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# Weekly EXPECTED CURRENT AFFAIRS

for

## IAS EXAMINATION



From

11<sup>th</sup> May to 16<sup>th</sup> May 2026

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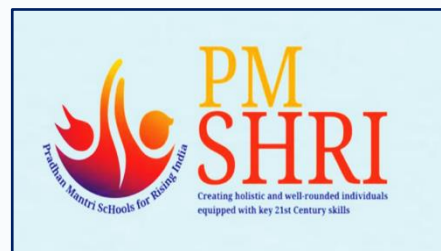
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## 1.1. PM SHRI

### Context:

Recently, the Union Ministry of Education reminded West Bengal, Kerala, and Tamil Nadu to implement the PM SHRI scheme, as 34 other States and UTs have already adopted the initiative and the five-year programme has entered its third year.



### 1. Inter-State Cooperation in Education: The PM SHRI Implementation Push

#### I. Current Status of Implementation

- **West Bengal:** The state is yet to sign the **Memorandum of Understanding (MoU)** required for the scheme, despite receiving 11 letters from the Centre since 2022.
- **Kerala:** As of November 12, 2025, the state government has kept the MoU in abeyance while a committee examines specific implementation concerns.
- **Tamil Nadu:** Although the state provided an undertaking to introduce the scheme for the 2024-25 academic session, the process remains incomplete despite 12 official requests from the Union Government.

#### II. Implications of the Delay

- **Hindered NEP Goals:** The delay affects the intended strengthening of the education system through the National Education Policy (NEP) 2020 framework.
- **Time Constraints:** Launched in September 2022 as a **five-year initiative**, the Ministry has warned that only a limited duration is left to complete the selection and development of these schools.

### 2. About PM SHRI Scheme

The **PM SHRI (Pradhan Mantri Schools for Rising India)** is a Centrally Sponsored Scheme aimed at creating "exemplary schools" that showcase the implementation of the National Education Policy 2020.

#### I. Key Features

- **Objective:** To transform more than **14,500 schools** across the country into high-quality educational institutions.
- **Green Schools:** These institutions are developed as "Green Schools," incorporating environment-friendly aspects like solar panels, LED lights, natural farming, and waste management.
- **Facilities:** They have best-in-class modern facilities, including Smart Classrooms, Computer Labs, Integrated Science Labs, Vocational Labs/Skill Labs, and Atal Tinkering Labs.
- **Mentorship:** PM SHRI schools are intended to provide leadership to other schools in their respective regions by providing mentorship and sharing best practices.

- **Schools Eligible Under PM SHRI Scheme:**

- Schools run by Central Governments, State Governments, Union Territories, and local bodies are eligible.
- All non-project Kendriya Vidyalaya Sangathan schools and Navodaya Vidyalaya Samiti schools operating from permanent buildings are also eligible.

## II. Governance and Funding

- **Nature:** It is a **Centrally Sponsored Scheme**, meaning the cost is shared between the Central and State/UT governments.
- **Funding:**
  - The funding pattern is 60:40 between Centre and State Governments and UTs with legislature (except J&K).
  - The sharing pattern is 90:10 for North Eastern and Himalayan States and UT of J&K and 100% central funding for the Union Territories without legislature.
- **Duration:** Initially planned as a five-year initiative starting from **2022-23 to 2026-27**.
- **Nodal Ministry:** Ministry of Education.

### National Education Policy (NEP) 2020

The NEP 2020 envisions transforming India into a global knowledge hub and represents the third major overhaul of the education system since Independence, after the policies of 1968 and 1986.

#### Key Features:

- **Restructuring Schooling (5+3+3+4):** The policy replaces the old 10+2 structure with a new pedagogical and curricular structure consisting of the Foundational (ages 3-8), Preparatory (8-11), Middle (11-14), and Secondary (14-18) stages.
- **Emphasis on Foundational Literacy and Numeracy:** A top priority is ensuring that every child achieves basic reading and math skills by Grade 3, recognizing these as the "prerequisites for all future learning."
- **Multilingualism and Mother Tongue:** The NEP advocates for the medium of instruction to be in the home language, mother tongue, or local/regional language at least until Grade 5, and preferably until Grade 8.
- **Holistic and Multidisciplinary Higher Education:** It introduces a flexible four-year undergraduate program with multiple entry and exit points (certificate after 1 year, diploma after 2, etc.) and moves away from rigid silos between "Arts," "Sciences," and "Commerce."

### Q. Consider the following statements regarding the PM SHRI Scheme:

1. PM SHRI schools are developed in line with the objectives of the National Education Policy (NEP) 2020.
2. The scheme provides 100% central funding to all States and Union Territories.

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

**Answer:** (a) 1 only

**Explanation:**

**Statement 1 is correct:** PM SHRI aims to create model schools aligned with NEP 2020.

**Statement 2 is incorrect:** Funding is shared in different ratios depending on the category of State/UT.

## 1.2. NATIONAL TESTING AGENCY (NTA)

### Context

The National Testing Agency (NTA) has come under intense scrutiny following the cancellation and scheduled re-test of the National Eligibility-cum-Entrance Test (NEET) due to allegations of paper leaks, impersonation, and systemic "lax operational capacity". Experts are currently calling for deep structural reforms, including a shift toward digital testing and a decentralized admission process to plug security vulnerabilities.



### 1. Structural Reforms in Examination Bodies: The NTA Controversy

#### I. Identified Systemic Vulnerabilities

- **Physical Logistics:** The manual printing, distribution, and physical storage of question papers for over 24 lakh candidates create multiple points of vulnerability where leaks can occur.
- **Cybersecurity & Communication:** Current systems are criticized for having "porous cybersecurity" and poor crisis communication during operational failures.
- **The "Paper-and-Pen" Mode:** The traditional offline mode is increasingly seen as outdated and easier to compromise compared to encrypted, computer-based platforms.

#### II. Proposed Reform Measures

- **Transition to Digital/Hybrid Models:** Implementing computer-based platforms where distribution is fully encrypted.
- **Decentralization:** Moving away from a single, massive nationwide exam toward a system that allows multiple attempts per year and decentralized admissions.
- **Legal Deterrence:** Utilization of the **Public Examinations (Prevention of Unfair Means) Act, 2024**, which criminalizes paper leaks, organized cheating, and impersonation.

#### Public Examinations (Prevention of Unfair Means) Act, 2024

- Under Section 2(k), a Public Examination is defined as any examination conducted by a "public examination authority".
- **Punishment for offences:** All offences under this Act, shall be cognizable, non-bailable and non-compoundable.
  - **Cognizable offence:** Police can investigate and arrest without prior magistrate approval.

- **Non-compoundable offence:** Case cannot be withdrawn even after compromise; trial is mandatory.
- **Non-bailable offence:** Bail is not a right; it depends on the magistrate's decision.
- **Inquiry and investigation:** An officer not below the rank of Deputy Superintendent of Police or Assistant Commissioner of Police shall investigate any offence under this Act

## 2. About the National Testing Agency (NTA)

- **Establishment:** The NTA was approved by the Union Cabinet in 2017 as an autonomous and self-sustained premier testing organization.
- **Registration:** It is registered as a **Society** under the **Societies Registration Act, 1860**.
- **Mandate:** Its primary goal is to conduct efficient, transparent, and international-standard tests to assess the competency of candidates for admission to premier higher education institutions. It took over exam responsibilities (like NEET and JEE) from the CBSE in 2019.

## 3. Governance Structure

The NTA is governed by a multi-layered body to ensure professional management:

- **Chairman:** An eminent educationist appointed by the Ministry of Education.
- **Governing Body:** Comprises a CEO (Director General) and representatives from various premier institutions, including:
  - Directors of select **IITs** and **IIMs**.
  - Representatives from the **UGC** (University Grants Commission).
  - Representatives from the **AICTE** (All India Council for Technical Education).
  - Members from the **Ministry of Health and Family Welfare** (specifically for medical exams).
- **Director General (DG):** Appointed by the Government for a fixed tenure; acts as the Chief Executive Officer responsible for day-to-day administration.

## Q. Consider the following statements regarding the National Testing Agency (NTA) and the Public Examinations (Prevention of Unfair Means) Act, 2024:

1. The National Testing Agency (NTA) was established as a statutory body under an Act of Parliament.
2. The Public Examinations (Prevention of Unfair Means) Act, 2024 makes offences related to paper leaks and organized cheating non-bailable.
3. The NTA took over the responsibility of conducting examinations like NEET and JEE from CBSE in 2019.

### Which of the statements given above are correct?

- (a) 2 and 3 only
- (b) 1 and 2 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

**Answer: (a)**

### Explanation:

- Statement 1 is incorrect: NTA is registered as a **Society under the Societies Registration Act, 1860**, not a statutory body.
- Statement 2 is correct: Offences under the 2024 Act are **cognizable, non-bailable, and non-compoundable**.
- Statement 3 is correct: NTA took over exams like **NEET and JEE from CBSE in 2019**.

