subsidies have significantly lowered the upfront costs for many households.

### India's Renewable Energy Landscape:

◎ India is aiming to add **50 GW of renewable capacity annually**.

◎ Over the last decade, India's renewable energy capacity has expanded by an astonishing **200%**, growing from **75.52 GW** in **2014** to **220 GW** today.

◎ The **cost of solar energy** has also dramatically decreased, making it more affordable and accessible:

  ➤ In 2010-11, the tariff for **grid-connected solar** was **Rs 10.95 per unit**.

  ➤ In **2024**, it dropped to **Rs 2.15 per unit**, positioning India as a global leader in **affordable renewable energy**.

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### 🔍 FACT BOX

#### PM Surya Ghar Scheme

◎ **Launched in:** 2014

◎ The scheme focuses on providing **free electricity** to **one crore households** through the installation of **rooftop solar panels** and empower residential households to generate their own electricity.

◎ **Nodal Ministry:** Ministry of New and Renewable Energy (MNRE)

**Implemented Agency**:

  ➤ **National programme Implementation Agency (NPIA)** at the National level

  ➤ **State Implementation Agencies (SIAs)** at the state level

    ♦ The Distribution Utility (DISCOMs or Power/ Energy Departments, as the case may be) shall be the State Implementation Agencies (SIA) at the State/UT level.

◎ **Eligibility:** Indian citizens, homeowners, valid electricity connection, no prior solar subsidy

◎ Under the scheme, the DISCOMs shall be required to put in place **several facilitative measures for promotion of rooftop solar** in their respective areas such as availability of net meters, timely inspection and commissioning of installations, vendor registration and management, interdepartmental convergence for solarizing government building etc.

◎ **Subsidy:** The PM Surya Ghar scheme provides significant financial assistance:

  ➤ 60% subsidy for a 2 kW system

  ➤ 40% subsidy for systems between 2 kW and 3 kW. This subsidy can amount to up to ₹78,000 for higher-capacity systems, making rooftop solar an attractive option for many households.

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## KORAGA TRIBES

### Context

The **decline in the Koraga population** raises concerns regarding the preservation of their unique cultural heritage and traditional practices.

### About the Koraga Tribe:

◎ The **Koraga tribe**, one of the **Particularly Vulnerable Tribal Groups (PVTGs)** in India, is facing a **declining**

**population**. They primarily reside in the **Dakshin Kannada** and **Udupi districts** of Karnataka, as well as the **Kasargod district** of Kerala.

◉ **Koraga tribe** are found in the southern parts of India, particularly in **Karnataka** (Dakshin Kannada and Udupi districts) and **Kerala** (Kasargod district).

◉ **Language**: While most Koragas speak the **Tulu language**, they also have their own distinct language.

◉ **Clans**: The Koragas are divided into **17 exogamous clans** or sects, known as "**bali.**"

◉ **Economy**: Traditionally, the Koragas are **agriculturists**, relying on **forest produce** like bamboo, cane, and creepers for basketry. Their livelihoods are closely linked to the forests and natural resources.

◉ **Culture & Practices**: They engage in **folk dances**, **rituals**, and **songs** to appease deities, seek good harvests, and prevent epidemics.

  ➤ **Dholu** (drum) and **Voote** (flute) are the key musical instruments of the Koragas.

◉ **Social Structure**:

  ➤ The Koraga tribe practices a **matrilineal** system, with descent traced through the female line, although **patrilocal residence** is followed after marriage.

  ➤ **Property inheritance** is **equal** among both sons and daughters.

◉ **Religious Practices**: They worship various **Bhuta deities** through rituals like **Bhuta Kola**, a folk dance associated with worshipping spirits like **Panjurli**, **Kallurti**, **Korathi**, and **Guliga**.

# ASER 2024 REPORT

## Context

The **14th Annual Status of Education Report (ASER)** has been released by the **Pratham Foundation**, a non-governmental organisation. The **2024** report presents a snapshot of learning outcomes among children in rural areas, showing improvements in basic literacy and arithmetic skills in the aftermath of the pandemic.

## Key Findings of ASER 2024

### Improvement in Basic Literacy and Arithmetic

  ➤ **Class 3 Students:** The percentage of Class 3 children who can perform basic arithmetic, such as subtraction, has risen to **33.7%** in 2024, up from **25.9%** in 2022, and **28.2%** in 2018 (pre-pandemic).

    ♦ The rise in basic arithmetic skills is more pronounced in government schools, which saw a **7%** increase compared to the **4%** increase in private schools.

  ➤ **Class 5 Students:** The percentage of Class 5 students who can read a Class 2-level text increased to **44.8%** in 2024, up from **38.5%** in 2022 and close to the **44.2%** level in 2018.

  ♦ Private schools showed a slower recovery in literacy levels, with **59.3%** of Class 5 students reading at Class 2 level in 2024, compared to **65.1%** in 2018.

  ➤ The government's ambitious **NIPUN Bharat Mission (National Initiative for Proficiency in Reading with Understanding and Numeracy),** launched in 2021, is expected to be the reason behind this transitional shift.

◉ **Impact of NEP 2020 on Education:** The improvements in foundational skills, especially in arithmetic and reading, are attributed to the focus of the **National Education Policy (NEP) 2020** on foundational skills.

◉ **Increased School Enrollment and Attendance**

  ➤ **Government Schools:** There has been a significant **increase in enrollment** in government schools, reversing the trend of rising enrollment in private schools during the COVID-19 pandemic.

  ➤ **Student Attendance:** The average student attendance in government elementary schools increased from **72.4%** in 2018 to **75.9%** in 2024.

  ➤ **Teacher Attendance:** Teacher attendance also improved, rising from **85.1%** in 2018 to **87.5%** in 2024.

◉ **Access to Technology:** The report revealed that nearly **90%** of teenagers (ages 14-16) in rural areas have access to **smartphones**, with **82.2%** knowing how to use them. However, there is a **gender gap** in smartphone ownership, with **36.2%** of boys owning smartphones compared to **26.9%** of girls.

  ➤ Interestingly, while **76%** of teenagers use smartphones for **social media**, only **57%** use them for **education-related activities**, pointing to a significant gap in the use of technology for educational purposes.

◉ **Multigrade and Small Schools:** There has been a notable rise in the prevalence of **multigrade classes**, where children from different grades are taught together. By 2024, **two-thirds** of **Class 1 and Class 2** classrooms in elementary schools were multigrade.

  ➤ The percentage of **government primary schools** with fewer than **60 enrolled children** rose from **44%** in 2022 to **52.1%** in 2024, indicating a rise in smaller schools.

### Pre-Primary School Enrollment

  ➤ **States with High Enrollment Rates in Pre-Primary Education:** The report highlights that **Karnataka**, **Gujarat**, **Maharashtra**, **Kerala**, and **Nagaland** have shown **high enrollment rates** (above **90%**) for children aged five in **pre-primary schools**.

## FACT BOX

### About Report

- The **Annual Status of Education Report (ASER) 2024** highlights significant developments in the field of education across rural India.
- Since **2005**, the **NGO Pratham** has released the Annual Status of Education Report (Rural) to measure basic reading and arithmetic levels among school children, attendance in school and other indicators.
- The report is released every two year.
- The report focuses on the state of **foundational skills** such as reading and arithmetic, and the impact of educational policies like the **National Education Policy (NEP) 2020**, which emphasizes improving foundational learning outcomes.
- ASER reports are considered the most credible source of information on learning outcomes among school students in rural India.

### Government Educational Initiatives

- **Government Initiatives for Students:** National Education Policy (NEP) 2020, STARS Project, Kala Utsav, Swachh Vidyalaya Abhiyan, Shiksha Parv Initiative, National Means cum Merit Scholarship (NMMS), National Talent Search Exam (NTSE), ISHAN UDAY, Ishan Vikas
- **Government Schemes for Schools:** Mid-Day Meal Scheme, Sarva Shiksha Abhiyan, Institution of Eminence Abhiyan, Higher Education Financing Agency (HEFA), Rashtriya Madhyamik Shiksha Abhiyan, Samagra Shiksha, Eklavya Model Residential Schools, National Achievement Survey, National Curriculum Framework, Rashtriya Avishkar Abhiyan, Padhe Bharat, Badhe Bharat
- **Government Initiatives for Digital Education**: PM E-Vidhya, DIKSHA, National E-library, Swayam Prabha, Swayam, Vidya Daan, E Pathshala, SMART India Hackathon
- **Government Initiatives for Girls:** Beti Bachao, Beti Padhao, Kasturba Gandhi Balika Vidyalaya, National Programme for Education of Girls at Elementary Level (NPEGEL), National Scheme of Incentives to Girls for Secondary Education (NSIGSE), PRAGATI, CBSE Single Child Merit Scholarship, Rani Laxmi Bai Atma Raksha Parikshan
- **Government Initiatives for Disabled Students**: Inclusive Education of the Disabled at the Secondary Stage, International Economic Development Council, SAKSHAM, Identification Camps for CwSN (Children with Special Needs)

# NICOBARESE TRIBE

### Context

The Nicobarese tribe, indigenous to the **Nicobar Islands** in the eastern Indian Ocean, has long been a subject of interest for anthropologists due to their distinct genetic makeup and isolation from mainland populations. Recent studies have revealed new insights into their genetic origins, particularly their ties to Southeast Asian populations.

### Key Findings

- **Genetic Link with Southeast Asia:** The Nicobarese are found to share a close genetic relationship with the **Austroasiatic-speaking** populations of Southeast Asia, specifically the **Htin Mal** communities of **Thailand-Laos**.
  - This marks the first time detailed genetic analysis has been conducted to establish this connection.
- **Migration to Nicobar Islands:** According to the study, the Nicobarese migrated to the Nicobar Islands around **4,500 to 5,000 years ago**, during a period when Southeast Asians were already practicing agriculture.
  - Both **men and women** from these Southeast Asian communities migrated to the islands, bringing with them agricultural practices that led to population growth and territorial expansion.
- **Preservation of Genetic Lineage:** The Nicobarese tribe has remained largely isolated from external influences for thousands of years, allowing them to preserve their **genomic origins**, **language**, and **cultural identity**.
  - This isolation has been crucial for maintaining their distinct genetic makeup, which has been studied using **stable DNA markers** that have remained unchanged over millennia.

## FACT BOX

### Nicobarese Tribe

- The **Nicobarese** are an indigenous tribal community living on the **Nicobar Islands**, which are part of the **Union Territory of Andaman and Nicobar Islands** in the eastern Indian Ocean.
- This community is one of the prominent groups residing on the Nicobar group of islands.
- **Geographic Distribution:** The internal diversity within the Nicobarese community is marked by four distinct cultural groups, which are centered on the following islands:
  - Car Nicobar
  - Chowra (Chaura), Bompoka (Bompooka), and Teressa
  - Katchal (Katchall), Nancowry, Kamorta (Camorta), and Trinket
  - Little Nicobar, Kondul, Pulo Milo (Pilomillow), and Great Nicobar

- The Nicobarese are known for their **distinct culture**, **genetic lineage**, and **long-standing isolation** from mainland India.

- The Nicobarese tribe consists of approximately **25,000 people**, residing in dense forests on the Nicobar Islands.

- Their livelihood largely revolves around **pig rearing**, **goat farming**, and gathering **forest products** like **coconut palm**.

# CANNABIS

## Context

The **Himachal Pradesh** government approved a **pilot project for the cultivation of cannabis** or **hemp** in the state. This move comes amid growing global recognition of the **agricultural, medicinal, and industrial value** of hemp.

## About Cannabis

- The word **"cannabis"** refers to all products derived from the plant **Cannabis sativa**.

  ➤ **Marijuana** refers to parts of or products from the plant *Cannabis sativa* that contain substantial amounts of **tetrahydrocannabinol (THC).**

- The plant contains over 500 chemical substances.

- **Cannabinoids** are a group of substances found in the cannabis plant. The main cannabinoids are THC and cannabidiol (CBD). THC is a psychoactive substance, while CBD is not.

- Its **cultivation had been banned** under the **Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985**, which restricted its legal farming across the country.

- Despite this, illegal cannabis farming continues in several districts of Himachal Pradesh.