## 1.3. LIVING WAGE

### Context

Recently, a two-judge Bench of the Supreme Court of India, comprising Justice B.V. Nagarathna and Justice Ujjal Bhuyan, rebuked the Uttar Pradesh government for detaining workers under stringent laws like the National Security Act following wage protests in Noida, strongly declaring that the State's core duty is to ensure a "living wage" under the Directive Principles of State Policy rather than branding demanding workers as "terrorists" or "left-wing sympathisers."



### 1. Core Concepts: The Wage Hierarchy

To correctly answer conceptual questions in the Prelims, it is essential to understand the distinction between different categories of wages as evolved through Indian jurisprudence and international definitions.

#### I. Minimum Wage

- **Definition:** It is the bare minimum amount of compensation that an employer is legally mandated to pay an employee to prevent absolute exploitation.
- **Scope:** It primarily covers the absolute essentials required for the literal survival of the worker and their family, focusing on basic sustenance like minimal food, clothing, and shelter.
- **Evolution in India:** Historically governed by the **Minimum Wages Act of 1948**, its calculation was traditionally guided by the 15th Indian Labour Conference (1957) and the landmark Supreme Court judgment in the *Reptakos Brett* case (1991), which added educational, medical, and recreational requirements equivalent to 25% of the total wage calculation.

#### II. Fair Wage

- **Definition:** It represents a mean position that lies above the minimum wage but remains below the living wage.
- **Determinants:** The lower limit of a fair wage is always anchored by the minimum wage, whereas its upper limit is determined by the financial capacity of the specific industry to pay its workforce. It balances the cost of living with the profitability of business enterprises.

#### III. Living Wage

- **Definition:** According to the **International Labour Organization (ILO)**, a living wage is the wage level necessary to afford a decent standard of living for workers and their families, calculated for work performed during normal hours.

- **Scope:** It goes significantly beyond mere physical survival. It includes food, clothing, and housing, while explicitly incorporating long-term well-being elements such as healthcare, quality education, social security, transport, and a basic level of savings for unforeseen contingencies.

## 2. Institutional Framework and International Alignment

### I. The International Labour Organization (ILO) Initiative

- The Governing Body of the ILO formally endorsed the principles of estimating living wages during its institutional sessions.
- India is a founding member of the ILO and a permanent member of its Governing Body since 1922, and it has sought technical assistance from the ILO to build data-gathering capacities and establish an objective methodology to measure regional costs of living across different states.

### II. Constitutional Provisions in India

The concept of a living wage is deeply embedded in the Directive Principles of State Policy (DPSP) under Part IV of the Constitution of India:

- **Article 43:** It explicitly states that the State shall endeavour to secure, by suitable legislation or economic organisation, to all workers a **living wage**, conditions of work ensuring a decent standard of life, and full enjoyment of leisure and social-cultural opportunities.

### 3. Key Provisions under the Code on Wages

The Code on Wages consolidates four major legacy acts: the Minimum Wages Act, 1948; the Payment of Wages Act, 1936; the Payment of Bonus Act, 1965; and the Equal Remuneration Act, 1976.

Feature	Details and Statutory Mechanisms
<b>Universal Coverage</b>	The statutory right to minimum wages is extended to all employees across both organised and unorganised sectors, replacing the old system which only covered ~30% of scheduled employments.
<b>National Floor Wage</b>	The Central Government will determine a National Floor Wage based on minimum living standards. State Governments cannot fix their regional minimum wages below this centralized baseline.
<b>Criteria for Fixation</b>	Wages are rationalized according to the skill levels of employees (unskilled, semi-skilled, skilled, highly skilled), geographical terrain, and working conditions.
<b>Gender Non-Discrimination</b>	The code strictly prohibits discrimination on the grounds of gender, explicitly including transgender identity, regarding recruitment and wage payment for similar work.
<b>Digital Enforcement</b>	Mandatory electronic wage slips and direct bank transfers are institutionalized to create verifiable financial footprints for unorganised workers.

**Q. Consider the following statements regarding the wage framework in India:**

**STATEMENT I:** The concept of a 'Living Wage' is a statutory right extended to all citizens under the fundamental rights of the Indian Constitution.

**STATEMENT II:** A 'Fair Wage' represents an economic threshold that lies between the floor of a minimum wage and the ceiling of a living wage, and its upper limit is bounded by the financial capacity of the industry to pay.

**Which one of the following is correct in respect of the above statements?**

- (a) Both Statement I and Statement II are correct and Statement II is the correct explanation for Statement I
- (b) Both Statement I and Statement II are correct and Statement II is not the correct explanation for Statement I
- (c) Statement I is correct but Statement II is incorrect
- (d) Statement I is incorrect but Statement II is correct

**Answer: (d)**

- **STATEMENT I IS INCORRECT:** The concept of a 'Living Wage' is not explicitly guaranteed as an enforceable Fundamental Right under Part III of the Constitution. Instead, it is a non-justiciable constitutional directive enshrined under **Article 43** of the Directive Principles of State Policy (DPSP) in Part IV, which mandates that the State shall endeavour to secure a living wage for all workers.
- **STATEMENT II IS CORRECT:** A 'Fair Wage' is conceptually defined as a progressive wage scale that settles above the bare survival line of a minimum wage but falls short of a comprehensive living wage. As defined by Indian labour jurisprudence, its lower limit is anchored by the minimum wage, while its upper boundary depends entirely on the financial capacity and profitability of the employing industry.

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# INTERNATIONAL RELATIONS

## 2.1. MARITIME SECURITY AND THE INDIAN OCEAN RIM ASSOCIATION (IORA)

### Context:

As India chairs the **Indian Ocean Rim Association (IORA)**, the organization is focusing on maritime safety and security amidst rising geopolitical tensions in West Asia (including the Red Sea and Hormuz Strait).



### 1. Key Highlights

- **Security Concerns:** Recent disruptions, including blockades and missile attacks, threaten energy and food security for littoral nations.
- **Economic Impact:** Disrupted sea lanes lead to increased fuel prices, airline disruptions (affecting tourism), and fertilizer shortages (impacting agriculture).
- **Strategic Dialogue:** The "Indian Ocean Dialogue" (Track 1.5) was recently co-hosted by India and the IORA Secretariat to address socio-economic impacts of regional conflicts.
- **Membership Dynamics:** Pakistan is notably absent from the grouping; its membership was previously blocked due to a failure to grant India "Most Favoured Nation" (MFN) status, violating IORA's charter of sovereign equality.

### 2. Indian Ocean Rim Association (IORA)

- **Established:** March 1997 (Originally known as the Indian Ocean Rim Initiative).
- **Visionary Leader:** Inspired by a concept proposed by **Nelson Mandela**.
- **Headquarters:** Ebene, **Mauritius**.
- **Composition:** Currently consists of **23 Member States** and 12 Dialogue Partners.
- **Governance:** IORA Council of Ministers: Highest decision making body comprised of the Minister of Foreign Affairs (or equivalent) of all Member States which meets annually.
- **The Charter:** Emphasizes sovereign equality, territorial integrity, and peaceful coexistence. It explicitly excludes controversial bilateral issues from its formal deliberations.
- **Priority Areas:**
  1. Maritime Safety & Security
  2. Trade & Investment Facilitation
  3. Fisheries Management
  4. Disaster Risk Management
  5. Academic, Science & Technology
  6. Tourism & Cultural Exchanges
  7. Blue Economy
  8. Women's Economic Empowerment

**Q. With reference to the Indian Ocean Rim Association (IORA), consider the following statements:**

1. It was established based on a proposal by Nelson Mandela in 1997.
2. Its headquarters are located in Jakarta, Indonesia.
3. Pakistan is one of the founding members of the association.

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

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

**Answer: (a)**

**Explanation:**

**Statement 1 is correct:** The concept of IORA was indeed inspired by **Nelson Mandela** during his visit to India in 1995, where he proposed the idea of a maritime grouping. It was formally established in **March 1997**.

**Statement 2 is incorrect:** The Coordinating Secretariat (Headquarters) of the IORA is located in **Ebene, Mauritius**, not Jakarta. Indonesia hosted the first-ever IORA Summit in 2017, but it is not the permanent headquarters.

**Statement 3 is incorrect: Pakistan is not a member** of the IORA. As highlighted in the article, Pakistan's application for membership was historically blocked, primarily because it did not fulfill the criteria of "sovereign equality" by refusing to grant **Most Favoured Nation (MFN)** status to India.

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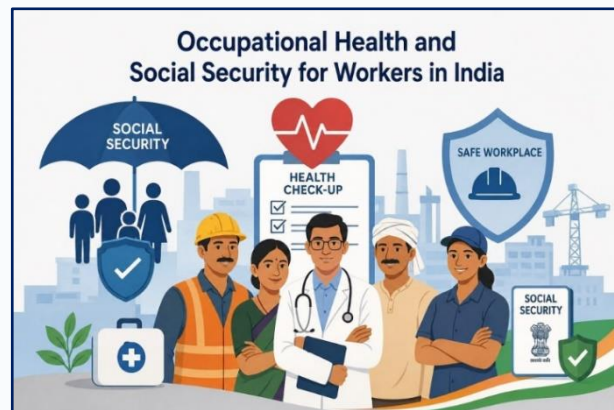


**Prelims Test Series**

## 3.1. OCCUPATIONAL HEALTH AND SOCIAL SECURITY FOR WORKERS IN INDIA

### Context

Recently, the Union Ministry of Labour and Employment has announced a program to provide **free annual health check-ups** for workers aged 40 years and above. This initiative is rooted in the provisions of the new **Labour Codes** and is implemented via the **Employees' State Insurance Corporation (ESIC)**.



### I. Key Features of the Initiative

- **Target Group:** Workers aged 40 years or older.
- **Mandatory Provision:** Check-ups are compulsory for workers in **hazardous conditions** (e.g., handling toxic chemicals, operating heavy machinery).
- **Treatment:** If an illness is detected during the check-up, treatment will be provided free of cost at ESIC hospitals and dispensaries.
- **Funding:** Financed through the **ESI Fund**, supplemented by beds and doctors from **PM-JAY** (Ayushman Bharat) empanelled facilities.

### II. Legislative Framework for Worker Health in India

1. **Factories Act, 1948:** Focuses on health and safety within factory premises.
2. **ESI Act, 1948:** Provides for health insurance and medical benefits.
3. **Occupational Safety, Health and Working Conditions (OSH) Code, 2020:** Consolidates laws relating to safety and health standards.

### III. Key Government Schemes at a glance

#### 1. Employees' State Insurance (ESI) Scheme

- **Type:** A multidimensional Social Security System tailored to provide socio-economic protection to the worker population.
- **Statutory Body:** Managed by the **ESIC**, a statutory body under the Ministry of Labour and Employment.
- **Applicability:** Generally applies to factories and establishments employing 10 or more persons.
- **Funding:** Contributory scheme (both employer and employee contribute a percentage of wages).

#### 2. e-Shram Portal

- **Ministry:** Launched by the Ministry of Labour and Employment on 26th August 2021.

- **Aims and objective:** It is designed to create a comprehensive centralised National Database of Unorganised Workers (NDUW).
- **Benefits:** Helps in delivering social security benefits to migrant workers, construction workers, gig workers, etc. It assigns a **Universal Account Number (UAN)**.
- **Significance:** It serves as a single-point reference for the government to reach out to the informal sector during crises or for welfare distribution.
- **Eligibility for Registering on E-Shram Portal**
  - **Age:** Between 16 and 59 years.
  - Not be a member of the Employees' Provident Fund Organization (EPFO) or Employees' State Insurance Corporation (ESIC).

### 3. Pradhan Mantri Jan Arogya Yojana (PM-JAY)

- **Component of:** Ayushman Bharat.
- **Objective:** Provides a health cover of **Rs. 5 lakhs per family per year** for secondary and tertiary care hospitalization.
- **Target:** Bottom 40% of the poor and vulnerable population based on SECC 2011 data.
- **Coverage:** ₹5 lakh per year per family (no limit on family size or age).
- **Update (2024-25):** Coverage expanded to senior citizens above 70 years of age, benefiting 6 crore more people.

### 4. Occupational Safety, Health and Working Conditions Code, 2020

- **Consolidation:** It subsumes 13 central labour laws.
- **Provision for Health:** Mandates the setting up of **National and State Occupational Safety and Health Advisory Boards**.
- **Applicability:** Broadened to include establishments with 10 or more workers, and all mines and docks.
- **Women-centric:** Can work all hours with consent and transport; crèche mandatory for establishments with 50+ workers (gender-neutral now).
- **Safety committees:** Mandatory for factories (500+ workers), mines (100+).

#### Q. Consider the following statements regarding the Employees' State Insurance (ESI) Scheme:

1. It is administered by the Employees' State Insurance Corporation (ESIC).
2. It is a non-contributory welfare scheme fully financed by the government.
3. It generally applies to establishments employing 10 or more persons.

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

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

**Answer: B**

**Explanation:**

**Statement 1 is correct:** The ESI Scheme is indeed administered by the **Employees’ State Insurance Corporation (ESIC)**. This is a statutory body established under the **ESI Act, 1948**, and it functions under the Ministry of Labour and Employment.

**Statement 2 is incorrect:** The ESI Scheme is **not** a non-contributory welfare scheme. It is a **self-financing, contributory** social security scheme. The funds are primarily generated from contributions made by both the **employer** and the **employee** as a fixed percentage of the employee's wages. The government does not fully finance the scheme, although it may provide administrative support or specific grants for infrastructure.

**Statement 3 is correct:** The ESI Act generally applies to factories and other specified establishments (like hotels, restaurants, cinemas, and road-motor transport undertakings) that employ **10 or more persons**. Note that in some states, this threshold for certain types of establishments may be 20, but the standard benchmark under the Act is 10.

**3.2. STRATEGIC PETROLEUM RESERVES: SECURING INDIA’S ENERGY FRONTIER**

**Context**

- Amidst escalating geopolitical tensions in **West Asia**, the Government of India recently reviewed the country's energy preparedness. The government has reassured that India maintains a robust cushion with **60 days of crude oil reserves, 60 days of natural gas, and 45 days of LPG rolling stock**, supported by a strong **Foreign Exchange (Forex) reserve** of approximately **\$703 billion** (as of early 2026).



**1. India’s Strategic Petroleum Reserve (SPR) Programme**

The SPR programme was conceptualized to safeguard the nation against external supply shocks, inspired by the 1991 Gulf War crisis.

**I. Institutional Framework**

- Managing Entity:** The reserves are managed by **Indian Strategic Petroleum Reserves Limited (ISPRL)**.
- Nature of Entity:** ISPRL is a Special Purpose Vehicle (SPV) and a wholly-owned subsidiary of the **Oil Industry Development Board (OIDB)** under the **Ministry of Petroleum & Natural Gas**.
- Storage Technology:** Crude oil is stored in massive **underground unlined rock caverns**, which are safer and more cost-effective than above-ground tanks.

**2. Phase-wise Development**

Phase	Location	State
Phase I	Visakhapatnam	Andhra Pradesh
	Mangaluru	Karnataka
	Padur	Karnataka

Phase II	Chandikhol	Odisha
	Padur (Expansion)	Karnataka

### 3. Important Points

- **IEA Standards:** The International Energy Agency (IEA) recommends member countries hold emergency oil stocks equivalent to at least **90 days** of net imports. India, an associate member, is moving towards this benchmark.

#### About IEA

- It is an autonomous intergovernmental organization established in 1974, headquartered in Paris, France, to ensure reliable, affordable, and clean energy.
- It operates within the framework of the Organization for Economic Co-operation and Development (OECD).
- **Key Publications:** World Energy Outlook, World Energy Investment, Net Zero by 2050.
- **Membership:** Full membership was historically open only to OECD nations. IEA currently has 32 full members.
- **Association Countries:** 13 countries, including India, China, Brazil, and South Africa. These countries participate in discussions but lack decision-making rights.

### 4. Oil Reserve Storage: USA vs India

- The United States stores its Strategic Petroleum Reserve (SPR) in **underground salt caverns** created **inside naturally** occurring salt domes.
- These caverns are located mainly along the **Gulf Coast** in states like Texas and Louisiana.
- The U.S. has the world's largest SPR capacity.
- **In India:** Uses **engineered hard rock caverns** beneath the ground.

#### Q. With reference to the International Energy Agency (IEA), consider the following statements:

1. It was established in 1974 and is headquartered in Paris.
2. It operates within the framework of the OECD.
3. India is a full member of the IEA with voting rights.

Which of the statements given above is/are correct?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 only
- D. 1, 2 and 3

**Answer: A**

**Explanation:**

**Statement 1 is correct:** The International Energy Agency (IEA) was established in **1974** in the aftermath of the global oil crisis and is headquartered in **Paris, France**.

**Statement 2 is correct:** The IEA functions within the institutional framework of the **Organisation for Economic Co-operation and Development (OECD)**.

**Statement 3 is incorrect:** India is **not a full member** of the IEA. India is an **Association Country**, which allows participation in discussions and cooperation, but without formal decision-making or voting rights.