- **Other states with controlled permission for cultivation**: **Uttarakhand**, **Uttar Pradesh**, **Madhya Pradesh**, **Jammu & Kashmir**, and **Manipur.**

# BRAHMOS MISSILE

## Context

After successfully supplying the **BrahMos missile to the Philippines**, India has now finalized a Rs 3,800 crore (approximately USD 450 million) deal to export the supersonic cruise missile to Indonesia.

## About BrahMos Missile

- BRAHMOS is a supersonic cruise missile developed through a joint venture between India's **Defence Research and Development Organisation (DRDO)** and **Russia's NPO Machinostroyenia**.

- It is named after the Brahmaputra River of India and the Moscow River of Russia.

- **Versions and Range:** The base version (BRAHMOS) had a range of 290 km. The BrahMos Extended Range (ER) version has an enhanced range of 800-900 km.

  ➤ The missile is available in sea-launched, land-launched, and air-launched configurations.

## Features:

- **Speed:** It travels at 2.8 Mach (nearly three times the speed of sound).

- **Warhead:** It carries a 200-300 kg conventional warhead.

- **Altitude:** It can cruise at altitudes up to 15 km, and can also go as low as 10 meters.

- **Launch Platforms**: It can be launched from sea, land, and air (from platforms like Su-30MKI fighter aircraft).

- **Indigenous Content:** The missile has an increasing indigenous content, with key components like seeker and booster designed by DRDO. As of 2023, 75% indigenisation has been achieved.

## Capabilities:

- ➤ **Pinpoint Accuracy**: The missile is known for its precision and ability to strike targets with high kinetic energy on impact.

- ➤ **Fire and Forget**: The missile operates on a fire-and-forget principle, meaning it can hit the target without external intervention after launch.

- ➤ **Low Radar Signature**: Difficult to intercept due to its low radar signature and supersonic speed.

- In April 2024, India delivered the first batch of BrahMos missiles and launchers to the Philippines Marine Corps as part of its earlier deal.

# 'SANJAY' BATTLEFIELD SURVEILLANCE SYSTEM

## Context

Defence Minister Rajnath Singh commissioned the **Battlefield Surveillance System 'SANJAY'**, which it is set to be inducted in all operational brigades, divisions and corps of the Army in three phases.

## About Sanjay System

- The SANJAY system is a **state-of-the-art battlefield surveillance system** developed by **Bharat Electronics Limited (BEL)** under the **"Buy (Indian-IDDM)" initiative**, which focuses on self-reliance in defense technology.

- The system will serve as a common integrated surveillance platform for the Indian Army.

- The Army did not operate a common integrated surveillance system before SANJAY.

  ➤ Before SANJAY, the Army operated various surveillance tools that weren't fully integrated. The new system merges data from various battlefield devices into one comprehensive platform, making it more efficient and responsive.

◉ **Data Integration and Processing:** The SANJAY system gathers information from a wide range of battlefield surveillance devices deployed at the division and corps levels.

➤ It processes this data, which includes voice, video, content, and images, and fuses it with other inputs and databases to create a real-time battlefield scenario. This helps commanders make more informed decisions in strategic positioning and overall battlefield management.

➤ The system uses artificial intelligence (AI) and advanced information techniques to assess the location of targets and predict potential threats. The data is transferred over high-speed, secure digital communication links, ensuring that it is both fast and protected from cyber threats.

# DRDO TABLEAU

| Context |
|---|
| The **Defence Research & Development Organisation (DRDO)** displayed some of its latest innovations in national security during the **Republic Day Parade 2025** on **January 26**. This included both **cutting-edge technologies** and **defence systems** developed by DRDO to make India more self-reliant in its defence capabilities. |

## Key Systems to be Displayed:

◉ The theme for the DRDO tableau is **'Raksha Kavach – Multi-layer Protection against Multi-domain Threats'**.

◉ The tableau will showcase a variety of **advanced defence systems** that DRDO has developed, highlighting India's growing self-reliance in the defence sector.

➤ **Laser-Based Directed Energy Weapon**: A new technology that uses lasers for defence. It could be a significant advancement in modern warfare.

➤ **Pralay Tactical Missile System**: A surface-to-surface missile that is designed to strike targets quickly and accurately.

➤ **Quick Reaction Surface-to-Air Missile**: A missile system designed to quickly intercept incoming threats from the air.

➤ **155mm/52 Caliber Advanced Towed Artillery Gun System**: A long-range artillery gun.

➤ **Drone Detect, Deter & Destroy System**: A system that detects and destroys hostile drones.

➤ **Medium Power Radar 'Arudhra'**: A radar system for detecting threats at medium ranges.

➤ **Airborne Early Warning & Control System**: A radar system placed on aircraft to detect threats over large areas.

➤ **Advanced Lightweight Torpedo**: A torpedo for use against submarines.

➤ **Electronic Warfare System 'Dharashakti'**: A system designed to disrupt enemy communication and radar.

➤ **Indigenous Unmanned Aerial System**: Drones designed and developed in India.

➤ **UGRAM Assault Rifle**: A new indigenous assault rifle.

◉ Other systems displayed may include **satellite surveillance systems**, **air defence systems**, and **missiles** like **BrahMos**, **Pinaka**, and **Akash**. These systems are designed for various purposes like air defence, anti-tank strikes, and long-range attacks.

## DRDO's Achievements in 2024

DRDO will also showcase its **recent milestones** from 2024:

◉ **Long Range Hypersonic Anti-Ship Missile**: A missile capable of traveling at extremely high speeds to strike ships.

◉ **Light Weight Bullet Proof Jacket 'ABHED'**: A lighter and more efficient bulletproof jacket.

◉ **'Zorawar' Light Tank**: A small, mobile tank designed for various combat situations.

◉ **Divyastra**: A missile system designed to carry multiple warheads to hit multiple targets.

## 🔍 FACT BOX

### Pralay Missile

◉ **Developed by**: Defence Research and Development Organisation (DRDO).

◉ Pralay' is a **short-range surface-to-surface missile** with a payload capacity of 500 to 1,000 kg.

◉ The missile, with a range of 150 to 500 kms, is capable of carrying conventional warheads.

◉ The missile is powered with a **solid propellant rocket motor** and is equipped with advanced technologies.

◉ The missile guidance system includes state-of-the-art navigation system and integrated avionics, making it capable of striking deep into enemy territory.

◉ It has been developed for deployment along the **Line of Actual Control (LAC) and Line of Control (LoC)**.