### 3.3. HIGHEST-EVER RENEWABLE ENERGY EXPANSION IN INDIA

#### Context

In a significant milestone for India's energy transition, the **Union Ministry of New and Renewable Energy (MNRE)** recently confirmed that India added a record **44 gigawatts (GW)** of solar capacity in the calendar year 2025. This surge has catapulted India's total installed solar capacity to **150 GW**, reinforcing its position as the world's **third-largest**



solar power producer. The growth is primarily attributed to robust policy interventions and decentralized solar missions.

#### 1. Major Growth Drivers

The Ministry highlighted three primary schemes that acted as catalysts for this record-breaking year:

- **PM Surya Ghar: Muft Bijli Yojana:**
  - **Objective:** To provide free electricity (up to 300 units) to **1 crore households** by installing rooftop solar.
  - **Subsidy:** Offers up to 40% subsidy for systems up to 3 kW.
- **Production Linked Incentive (PLI) Scheme:**
  - **Focus:** "National Programme on High-Efficiency Solar PV Modules."
  - **Goal:** To reduce import dependence (especially from China) by incentivizing domestic manufacturing of solar cells and modules.
- **PM-KUSUM:**
  - **Focus:** De-dieselizing the agricultural sector by providing solar pumps and solarizing existing grid-connected pumps.

#### 2. Alignment with National & International Targets

- **Panchamrit Targets (COP26):** India aims to reach **500 GW of non-fossil fuel** energy capacity by 2030.
- **NDC Achievement:** India has already achieved its commitment to have **50% of its installed electricity capacity** from non-fossil sources in 2025, five years ahead of the 2030 deadline.
- **Energy Mix:** Solar now contributes approximately **53%** of India's total Renewable Energy (RE) segment.

### 3. Global Renewable Energy Installed Capacity

Country	Capacity (GW)
China	2258.02
USA	467.92
<b>India</b>	<b>250.52</b>
Brazil	228.20
Germany	199.92
Japan	134.53
Canada	110.51
<b>World</b>	<b>5149.28</b>

### 4. Renewable Energy Installed Capacity – Sector-wise (GW)

**Data Reference:** Late 2025 (PIB/MNRE)

Detailed Capacity Table

Sector	Installed Capacity (GW)
<b>Solar Power</b> (a)	132.85
<b>Wind Power</b> (b)	53.99
<b>Bio Energy</b> (c)	11.61
<b>Small Hydro</b> (d)	5.16
Hybrid / RTC / FDRE (e)	---
<b>Sub-Total (Renewables excl. Large Hydro)</b> (f = a+b+c+d+e)	<b>203.61</b>
<b>Large Hydro</b> (g)	50.35
<b>Total RE</b> (f + g)	<b>253.96</b>
<b>Nuclear Power</b> (h)	8.78
<b>Total Non-Fossil Fuel</b> (f + g + h)	<b>262.74</b>

### 5. All India Electricity Installed Capacity

**Data as of:** November 30, 2025

Sector	Capacity (in GW)	Percentage (%)
<b>Thermal</b> (a)	246.90 GW	48.45%
<b>Nuclear</b> (b)	8.78 GW	1.72%
<b>Renewable Energy</b> (including large Hydro) (c)	253.96 GW	49.83%

<b>Sub-Total (Non-Fossil Fuel) (b + c)</b>	<b>262.74 GW</b>	<b>51.55%</b>
<b>Total (a + b + c)</b>	<b>509.64 GW</b>	<b>100%</b>

**Q. Consider the following statements regarding India's renewable energy sector:**

1. Solar power accounts for the largest share in India's renewable energy installed capacity.
2. India became the world's second-largest producer of solar power in 2025.

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

**Answer: (a)**

**Explanation:**

- Statement 1 is correct: Solar power has the highest installed renewable energy capacity in India.
- Statement 2 is incorrect: India is the **world's third-largest** solar power producer, not second-largest.

### 3.4. WORKER POPULATION RATIO (WPR)

#### Context

Recently, the Periodic Labour Force Survey (PLFS) 2025, released by MoSPI, provided monthly rural and urban labour market data for January–December 2025. The report shows rising employment and labour force participation, while highlighting continuing challenges in female and youth unemployment.



#### 1. India's Labour Market Dynamics: PLFS 2025 Insights

##### I. Key Indicators: LFPR and WPR

- **Labour Force Participation Rate (LFPR):** The overall LFPR for all ages stands at **44.9%**.
- **Gender Gap:** Male participation is significantly higher at **59.7%** in urban areas, whereas urban female participation remains low at **22.2%**.
- **Worker Population Ratio (WPR):** This ratio has seen a steady climb from **39.7% in 2022 to 43.5% in 2025**.
- **Rural Female WPR:** A notable increase has been recorded in rural areas, where the female WPR rose from **26.9% to 33.8%** over the same period.

##### II. The Unemployment Challenge

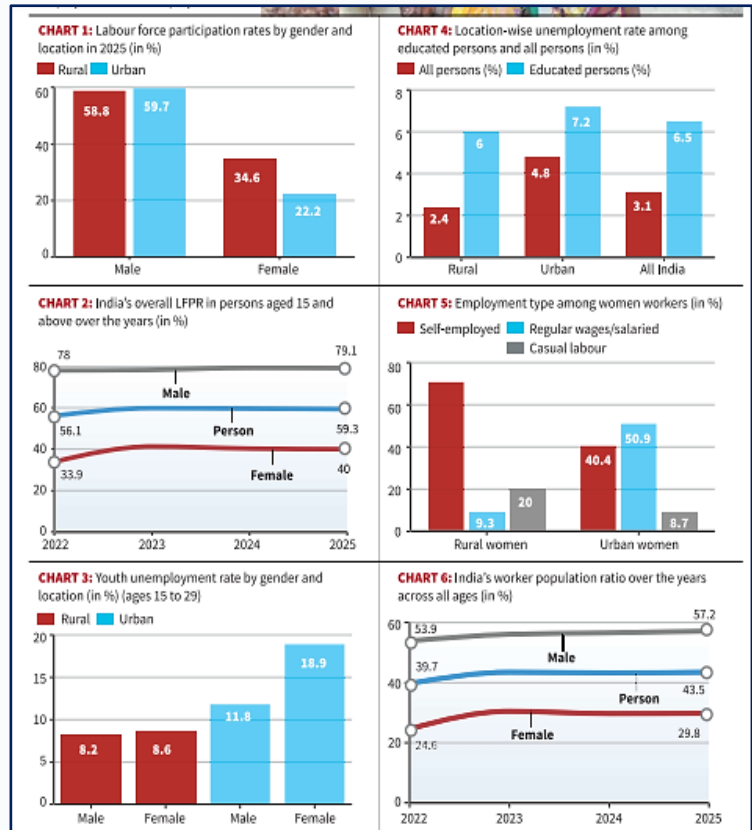
- **General Rate:** The overall unemployment rate has fallen from **3.6% in 2022 to 3.1% in 2025**.

- **Youth Unemployment (Ages 15-29):** Stands at **9.9%**, which is more than three times the national average.

○ The situation is most acute for **urban young women**, with an unemployment rate of **18.9%**.

- **Educated Unemployment:** Persons with secondary schooling and above face a **6.5%** unemployment rate.

○ In urban areas, this figure reaches **7.2%**, suggesting that job creation has not yet matched the growth of the educated workforce.



### III. Nature of Employment

- **Self-Employment:** Highly prevalent in rural areas, especially among women (**70.7%**), often reflecting subsistence activities.

- **Regular Wage/Salaried Work:** Urban areas offer better distribution, with **50.9%** of working women in regular wage employment compared to only **9.3%** in rural areas.

## 2. Defining Key Terms

- **Labour Force Participation Rate (LFPR):** Defined as the percentage of persons in the labour force (those working or seeking work) out of the total population.
- **Worker Population Ratio (WPR):** Defined as the percentage of employed persons out of the total population.
- **Unemployment Rate (UR):** The percentage of persons unemployed among the persons in the labour force (it does **not** include those who are not looking for work).

## 3. About the Periodic Labour Force Survey (PLFS)

- **Nodal Agency:** National Statistical Office (NSO) under the **Ministry of Statistics and Programme Implementation (MoSPI)**.
- **Objectives:**
  1. To estimate key employment and unemployment indicators (WPR, LFPR, UR) in the short time interval of three months for the **urban areas** only in the 'Current Weekly Status' (CWS).
  2. To estimate employment and unemployment indicators in both **rural and urban areas** annually in both 'Usual Status' and CWS.

**Q. Consider the following statements regarding the Periodic Labour Force Survey (PLFS):**

1. The PLFS is conducted by the National Statistical Office (NSO) under the Ministry of Statistics and Programme Implementation.
2. Worker Population Ratio (WPR) refers to the percentage of unemployed persons in the labour force.
3. Labour Force Participation Rate (LFPR) includes both employed persons and those seeking work.