### Pinaka System

◉ The Pinaka is a **powerful multi-barrel rocket launcher** developed by **DRDO's Armament Research and Development Establishment (ARDE).** It can launch a rapid series of 12 rockets in just 44 seconds, covering an area of 700x500 meters.

◉ Originally built with a 37.5 km range, the Pinaka has been upgraded over time to deliver greater range and effectiveness.

➤ **Pinaka Mk-I:** The basic version has a range of 38 km and offers various warhead options.

➤ **Pinaka Mk-II:** An enhanced model that extends the range to 60 km.

➤ **Extended Range Pinaka:** The latest version reaches targets up to 75 km.

## Akash Air Defence Missile system

- **AKASH** is a Short Range Surface to Air Missile System to protect vulnerable areas and points from air attacks.
- Akash Weapon System (AWS) can simultaneously engage Multiple Targets in Group Mode or Autonomous Mode.
- It has built-in **Electronic Counter-Counter Measures (ECCM) features**. The entire weapon system has been configured on mobile platforms.
- **Range of Operation :** 4.5 km to 25 km

## BrahMos Missile

- The BrahMos is a **ramjet supersonic cruise missile** of a short-range developed by the Defence Research and **Development Organisation (DRDO) and the Russian Federation's NPO Mashinostroyeniya (NPOM).**
- It is named after two major rivers of India and Russia: **Brahmaputra and Moskva.**
- The use of BrahMos missiles for land as well as anti-ship attacks.
- They can be launched from land, air and sea, and all three variants are in service in the Indian armed forces.
- It is a **two-stage (solid propellant engine in the first stage and liquid ramjet in second) missile.**
- It operates on the "**Fire and Forgets**" principle i.e. it does not require further guidance after launch.

# MULE, ROBOTIC DOG

### Context

The Indian Army showcased its robotic dogs 'Sanjay', known as 'MULE' (Multi Utility Legged Equipment) during the Republic Day parade in Kolkata.

## About Robotic Dog

- The robotic dogs, nicknamed **'Sanjay'**, are all-weather machines capable of performing various tasks such as:
  - **Explosives detection and disposal**
  - **Surveillance and perimeter security**
  - **Asset protection**
  - **Operations in chemical, biological, and nuclear warfare environments**
- The sniffer-cum-combat dogs work efficiently, and have their own sets of benefits in the combat zones.
- Each of them have nocturnal vision systems, heat-sensing cameras, unmanned aerial vehicles and a multi-functional mechanical arm.
- The Indian Army has already inducted **100 such robotic dogs** into its units.

# WASP-127B

### Context

Astronomers have recently detected incredibly **fast winds** on an **exoplanet** called **WASP-127b**. These winds are the **fastest ever observed on any known planet.** The winds reach speeds of **33,000 km/h** around the equator of this planet. For comparison, the fastest winds on Earth's jet stream move at about **442 km/h**, and Neptune's high-altitude winds reach about **2,000 km/h**.

## What is WASP-127b?

- **WASP-127b** is a **hot Jupiter** type of exoplanet.
- It is located **520 light-years** away from Earth in our Milky Way galaxy.
- The planet has a **diameter 30% larger** than Jupiter, but only **16% of Jupiter's mass**, making it one of the puffiest planets ever discovered.
- It orbits its star every **4 days** and is positioned **very close** to the star—only about **5% of the distance** between Earth and the Sun.

## Characteristics of WASP-127b

- **Atmosphere**: The atmosphere of WASP-127b is made mostly of **hydrogen and helium**, with traces of more complex molecules like **carbon monoxide and water**.
- **Temperature**: The atmosphere is extremely hot, with temperatures reaching **2,060°F (1,400 K)**. The planet has one side that always faces the star (**day side**) and the other side that faces away from the star (**night side**).
- **No Solid Surface**: Being a gas giant, WASP-127b does not have a solid surface. Instead, its atmosphere gets denser and more pressurized the deeper you go.
- **Cause of the High-Speed Winds:** The incredibly fast winds on WASP-127b are largely driven by the **intense radiation** from the star the planet orbits. The star heats the planet's **day side**, which in turn creates strong atmospheric dynamics. This heat, combined with other factors, causes fast-moving winds to circle the planet at its equator.
- **Comparison to Other Planets:** While other exoplanets have shown high winds, WASP-127b is unique for having **winds that circle the entire planet** at such high speeds. Other planets have had high winds flowing from their **day side to their night side**, but nothing compares to the supersonic winds around the entire planet's equator.

## FACT BOX

### Exoplanets

- Exoplanets are planets that orbit stars other than the sun and thus exist outside the solar system.
- According to NASA, more than 5,000 exoplanets have been discovered.
- Characteristics:
  - They can be gas giants bigger than Jupiter or as small and rocky as Earth.
  - They are also known to have different kinds of temperatures, from boiling hot to freezing cold.

### IRNSS (NavIC) System:

- **IRNSS**, or **Navigation with Indian Constellation (NavIC)**, is a **7-satellite system** that provides **navigation and timing services** across India and up to 1,500 km in its neighborhood.
- The first satellite, **IRNSS-1A**, was launched in **2013**.
- **Replacements**: The constellation has faced challenges, including issues with atomic clocks on some satellites, which required replacements before their mission life ended.
- **Issues Faced in the Past:** In the past, some satellites had issues with their **atomic clocks**, causing a delay in the expected timeline of replacements.
  - A satellite, **IRNSS-1H**, failed to reach orbit due to a malfunctioning heat shield during launch.

## ISRO'S 100TH LAUNCH: NVS-02 SATELLITE

### Context

The **Indian Space Research Organisation (ISRO)** made history with its **100th rocket launch (GSLV-F15 mission),** marking a significant milestone in India's space journey. The GSLV-F15 rocket with indigenous cryogenic stage placed **NVS-02 satellite** in a **Geosynchronous Transfer Orbit.**

### Key Features of the NVS-02 Satellite:

- **Weight**: 2,250 kg
- **NVS-02** satellite is the second of five **second-generation satellites** designed to enhance India's **Indian Regional Navigation Satellite System (IRNSS)**, also known as **NavIC**.
- NVS-02 is part of a **new generation of satellites** designed to replace older ones in the **Indian navigation constellation.**
  - **NVS or Navigation Satellite** is part of the **Navigation with Indian Constellation (NavIC)** - India's version of a **Global Navigation Satellite Systems (GNSS)** - similar to the **Global Positioning System (GPS)** often used worldwide.
- **Lifespan**: These second-generation satellites have a longer lifespan of **12 years** compared to older satellites, which were designed for **10 years**.
- **Atomic Clocks**: NVS-02 is equipped with **indigenously developed, more accurate atomic clocks**, improving the satellite's navigation precision.
- **L1 Frequency**: The satellites use the **L1 frequency**, commonly used by the **US GPS**, which will help expand the system's use in smaller devices like fitness trackers and smartphones.
- **Rocket**: The **GSLV-F15** rocket will carry the NVS-02 satellite into a **Geostationary Transfer Orbit (GTO)**, which has a perigee (lowest point) of **170 km** and an apogee (highest point) of **36,577 km**.

## GUILLAIN-BARRÉ SYNDROME (GBS)

### Context

A cluster of GBS cases has been reported in Pune, with 73 confirmed cases and 14 patients on ventilator support. The Maharashtra government and the Union Health Ministry have launched investigations to understand the cause behind the rise in infections.

### What is Guillain-Barré Syndrome (GBS)?

- **GBS** is a **rare autoimmune neurological disorder** where the immune system mistakenly attacks the body's **peripheral nerves**.
- This leads to **muscle weakness**, which can **progress to paralysis**.
- GBS can develop over a few **days to weeks**, and while it affects people of all ages, it's more common in **adults** and **men**
- **Impact of body:**
  - In GBS, the immune system damages the **myelin sheath**, the protective layer around nerve cells.
  - This hampers the nerves' ability to transmit signals to the brain, causing **weakness** and, in severe cases, **paralysis**.
  - It primarily impacts the **peripheral nervous system** (nerves outside the brain and spinal cord), affecting **muscle control, temperature regulation**, and sensations of **touch and pain**.
  - **Symptoms of GBS:**
- **Early symptoms**: Tingling or **weakness starting in the feet and legs**, gradually spreading to the arms, face, and upper body.

- ### Other symptoms:
  - **Pins and needles** sensation in toes, fingers, wrists, or ankles

➤ **Back pain** and pain in the legs

➤ **Difficulty walking** or climbing stairs

➤ **Facial weakness** and **double vision**

➤ **Severe cases** can lead to **paralysis**, especially of the legs, arms, or face.

➤ **Breathing difficulties** may arise if the chest muscles are affected, making it a potentially life-threatening condition.

◎ **Causes of GBS:** GBS often follows a viral or bacterial infection, most commonly Campylobacter jejuni (bacteria causing gastroenteritis). It can also follow infections like the flu, cytomegalovirus, Epstein-Barr virus, and the Zika virus.

◎ **Treatment for GBS:** Plasma exchange (plasmapheresis), Intravenous immunoglobulin (IVIG) therapy.

◎ GBS can be **life-threatening**, so early treatment is critical.

# CHRONIC PULMONARY ASPERGILLOSIS (CPA)

### Context

In Assam, particularly in tea plantation areas, **tuberculosis (TB)** has been a significant health issue. A new study has highlighted a life-threatening fungal infection, **chronic pulmonary aspergillosis (CPA),** that affects TB survivors.

## About Chronic pulmonary aspergillosis (CPA)

◎ **Chronic pulmonary aspergillosis (CPA)** is caused by a fungus called **Aspergillus fumigatus,** which affects people with weakened immune systems, especially those who've had TB.

◎ It causes gradual scarring of the lungs for months and years.

◎ It is a debilitating condition that causes **severe tiredness, weight loss, breathlessness, and coughing up blood.**

◎ While exposure to Aspergillus is harmless to most people, it may affect those with lung damage.

◎ **Symptoms:** CPA shares similar symptoms with TB, such as **chronic cough, coughing up blood, weight loss, and fatigue**. It's more common in tea workers, especially those who have had TB.

◎ The disease is more common in middle-aged male workers, likely due to factors like smoking.

◎ **Epidemic Dropsy and Nutrition Concerns**

➤ A separate study on epidemic dropsy in tea workers linked low-grade cooking oils to the condition.

➤ Epidemic dropsy is caused by consuming oil contaminated with **Argemone mexicana**, a toxic plant.

➤ The toxic alkaloids in argemone oil cause heart failure and blindness. A study on 38 patients with epidemic dropsy found that most were male and died from cardiogenic shock (heart failure).

# INHERITED RETINAL DISEASES (IRDS)

### Context

Vision plays a crucial role in navigating daily life, learning, working, and staying safe. However, over 2.2 billion people worldwide suffer from some form of vision impairment, with inherited retinal diseases (IRDs) being a leading cause.

## What are Inherited Retinal Diseases (IRDs)?

◎ Inherited Retinal Diseases (IRDs) are a group of **genetic conditions** that cause **progressive vision loss or blindness** due to **damage to the retina**, the **light-sensitive tissue** at the back of the eye.

◎ These diseases are passed down from parents to their children through inherited gene mutations.

◎ The retina's primary role is to capture light and send visual signals to the brain.

◎ When mutations occur in the genes responsible for retinal function, it can lead to degeneration of the retina, affecting vision.

◎ **Prevalence in India:** India faces a higher prevalence of IRDs compared to the global average. For instance, in rural South India, one in 372 individuals is affected.

◎ **Common IRDs include:**

➤ **Retinitis Pigmentosa**: A group of diseases that cause the breakdown of the retina's cells, leading to gradual vision loss, often starting with night blindness.

➤ **Stargardt Disease**: A form of macular degeneration that usually affects children and causes central vision loss.

➤ **Leber Congenital Amaurosis**: A severe form of vision loss that typically manifests at birth or in infancy.

➤ **Cone-Rod Dystrophy**: A condition that affects both the central and peripheral vision, often leading to color blindness or light sensitivity.

◎ **Treatment:** Currently, there is no cure for most IRDs, but treatments like **gene therapy and RNA-based therapies** are showing promise in slowing or even halting disease progression.

◎ Despite global advances, there is limited awareness of gene therapy options like RPE65 gene therapy in India. While gene therapy is a breakthrough, it is not effective for all genetic conditions, paving the way for RNA-based therapies.