Which of the statements given above are correct?

- (a) 1 and 3 only
- (b) 2 and 3 only
- (c) 1 and 2 only
- (d) 1, 2 and 3

**Answer: (a)**

**Explanation:**

- **Statement 1 is correct:** PLFS is conducted by the **NSO under MoSPI**.
- **Statement 2 is incorrect:** WPR refers to the **percentage of employed persons out of the total population**.
- **Statement 3 is correct:** LFPR includes persons who are **working or seeking work**.

### 3.6. MINIMUM SUPPORT PRICE (MSP)

#### Context

Recently, the **Cabinet Committee on Economic Affairs** announced the **Minimum Support Price (MSP)** for **kharif crops** for the **2026-27 season**. The MSP for the common variety of **paddy** has been increased by **₹72 per quintal** to **₹2,441**, while the price for **A-grade paddy** is set at **₹2,461 per quintal**. While Union Minister Ashwini Vaishnaw stated that these rates ensure a **50% return** over the cost of production, various farmer organizations have flagged concerns regarding the potential "disastrous impact" of the **India-U.S. trade deal** and other free trade agreements on the domestic agricultural sector.



#### 1. What is Minimum Support Price (MSP)?

Minimum Support Price is a form of market intervention by the Government of India to insure agricultural producers against any sharp fall in farm prices. It acts as a floor price for agricultural produce, ensuring that farmers do not suffer losses during bumper production years.

- **Announcement:** MSPs are announced at the beginning of the sowing season for certain crops.
- **Basis:** It is based on the recommendations of the **Commission for Agricultural Costs and Prices (CACP)**.

- **Approval:** The final decision on MSP levels is taken by the **Cabinet Committee on Economic Affairs (CCEA)**, chaired by the Prime Minister.

## 2. Mandated Crops (Total 22 + Sugarcane)

The government announces MSP for **22 mandated crops** and a Fair and Remunerative Price (FRP) for sugarcane.

Category	Crops Included
<b>Kharif Crops (14)</b>	Paddy, Jowar, Bajra, Maize, Ragi, Arhar, Moong, Urad, Groundnut, Soybean, Sunflower, Sesamum, Nigerseed, Cotton.
<b>Rabi Crops (6)</b>	Wheat, Barley, Gram, Masur (Lentil), Rapeseed/Mustard, Safflower.
<b>Commercial Crops (2)</b>	Jute, Copra.
<b>Sugarcane</b>	Fixed as <b>Fair and Remunerative Price (FRP)</b> .

## 3. Calculation Methodology (CACP Guidelines)

The CACP considers both "objective" and "subjective" factors while recommending MSP.

- **Cost Concepts:**
  - **A2:** Covers all paid-out expenses like seeds, fertilizers, chemicals, hired labor, fuel, and irrigation.
  - **A2+FL:** Includes A2 plus an imputed value of unpaid **Family Labor (FL)**.
  - **C2:** A comprehensive cost that includes A2+FL plus the interest on value of owned capital assets and rent paid for leased-in land.
- **Government Policy:** Since the 2018-19 Union Budget, the MSP is fixed at a level of at least **1.5 times the A2+FL cost**.

## 4. Significance of MSP

- **Price Stability:** It protects farmers from the vagaries of the market and price volatility.
- **Food Security:** Assured prices encourage the production of staple food grains like wheat and paddy, maintaining the Central Buffer Stock.
- **Crop Diversification:** By providing higher price signals for oilseeds and pulses, the government aims to reduce the "wheat-paddy" monoculture.
- **Informed Sowing:** As it is announced before sowing, it helps farmers decide which crop will be most remunerative.

## 5. Issues and Challenges

- **Lack of Legal Guarantee:** Currently, MSP is a policy decision and not a legal right, meaning private buyers are not legally bound to pay it.
- **Regional Imbalance:** Procurement is heavily concentrated in states like Punjab, Haryana, and Madhya Pradesh.

- **Low Awareness:** According to the **Shanta Kumar Committee (2015)**, only about **6%** of farmers actually benefit from MSP procurement.
- **Ecological Impact:** High MSP for water-intensive crops like paddy has led to depleting groundwater levels in semi-arid regions.

**Q. Consider the following statements regarding the Minimum Support Price (MSP) in India:**

- I. The Commission for Agricultural Costs and Prices (CACP) is the final authority to approve the MSP for mandated crops.
- II. The MSP for all mandated crops is currently fixed at a level of at least 150% of the comprehensive cost (C2).
- III. Sugarcane is not included in the list of 22 mandated crops for which MSP is announced.

**Which of the statements given above is/are correct according to the recent patterns?**

- a) I and II only
- b) III only
- c) II and III only
- d) I, II, and III

**Solution:**

**Correct Option: (b)**

- **STATEMENT I IS INCORRECT:** The CACP only "recommends" the MSP. The final "approving" authority is the **Cabinet Committee on Economic Affairs (CCEA)**.
- **STATEMENT II IS INCORRECT:** The government currently fixes MSP at 1.5 times (150%) of the **A2+FL** cost, not the comprehensive **C2** cost (which is a long-standing demand of the Swaminathan Commission).
- **STATEMENT III IS CORRECT:** Sugarcane is provided with a **Fair and Remunerative Price (FRP)** under the Sugarcane (Control) Order, 1966, and is technically distinct from the 22 crops covered under the MSP framework.

### 3.7. COAL GASIFICATION

#### Context

Recently, the Union Cabinet has approved a substantial **₹37,500-crore financial package** to incentivize and accelerate **surface coal gasification** projects across India. This initiative aims to utilize India's vast coal and lignite reserves more sustainably while reducing the massive import bill for critical products like urea, methanol, and natural gas. The government has set an ambitious target to gasify **100 million tonnes (MT) of coal by 2030**.



## 1. Financial and Policy Incentives

- **CAPEX Subsidy:** The government will provide financial incentives of up to **one-fifth (20%)** of the cost of plant and machinery.
- **Project Caps:**
  - For a single project, the maximum financial incentive is capped at ₹5,000 crore.
  - For a single product-centred project, the incentive limit is generally capped at ₹5,000 crore.
  - However, projects related to:
    - Synthetic Natural Gas (SNG) and Urea production can receive incentives up to ₹9,000 crore.
    - A single entity/company can avail a maximum cumulative incentive of ₹12,000 crore across all project categories.
- **Investment Certainty:** To provide long-term stability, coal linkage tenures have been extended up to **30 years** for gasification units.
- **Target Capacity:** The current package targets the gasification of approximately **75 million tonnes** of coal and lignite, contributing to the broader 100 MT target for 2030.

## 2. Understanding Coal Gasification Technology

- **Coal Gasification** is a thermo-chemical process that converts coal into a gaseous mixture called **Syngas (a mixture primarily composed of carbon monoxide and hydrogen)** instead of burning it directly.
- **The Process:**
  - The process occurs by reacting coal with a controlled amount of oxygen, steam, and heat under high temperature and pressure.
  - Unlike direct burning, coal is partially oxidized, not completely combusted.
  - **Syngas Formation:** Produces CO and H<sub>2</sub>-rich gas.
  - **Gas Cleaning:** Removal of impurities like sulfur, ash, and particulates.

## 3. Advantages over Direct Combustion

- Higher efficiency than conventional coal combustion
- Lower emissions of pollutants
- Can produce cleaner fuels and chemicals
- Helps reduce crude oil and natural gas imports

## 4. Uses in Modern Industries

- **Power Generation:** Syngas produced from coal gasification is used in Integrated Gasification Combined Cycle (IGCC) plants for efficient electricity generation.
- **Fertilizer Industry:** Hydrogen obtained from syngas is used in the production of ammonia and urea fertilizers.
- **Chemical Industry:** Used to manufacture chemicals such as methanol, ammonia, hydrogen, acetic acid, and synthetic natural gas (SNG).
- **Steel Industry:** Syngas and hydrogen can act as reducing agents in steel production, helping reduce coke consumption.

- **Hydrogen Production:** Coal gasification is an important source of industrial hydrogen for refineries and clean energy applications.
- **Synthetic Fuel Production:** Used to produce synthetic diesel, petrol, and aviation fuels through Fischer–Tropsch technology.
- **Refinery Operations:** Syngas is used in petroleum refining and upgrading low-quality fuels.
- **Methanol Economy:** Supports green and alternative fuel initiatives through methanol production for transport and marine fuel.
- **City Gas & Industrial Fuel:** Synthetic natural gas generated from coal gasification can be used for domestic cooking and industrial heating.
- **Waste-to-Energy Applications:** Integrated gasification technologies can process low-grade coal and industrial waste for energy recovery.