◎ **RNA-based Therapies:**

➤ RNA-based therapies, including **antisense oligonucleotides (ASOs),** are emerging as safer and more precise alternatives to gene therapy.

➤ These therapies make temporary changes at the RNA level without altering DNA, reducing the risk of long-term effects.

➤ ASO therapy is already successfully used for diseases like spinal muscular atrophy and Duchenne muscular dystrophy, and it is being explored for retinal conditions such as **Stargardt disease and retinitis pigmentosa.**

# SUNDARBAN BIRD FESTIVAL 2025

## Context

The third Sundarban Bird Festival was held from January 22 to January 26, 2025.

## Key Highlights:

- **Bird Species Count**: A total of **154 bird species** were recorded, with **51 migratory species** and **103 resident species**.
  - ➤ **12 threatened bird species** were also spotted, including rare species like the **Eurasian Curlew** and **Brown-winged Kingfisher**.
- **Participation**: **40 birders** from **6 teams** spotted a total of **31,926 birds** during the festival.
- **Key Areas**: Birdwatching was done across various areas, with notable species counts in:
  - ➤ **Matla Forests**: 108 species
  - ➤ **Kalas**: 95 species
  - ➤ **Sajnekhali**: 64 species (lowest count)
  - ➤ **Core Area of Sundarban Tiger Reserve**: 100 species
  - ➤ **Buffer Zone**: 90 species
  - ➤ **Outside Protected Areas**: 129 species

- **Types of Birds Recorded:**
  - ➤ **45 species of waders, mudflat, and shore birds**
  - ➤ **8 species of raptors**
  - ➤ **91 species of forest birds**
  - ➤ **3 species of waterfowls**
  - ➤ **7 species of other birds**

### Sundarban Forest

- The Sundarban forest spans 4,000 sq. km and is known for having the largest population of Royal Bengal tigers.
- The Sundarbans is a mangrove forest, a unique habitat for both wildlife and migratory birds, offering rich biodiversity.
- The Sundarbans mangrove forest is situated at the delta of the Ganges, Brahmaputra, and Meghna rivers, along the Bay of Bengal.
- Spanning over 140,000 hectares, it is one of the largest mangrove forests in the world.
- **Ecological Significance:** The region features a complex network of tidal waterways, mudflats, and salt-tolerant mangrove forests, showcasing ongoing ecological processes.
- **Biodiversity:** Known for its rich fauna, the Sundarbans is home to 260 bird species, Bengal tigers, estuarine crocodiles, and Indian pythons, with many of these species being threatened.

- **UNESCO World Heritage Site:** The area is adjacent to the Sundarbans World Heritage Site, which was inscribed in 1987.
- **Sundarban Bird Festival** is an annual event held in the Sundarban Tiger Reserve to promote avifauna conservation and showcase the rich bird biodiversity of the region.
  - ➤ The festival focuses on documenting migratory and resident bird species, drawing attention to the importance of preserving habitats like the Sundarbans, which is home to several threatened and endemic species.

# ASIAN WATERBIRD CENSUS 2025

## Context

The **Asian Waterbird Census 2025** has been recently conducted in the **Coringa Wildlife Sanctuary (CWS)**, located in the **Godavari estuary** of Andhra Pradesh. CWS is a crucial feeding ground for migratory birds in the **Asian Flyway**.

## Key Findings:

- **Bird Diversity:** A total of **106 bird species** were recorded, including **70 migratory species**. **39,725 birds** sighted in the sanctuary and adjoining wetlands.
- **Endangered and Vulnerable Species:**
  - ➤ **3 endangered species**: **Black-bellied Tern**, **Great Knot**, and **Indian Skimmer**.
  - ➤ **11 species** were categorized as **Near Threatened**, and the **Common Pochard** was the only **Vulnerable species**.
- **Migratory Birds:** Birds, such as the **Great Knot**, migrated from regions like **Siberia**, **Russia**, **China**, and **Mongolia** for winter.
  - ➤ **Bhairavapalem and Etimoga** are key locations for these migratory species, with the **Great Knot** sighted at these mudflats.
- **Global Tracking:** A **Great Knot**, tagged in Russia, traveled **7,500 km** and was spotted in **Bhairavapalem** and **Etimoga**.

## FACT BOX

### Coringa Wildlife Sanctuary (CWS)

- The **Coringa Wildlife Sanctuary (CWS)** is situated at the confluence of the **Godavari River** and the **Bay of Bengal**, covering an area of **235 square kilometers**.
- CWS was established as a wildlife sanctuary by the **Government of Andhra Pradesh** in **1978**. The sanctuary is managed by the **Andhra Pradesh Forest Department**.
- It is located on the western coast of **Andhra Pradesh**, about **20 km** from **Kakinada**, in **East Godavari District**.

- The sanctuary lies within the **Godavari Estuary**, which includes **mangrove forests** and **dry deciduous tropical forests**. The sanctuary is crisscrossed by the **Coringa** and **Gaderu** rivers, along with their branches, creating a unique wetland ecosystem.

- The area is home to extensive **mangrove forests**, which make up around **50%** of the sanctuary's area. It is considered the **largest surviving patch of mangrove forests** in **Andhra Pradesh**.

## Godavari River

- The **Godavari** is the largest **Peninsular River** system in India, often referred to as the **Dakshin Ganga** (Southern Ganges).

- The river originates from **Trimbakeshwar**, near **Nasik** in **Maharashtra** and flows eastward for approximately **1,465 km** before emptying into the **Bay of Bengal**.

- The river basin is bordered by various mountain ranges: to the **north** by the **Satmala hills**, to the **south** by the **Ajanta range** and **Mahadeo hills**, to the **east** by the **Eastern Ghats**, and to the **west** by the **Western Ghats**.

- The **Godavari basin** spans across several Indian states including **Maharashtra**, **Telangana**, **Andhra Pradesh**, **Chhattisgarh**, and **Odisha**. It also covers smaller areas in **Madhya Pradesh**, **Karnataka**, and the **Union Territory of Puducherry**.

- **Tributaries:** The Godavari has several important tributaries, including:

  ► **Right Bank Tributaries:** Pravara, Manjra, and Maner.

  ► **Left Bank Tributaries:** Purna, Pranhita, Indravati, and Sabari.

- Other significant tributaries include the **Penganga**, **Wardha**, **Wainganga**, and **Indravati** rivers. The **Pranhita** is formed by the confluence of the **Wainganga**, **Penganga**, and **Wardha** rivers.

*(See Figure No. 1 below)*

# TEESTA HYDRO PROJECT

### Context

A glacier lake outburst flood in Sikkim devastated the **Teesta-3 hydropower dam**, killing at least 100 people. Fourteen months after the disaster, an **expert committee of the Environment Ministry** recommended rebuilding the dam, with improvements in its design and safety systems.

## What Happened (Background)?

- The **Sikkim Urja Limited**-run **Teesta Stage-3 dam (Teesta III hydroelectric project)**, one of the biggest hydropower dams in India with **1,200 MW electricity generation capacity**, was entirely wiped out by last year's devastating **glacial lake outburst flood (GLOF)**.

- The GLOF was triggered by an ice avalanche at **South Lhonak Lake,** leading to severe floods.

- The Teesta-3 dam collapsed due to the **failure to open the flood gates** in time during the flood.

- This resulted in a **massive outflow of water, debris, and muck.**

- Although the power equipment was largely intact, the structural failure led to the loss of life and damage to the surrounding areas.

- The government and the project developers, **Sikkim Urja Limited (SUL),** have now proposed to reconstruct the dam with a stronger design and an enhanced early warning system.

## Key Issues and Concerns:

- **Environmental Risks**: The region where the Teesta-III dam is located is prone to floods and landslides. Local communities had warned about the risks, but the project still went ahead.

  ► Glacial lakes in the Himalayas are growing due to climate change, increasing the risk of such floods.

- **Questionable Financing**: Financial institutions like banks and development agencies funded the dam despite knowing the risks. This raises the question of whether these institutions considered the environmental dangers when deciding to invest.

- **Lack of Accountability**: Financial institutions, insurance companies, and investors have not been held responsible
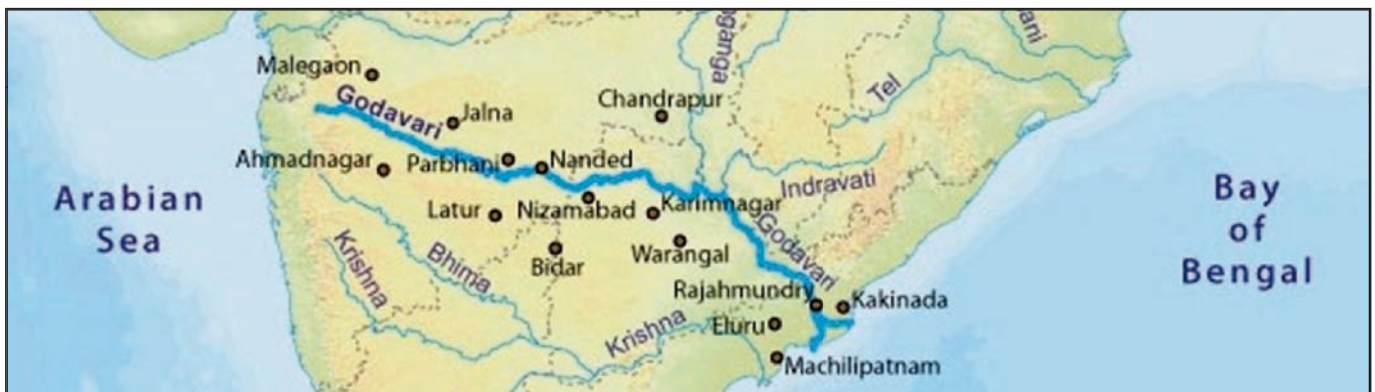


*Figure No. 1*

for the damage caused by their investments. Public money has been used, but there's no accountability for the risks taken.

◉ **Environmental Impact of Hydropower Projects**: Despite causing environmental harm, hydropower projects are often labeled as **"green"** energy projects, which critics say ignores the ecological damage and displacement they cause.

### About the Teesta River

◉ Teesta River rises from the **Cho Lamo glacier** in the Himalayas at an elevation of approximately 7,068 meters.

◉ It is a tributary of the Brahmaputra, flowing through India and Bangladesh.

◉ **Course:** It flows southward through steep and rugged terrain, eventually turning southeast. It cuts through the **Siwalik Hills** and the **Sivok Khola pass** before entering the plains of West Bengal.

◉ Originally, the Teesta River emptied directly into the upper **Padma River (Ganges).** However, around 1787, it shifted its course to flow eastward and join the Jamuna River in Bangladesh.

◉ **Major Tributaries:**

➤ **Left-bank Tributaries:** Lachung Chhu, Chakung Chhu, Dik Chhu, Rani Khola, Rangpo Chhu.

➤ **Right-bank Tributaries** - Zemu Chhu, Rangyong Chhu, Rangit River

◉ The Teesta-III project is located in the **Mangan district of Sikkim**, utilizing the drop in the Teesta River between **Chungthang and Sankalang villages.**

### UPSC PYQ

**Q:** **With reference to river Teesta, consider the following statements: (2017)**

(1) The source of river Teesta is the same as that of Brahamputra but it flows through Sikkim

(2) River Rangeet originates in Sikkim and it is a tributary of river Teesta.

(3) River Teesta flows into Bay of Bengal on the border of India and Bangladesh.

**Which of the statements given above is/are correct?**

(a) 1 and 3 only    (b) 2 only

(c) 1 and 3 only    (d) 1, 2 and 3

## COAL DUST

### Context:

A recent study in Jharsuguda, Odisha, has highlighted the harmful effects of coal mining dust on local vegetation. The research, using satellite data, shows how dust from open-cast coal mining harms plant growth and carbon absorption.

### What is Coal Dust?

◉ Coal dust is a fine **particulate matter** produced during mining activities, such as blasting rocks, drilling, and transporting coal. It settles on nearby vegetation, affecting their ability to function.

◉ **Impact of Coal Dust on Vegetation:**

➤ **Reduced Carbon Absorption**: Dust blocks the **pores (stomata)** on plant leaves, preventing effective absorption of carbon dioxide, which impacts photosynthesis.