### 5. Why Coal Gasification is Important?

- Coal contributes over 55% of India's energy mix. Coal gasification converts coal into syngas for producing fuels and chemicals domestically, reducing import dependence and exposure to global price volatility.
- The technology supports economic independence by utilizing India's nearly 400 billion tonnes of coal reserves (**fifth largest**) to produce critical industrial feedstocks.
- Gasification is a "High Efficiency Low Emissions" (HELE) technology that acts as a bridge **toward India's Net Zero 2070 goal.**

### Q. Consider the following statements regarding Coal Gasification:

1. Coal gasification converts coal into a gaseous mixture called syngas through partial oxidation.
2. Syngas mainly consists of carbon monoxide and hydrogen.
3. Coal gasification technology is primarily promoted for reducing India's dependence on crude oil, urea, and natural gas imports.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

**Answer: (d) 1, 2 and 3**

### Explanation:

- **Statement 1 is correct:** Coal gasification converts coal into syngas using controlled oxygen, steam, and heat under high temperature and pressure.
- **Statement 2 is correct:** Syngas mainly contains carbon monoxide (CO) and hydrogen (H<sub>2</sub>).
- **Statement 3 is correct:** The technology supports import substitution by enabling domestic production of methanol, urea, and synthetic natural gas (SNG).

### 3.8. INDIA RAISE GOLD AND SILVER IMPORT DUTIES

#### Context

- To stabilize the economy against global volatility, the Government of India has doubled the effective import duty on gold and silver from **9.2% to 18.4%**. This move is primarily driven by the need to manage the **Current Account Deficit (CAD)**, which has been pressured by the West Asia crisis and rising global energy prices. By making "non-essential" imports like precious metals more expensive, the government aims to preserve foreign exchange for essential commodities like crude oil and fertilizers.



#### 1. Why India Raised Import Duty on Precious Metals?

- Conserving Foreign Exchange:** The government aims to protect India's foreign exchange reserves, which have faced pressure due to the ongoing **West Asia crisis**. Officials believe forex should be prioritized for "essential" imports like crude oil, fertilizers, and defense equipment rather than "discretionary" consumption like gold.
- Controlling the Current Account Deficit (CAD):** Gold is a major contributor to India's trade deficit. Despite falling volumes, the value of gold imports surged over **24% to a record \$71.98 billion** in FY26 due to soaring global prices, significantly widening the CAD.
- Supporting the Rupee:** The Indian Rupee has weakened sharply, falling below **95.5 per dollar** following regional conflict in late February. Reducing bullion imports is a direct measure to halt the currency's slide.
- Responding to Rising Energy Costs:** As a major oil importer, India is vulnerable to supply disruptions in the **Strait of Hormuz**. With Brent crude prices jumping from \$73 to nearly **\$107 per barrel**, the government is moving to "moderate avoidable demand" for precious metals to offset the ballooning energy bill.

#### 2. Current Account Deficit (CAD)

- Definition:** The margin by which a country's total imports of goods, services, and transfers exceed its total exports. It is a component of the Balance of Payments (BoP).
- Current Account components:**
  - Trade in goods (exports and imports)
  - Services (IT, tourism, shipping, etc.)
  - Income (interest, dividends, profits)
  - Transfers/remittances
- Effects of High CAD:**



- Pressure on foreign exchange reserves
- Depreciation of domestic currency
- Increase in external borrowing
- Economic vulnerability during global crises

### 3. Difference Between Current Account & Capital Account

Current Account	Capital Account
Deals with trade in goods & services	Deals with investments & asset flows
Includes exports, imports, remittances	Includes FDI, FPI, loans
Reflects income and expenditure	Reflects ownership and investments
Example: oil import bill	Example: foreign investment in India

### Q. Consider the following statements regarding India's decision to raise import duties on gold and silver:

1. A rise in gold imports can widen the Current Account Deficit (CAD).
2. The Current Account includes Foreign Direct Investment (FDI) and Foreign Portfolio Investment (FPI).
3. Higher import duties on precious metals can help conserve foreign exchange reserves.
4. The Capital Account deals with investments and asset flows between countries.

Which of the statements given above are correct?

- (a) 1, 3 and 4 only
- (b) 1 and 2 only
- (c) 2, 3 and 4 only
- (d) 1, 2, 3 and 4

**Answer:** (a) 1, 3 and 4 only

#### Explanation:

- **Statement 1 is correct:** High gold imports increase the trade deficit and widen the Current Account Deficit (CAD).
- **Statement 2 is incorrect:** FDI and FPI are components of the Capital Account, not the Current Account.
- **Statement 3 is correct:** Raising import duties reduces non-essential imports and helps conserve foreign exchange reserves.
- **Statement 4 is correct:** The Capital Account records investments and financial asset flows such as FDI, FPI, and loans.

**3.9. INFLATIONARY PRESSURES AND MACROECONOMIC STABILITY**

**Context**

- Recent economic data indicates a significant divergence between retail and wholesale inflation in India. While retail inflation (CPI) reached a 13-month high of 3.48% in April, wholesale inflation (WPI) surged to 8.3%.
- This trend is primarily driven by global geopolitical conflicts leading to soaring fuel and energy costs, alongside rising food prices. The situation presents a complex challenge for both fiscal policy (government) and monetary policy (RBI) to maintain the inflation tolerance band of 2%–6%.



**1. Understanding Inflation Indices: CPI vs. WPI**

Inflation in India is primarily measured using two different indices that track price changes at different stages of the supply chain.

**A. Consumer Price Index (CPI)**

- **Definition:** Measures the average change over time in the prices paid by ultimate consumers for a basket of consumer goods and services.
- **Base Year:** 2024 (Current).
- **Released by:** National Statistical Office (NSO), Ministry of Statistics and Programme Implementation.
- **Key Components:** Food and beverages (36.75%), fuel and light, housing, clothing, and miscellaneous services (education, health, etc.).
- **Significance:** It is the primary tool used by the Reserve Bank of India (RBI) for monetary policy targeting.

**B. Wholesale Price Index (WPI)**

- **Definition:** Measures the changes in the prices of goods sold and traded in bulk by wholesale entities to other businesses.
- **Base Year:** 2011-12.
- **Released by:** Office of Economic Adviser, Ministry of Commerce and Industry.
- **Key Components:** Manufactured products (highest weightage), Primary Articles (food, non-food), and Fuel & Power.
- **Note:** WPI does not include services.

**2. Key Differences at a Glance**

Feature	Wholesale Price Index (WPI)	Consumer Price Index (CPI)
Primary Focus	Goods at the wholesale level (B2B)	Goods and services at retail level (B2C)
Prices paid by	Manufacturers and wholesalers	Final consumers

<b>Services Included</b>	No	Yes
<b>Policy Use</b>	Tracks supply-side pressures	Used for Inflation Targeting by RBI
<b>Weights</b>	Manufactured goods have highest weight	Food and beverages have highest weight

### 3. Factors behind Inflation and response to curve inflation

#### I. Cost-Push Factors

- **Energy Prices:** A surge in petroleum and natural gas prices (67.2%) due to international conflict acts as a major supply-side shock.
- **Imported Inflation:** As the Rupee depreciates against the Dollar, the cost of importing essential commodities (like crude oil and gold) increases, further fueling domestic inflation.

#### II. Fiscal and Monetary Response

- **Fiscal Measures:** The government has increased import duties on gold and silver to discourage "safe-haven" investments and support the Rupee. There are also appeals for reduced discretionary spending.
- **Monetary Measures:** The RBI is mandated to keep CPI within the 4% (+/- 2%) range. With inflation "bursting at the seams," the central bank may be forced to tighten monetary policy (e.g., increasing the Repo Rate) to reduce liquidity and curb demand.

### 4. Socio-Economic Impact

- **Impact on Consumption:** Rising costs of essential items like commercial LPG cylinders directly affect migrant labor and low-income households, potentially dampening overall consumption demand in the economy.
- **Sectoral Hits:** The hospitality and accommodation sectors are witnessing sharper price increases due to the cascading effect of fuel costs.

### 5. Essentials Concepts to Remember

- **Headline Inflation:** The total inflation within an economy, including commodities such as food and energy prices (which are volatile).
- **Core Inflation:** Headline inflation minus the volatile food and fuel components.
- **Disinflation:** Disinflation is a temporary slowing in the rate of price inflation, where prices continue to rise but at a slower pace.
- **Stagflation:** Stagflation is an economic condition defined by the simultaneous occurrence of slow economic growth, high unemployment, and rising prices (high inflation).

#### Q. Consider the following statements regarding inflation indices in India:

1. The Consumer Price Index (CPI) includes services such as education and healthcare, whereas the Wholesale Price Index (WPI) does not include services.
2. The Reserve Bank of India uses WPI as the primary benchmark for inflation targeting under monetary policy.