♦ Plants with 1 gram of dust absorb 2-3 grams less carbon per square meter of area.

➤ **Temperature Regulation Disruption**: Dust prevents plants from releasing water vapor, causing them to overheat and impair photosynthesis, leading to stunted growth or plant death.

## OLIVE RIDLEY TURTLES (LEPIDOCHELYS OLIVACEA)

### Context

The Olive Ridley turtles, an endangered species, skipped mass nesting at the **Rushikulya river mouth** in Odisha's Ganjam district in 2024. Experts now predict a larger number of Olive Ridley turtles will lay eggs there in 2025.

### Olive Ridley Turtles (*Lepidochelys olivacea*)

◉ **Size**: 62-70 cm in length; weight 35-45 kg

◉ **Habitat**: Found in the warm waters of the Pacific, Atlantic, and Indian oceans

◉ **Diet**: Omnivorous (feeds on both plants and animals)

◉ **Behavior**: Known for mass nesting (arribada) where thousands of females nest together on the same beach

◉ **Conservation Status**: Vulnerable (IUCN Red List), Schedule 1 (Wildlife Protection Act, 1972), Appendix I (CITES)

◉ **Mass Nesting Locations:** Major nesting sites for Olive Ridley turtles in Odisha include:

➤ **Rushikulya river mouth** (Ganjam district)

➤ **Gahirmatha** (Kendrapara district) – world's largest rookery

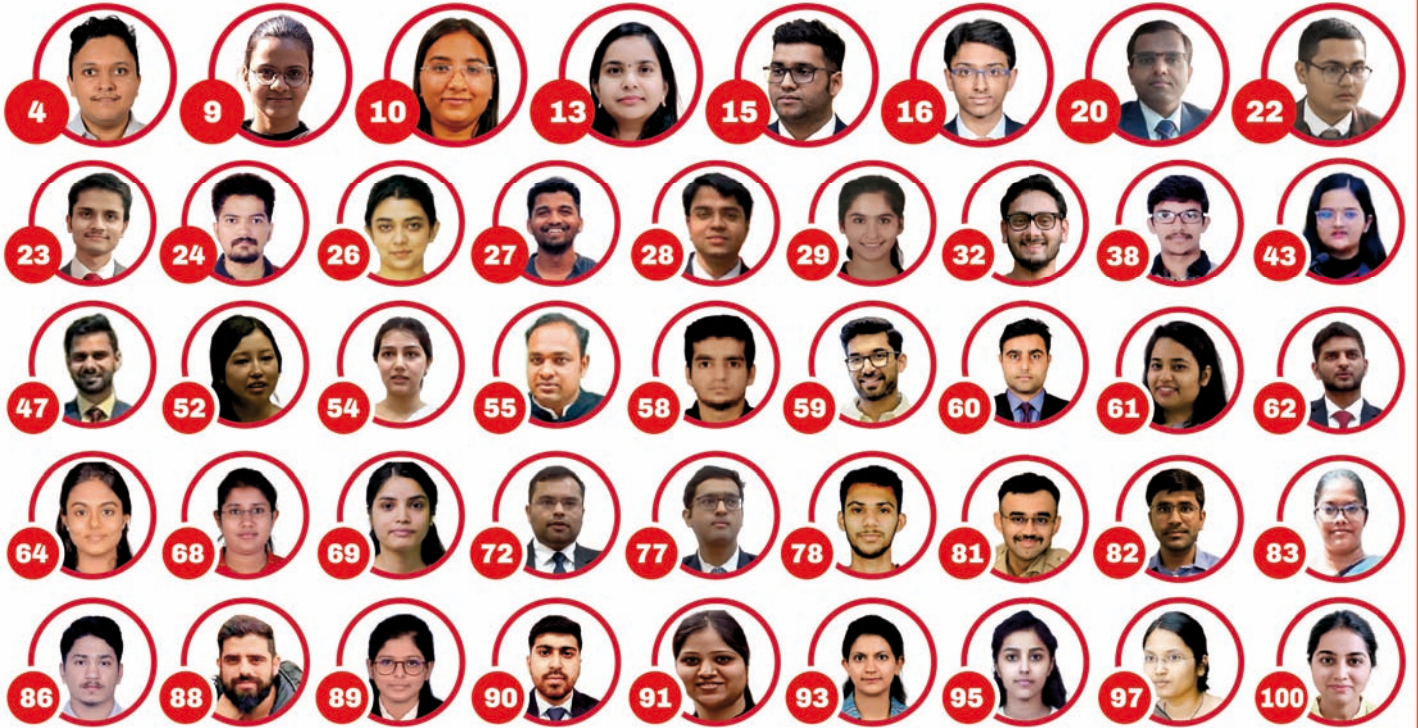➤ **Deve river mouth** (Puri district)

### Rushikulya Rookery

◉ **Location**: Odisha, Ganjam district, at the mouth of the Rushikulya river

◉ **Significance**: One of India's major mass nesting sites for Olive Ridley turtles

◉ **Preparation for Nesting**:

➤ Beach cleaned from November 2024.

➤ Green fencing around the nesting site to avoid disturbance.

➤ Fishing banned within 20 km from the site (Nov 1 to May 31).

➤ Patrolling by forest staff, Coast Guard, marine police, and fisheries department.

# GS SCORE
**An Institute for Civil Services**

## CSE RESULT

Scan QR Code for detailed RESULT

## TOP 100 ALL INDIA RANKING CSE 2023



4, 9, 10, 13, 15, 16, 20, 22

23, 24, 26, 27, 28, 29, 32, 38, 43

47, 52, 54, 55, 58, 59, 60, 61, 62

64, 68, 69, 72, 77, 78, 81, 82, 83

86, 88, 89, 90, 91, 93, 95, 97, 100

## TOP 100 ALL INDIA RANKING CSE 2022

1, 2, 3, 11, 12, 13, 15, 16, 18, 22

26, 33, 34, 37, 42, 46, 48, 56, 57, 58, 60, 62

65, 66, 68, 72, 73, 75, 77, 83, 86, 87, 91, 98

## TOP 100 ALL INDIA RANKING CSE 2021

02, 04, 07, 12, 24, 25, 29, 31

32, 43, 44, 45, 46, 49, 52, 53, 54

66, 67, 68, 80, 83, 89, 92, 93, 95