3. In the CPI basket, food and beverages have the highest weightage, whereas manufactured products have the highest weightage in WPI.

Which of the statements given above are correct?

- (a) 1 and 3 only
- (b) 2 and 3 only
- (c) 1 and 2 only
- (d) 1, 2 and 3

**Answer: (a)**

**Explanation:**

- **Statement 1 is correct:** CPI includes both goods and services such as education, health, and housing, whereas WPI tracks only goods traded at the wholesale level.
- **Statement 2 is incorrect:** The RBI uses CPI, not WPI, as the primary benchmark for inflation targeting.
- **Statement 3 is correct:** Food and beverages carry the highest weight in CPI, while manufactured products have the highest weight in WPI.

### 3.10. INDIA'S GOODS EXPORTS CLIMB TO \$43.6 BILLION

#### Context

In a display of macroeconomic resilience, India's merchandise exports climbed by nearly 14% to reach **\$43.6 billion** in April 2026. Despite severe logistical and geopolitical challenges stemming from the ongoing West Asia crisis, proactive market diversification and shifting global price dynamics helped narrow the overall trade deficit by 30% year-on-year.

#### 1. Core Data Trends: April 2025 vs. April 2026

A closer look at the trade balance reveals critical shifts across both visible (merchandise) and invisible (services) trade sectors.



Trade Component	April 2025 (\$ Billion)	April 2026 (\$ Billion)	Trend Direction & Insights
<b>Merchandise Imports</b>	65.4	71.9	<b>Increased:</b> Driven partly by domestic demand and rising commodity costs.
<b>Merchandise Exports</b>	38.3	43.6	<b>Increased (~14%):</b> Bolstered by alternative non-traditional markets.
<b>Services Imports</b>	16.9	16.7	<b>Slightly Decreased:</b> Marginally down, maintaining structural stability.
<b>Services Exports</b>	32.9	37.2	<b>Increased:</b> Sustaining India's historical strength in invisible trade.

## 2. Crucial Drivers of India's Export Resilience

### I. Geopolitical Headwinds & Shifting Regional Corridors

The conflict in West Asia had a tangible cooling effect on bilateral trade routes.

- Exports to West Asia dropped to **\$4.16 billion** in April 2026 from \$5.78 billion in the previous year.
- Merchandise imports from the region shrank by **31.6%**, dropping from \$15.3 billion to \$10.5 billion.

### II. Structural Pivot to Non-Traditional Markets

To buffer the impact of the crisis, Indian exporters actively diversified their supply lines toward emerging economies across Africa and East Asia, posting remarkable growth rates:

- **Tanzania:** 158% (Increased)
- **Sri Lanka:** 215% (Increased)
- **Singapore:** 179% (Increased)
- **Bangladesh:** 64% (Increased)
- **Vietnam:** 53% (Increased)

## 3. Key Concepts

- **Balance of Trade (BoT) vs. Balance of Payments (BoP):** BoT is a restrictive term focusing purely on the export and import of goods and services (part of the Current Account). BoP is a systemic, comprehensive record that includes the Current Account, Capital Account, and Financial Account.
- **Market Diversification Initiatives:** Schemes like the **Market Access Initiative (MAI)** and the focus on "**Districts as Export Hubs**" under the Foreign Trade Policy play a direct role in steering exporters toward new destinations like Tanzania and Vietnam when traditional hubs undergo stress.

- **Top 5 export destinations**, in terms of change in value, exhibiting positive growth in April 2026 vis a vis April 2025 are **Singapore** (179.18%), Tanzania Rep (157.63%), Sri Lanka (214.65%), Bangladesh Pr (64.16%) & Hong Kong (90.61%).
- **Top 5 import sources**, in terms of change in value, exhibiting growth in April 2026 vis a vis April 2025 are **China** (20.85%), Russia (18.21%), Oman (246.42%), Peru (315.56%) & Saudi Arab (30.29%).

### Q. Consider the following statements regarding India's trade performance in April 2026:

1. India's merchandise exports increased by nearly 14% compared to April 2025.
2. Merchandise imports from West Asia increased significantly despite the regional crisis.
3. Services exports continued to remain a major strength in India's invisible trade sector.

Which of the statements given above is/are correct?

- A. 1 and 3 only  
B. 2 only

- C. 1 and 2 only
- D. 1, 2 and 3

**Answer: (a)**

**Explanation:**

- **Statement 1 is correct:** Merchandise exports rose from \$38.3 billion to \$43.6 billion (~14%).
- **Statement 2 is incorrect:** Imports from West Asia actually declined by 31.6%.
- **Statement 3 is correct:** Services exports increased from \$32.9 billion to \$37.2 billion.

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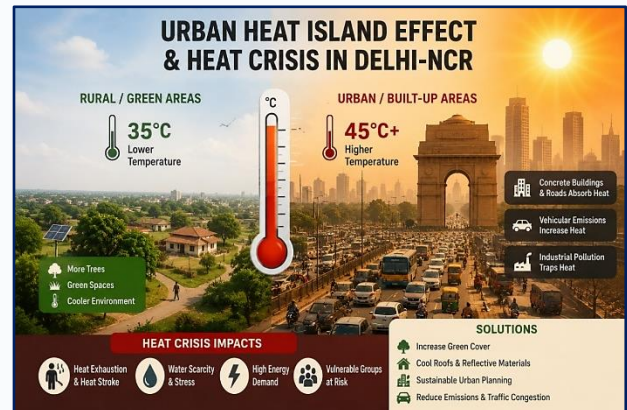
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# ENVIRONMENT & GEOGRAPHY

## 4.1. URBAN HEAT ISLAND EFFECT AND HEAT CRISIS IN DELHI-NCR

### Context

Delhi and the NCR region are experiencing intensified heatwaves characterized by a "heat trap" phenomenon. Rapid urbanization and the replacement of natural landscapes with heat-absorbing materials have turned the city into a reservoir of thermal energy, necessitating a shift in urban planning and social protection.



### I. Why Delhi is Retaining Heat?

- **Material Logic:** Domination of concrete, steel, and glass which absorb heat efficiently but release it slowly. Surface temperatures in dense areas reach **50–60°C** during peak afternoons.
- **Infrastructure Design:** Glass-heavy architecture increases indoor solar radiation, while high-density construction and narrow streets restrict airflow.
- **Vehicular Contribution:** Corridors like NH-48 act as continuous heat sources due to engine exhaust and heat-absorbing asphalt.
  - NH 48 passes through Delhi, Haryana, Rajasthan, Gujarat, Maharashtra, Karnataka, and Tamil Nadu. As of May 2026, it is part of the Golden Quadrilateral.
- **Anthropogenic Heat:** Air conditioning expels heat outdoors, raising ambient temperatures by **1–2°C** in dense neighborhoods, creating a feedback loop.

### II. Ecological and Economic Impacts

- **Loss of Natural Cooling:** Shrinking green cover, degraded wetlands, and the loss of Yamuna floodplains have reduced **evapotranspiration**.
- **Economic Productivity:** Productivity declines by **2–3%** for every degree rise above optimal levels. India loses over **\$100 billion** annually due to heat-related productivity decline.
- **Energy Burden:** Delhi's peak electricity demand has crossed **8,000 MW**, driven largely by cooling needs.

### III. Proposed Structural & Planning Measures

- **Urban Design:** Adoption of **high-albedo surfaces**, cool roofs, and reflective coatings. Emphasis on passive design strategies like shading and cross-ventilation.
- **Blue-Green Infrastructure:** Expansion of urban forests, parks, and water bodies to restore natural cooling.
- **Ventilation Corridors:** Designing street orientation to restore airflow through the city.
- **Social Protection:** Subsidized cooling, affordable housing upgrades, and community cooling centers for vulnerable populations.

### Positive Feedback Loop (Climate Change)

As global temperatures rise, glaciers and polar ice melt, reducing the Earth's reflectivity (high albedo replaced by low albedo ocean). This lower albedo causes more heat absorption, leading to more melting.

#### Examples of Albedo:

**High Albedo: Snow and ice reflect ~80-90% of sunlight.**

**Low Albedo: Water and forests absorb most sunlight, reflecting only 10-20%.**

**Albedo of Different Earth Surfaces:** Fresh Snow > Thick Clouds > Desert Sand > Grass > Forests > Asphalt.

### Q. Which of the following factors primarily contribute to the Urban Heat Island effect in Delhi-NCR?

1. Dominance of concrete, steel, and glass surfaces
2. Shrinking green cover and wetlands
3. Expansion of evapotranspiration processes
4. Heat emitted from air conditioners and vehicles

Select the correct answer using the code below:

- (a) 1, 2 and 4 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2, 3 and 4

**Answer: (a)**

#### Explanation:

**Statement 1 is correct:** Concrete, steel, and glass have high **thermal mass** and low albedo. They absorb heat during the day and release it slowly at night, creating the "heat re-trap" mentioned in the article.

**Statement 2 is correct:** Green cover and wetlands provide natural cooling. Their destruction reduces the city's ability to regulate temperature through shade and moisture.

**Statement 3 is incorrect:** Loss of vegetation and water bodies has **reduced** (not expanded) evapotranspiration. Evapotranspiration is a cooling process; its reduction contributes to the heat crisis.

**Statement 4 is correct:** These are sources of **anthropogenic heat**. Air conditioners cool interiors but expel heat into the streets, while vehicles contribute constant thermal input through engines and exhaust.

## 4.2. INTERNATIONAL BIG CAT ALLIANCE (IBCA)

### Context

The Government of India has spearheaded the **International Big Cat Alliance (IBCA)** to create a global platform for the protection of seven major big cat species. While 24 countries have joined (including Saudi Arabia), recent reports suggest that China is unlikely to participate, despite being a range country for the **Amur (Siberian) tiger**.



### 1. The International Big Cat Alliance (IBCA)

- **Launch:** The IBCA was established by Government of India, through the nodal organisation viz., National Tiger Conservation Authority (NTCA), Ministry of Environment, Forest & Climate Change (MoEFCC).
- **Objective:** To provide a platform for the dissemination of information on benchmarked practices, capacity building, and financial support for the conservation of big cats.
- **Focus Species:** The alliance focuses on **seven big cats**: Tiger, Lion, Leopard, Snow Leopard, Cheetah, Jaguar, and Puma.
- **Structure:** It is a multi-country, multi-agency coalition of 96 range countries, non-range countries interested in conservation, and international organizations.
- **Headquarters:** India will host the IBCA headquarters and has committed initial funding of **\$100 million** over five years.

### 2. Basic Inputs: The Seven Big Cats

Big Cat	IUCN status	Wildlife Protection Act, 1972
<b>Tiger</b> ( <i>Panthera tigris</i> )	Endangered	Schedule 1
<b>Lion</b> ( <i>Panthera leo</i> )	Vulnerable	Schedule 1
<b>Leopard</b> ( <i>Panthera pardus</i> )	Vulnerable	Schedule 1
<b>Snow leopard</b> ( <i>Panthera uncia</i> )	Vulnerable	Schedule 1
<b>Cheetah</b> ( <i>Acinonyx jubatus</i> )	Vulnerable	Schedule 1
<b>Jaguar</b> ( <i>Panthera onca</i> )	Near Threatened	N.A./Not found in India
<b>Puma</b> ( <i>Puma concolor</i> )	Least Concern	N.A./Not found in India

### 3. About Amur Tiger

- Amur Tigers are mainly found in: Russia and China.
- Small populations survive in the **Sikhote-Alin mountain region** and nearby forests. Historically, they were also found in **Korea and parts of Mongolia**.

- The Amur Tiger is **larger and lighter-colored than** the Bengal Tiger.
- Can tolerate temperatures below  $-30^{\circ}\text{C}$ .

#### 4. Other Conservation Efforts in India -Chronology Wise

- Project Tiger (1973) > Project Elephant (1992) > Asiatic Lion Reintroduction Project (2004) > Project Snow Leopard (2009) > Project Cheetah (2022).
- Snow Leopard conservation breeding programme is undertaken at Padmaja Naidu Himalayan Zoological Park, Darjeeling, and West Bengal.

#### Q. With reference to the International Big Cat Alliance (IBCA), consider the following statements:

1. It is a global initiative launched by India to focus on the conservation of all species belonging to the family *Felidae*.
2. India is the only country in the world to have the Tiger, Lion, Leopard, Snow Leopard, and Cheetah in the wild.
3. The alliance includes species like the Jaguar and Puma, which are not naturally found in India.

#### Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2, and 3

#### Correct Answer: B) 2 and 3 only

- **Explanation:**
- **Statement 1 is incorrect:** because it focuses on **seven specific big cats**, not all *Felidae* (which would include small cats like the desert cat, caracal, etc.).
- **Statement 2 is correct:** as India has the native big four and has reintroduced the Cheetah.
- **Statement 3 is correct:** Jaguars and Pumas are exclusive to the Americas.

### 4.3. INDUCED SEISMICITY: SCIENTISTS TRIGGER 'CONTROLLED' EARTHQUAKES IN SWISS ALPS

#### Context

- Researchers in southern Switzerland have successfully triggered thousands of micro-earthquakes in a controlled, monitored environment. Using the **BedrettoLab**—a laboratory located 1.5 km deep within a tunnel under the Swiss Alps—scientists are studying the mechanics of fault lines to better understand and mitigate the risks of natural seismic events.



#### Understanding Earthquake Mechanics & Induced Seismicity

##### 1. The Experiment: How it Works

- **Method:** Scientists injected **700 cubic meters of water** into boreholes drilled into the tunnel's rock walls.

- **The Mechanism:** The water acts as a **lubricant** and increases **pore pressure** within the fault. This reduces the friction holding the rock masses together, causing them to slip and release energy.
- **Scale:** Over 8,000 small seismic events were recorded, with magnitudes ranging from **-4 to 0.14**. For perspective, these are "micro-quakes," but at 0.14 magnitude, the acceleration was 1.3 times the standard acceleration due to gravity.

## 2. Induced vs. Natural Seismicity

- **Natural Earthquakes:** Caused by tectonic plate movements and the buildup of stress along fault lines.
- **Induced Seismicity:** Earthquake activity resulting from human activities.
  - **Common Causes:** Reservoir-induced seismicity (large dams), fracking (shale gas extraction), geothermal energy production, and waste-water injection.

## 3. Key terminologies

Term	Meaning
Focus (Hypocentre)	Point inside Earth where earthquake originates
Epicentre	Point on Earth's surface directly above the focus
Seismic waves	Energy waves produced during earthquakes
Fault	Crack/fracture in Earth's crust

## 4. Richter scale vs Mercalli scale

Basis	Richter Scale	Mercalli Scale
What it measures	Magnitude/energy released during an earthquake	Intensity/effects and damage caused by an earthquake
Method	Uses seismographs and scientific calculations	Based on human observations and structural damage
Scale	Logarithmic scale (generally 0–10+)	Roman numerals I–XII
Nature of measurement	Objective and same everywhere	Subjective and varies from place to place

## 5. About Alps

- The Alps extend across:
  - France
  - Switzerland
  - Italy
  - Austria
  - Germany
  - Slovenia
  - Liechtenstein

- Monaco
- **Formation:** Formed by collision of African and Eurasian tectonic plates.
- **Major River Sources: Rhine, Rhone, Po, Danube**
- **Economic Importance**
  - Major tourist destination for skiing and mountaineering.
  - Rich source of hydroelectric power.
  - Supports dairy farming and cattle rearing.
  - Important transport tunnels and passes connect European countries.

**Q. With reference to 'Induced Seismicity' and the mechanics of earthquakes, consider the following statements:**

1. Increasing the pore water pressure along a fault line can decrease the effective friction, leading to a slip.
2. The Richter scale is a linear scale where a magnitude 4 earthquake is twice as powerful as a magnitude 2 earthquake.
3. Large-scale water reservoir construction is a known cause of human-induced seismic activity.

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

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2, and 3

**Correct Answer: C) 1 and 3 only**

- **Explanation:**
- **Statement 1 is correct:** this is the principle used in the Swiss experiment.
- **Statement 2 is incorrect:** because the Richter scale is **logarithmic**, not linear; a magnitude 4 is roughly 100 times stronger in terms of energy release than a magnitude 2.
- **Statement 3 is correct:** (e.g., the Koyna Dam in Maharashtra is a famous example of Reservoir Induced Seismicity).

#### 4.4. KUNO NATIONAL PARK

##### Context

In a significant setback for **Project Cheetah**, four one-month-old cheetah cubs were found dead in the **Sheopur district** of Madhya Pradesh. These cubs were particularly notable as they were the first to be born in the **open forest** rather than in specialized enclosures since the reintroduction programme began in 2022. Preliminary investigations by forest officials suggest the deaths resulted from **predation**, likely by a leopard, highlighting the challenges of inter-species competition in the wild.



##### 1. Project Cheetah: Challenges in Open Forest Success

- **Location:** Kuno National Park, Madhya Pradesh (Sheopur Territorial Division).

- **Status of Cubs:** The litter was born on April 11 and was part of the first successful birth in a non-enclosed, open-forest environment.
- **Cause of Death:** Suspected **predation by a leopard**; carcasses were found partially eaten near the den site.

## 2. Significance for Wildlife Management

- **Inter-species Competition:** The incident underscores the threat posed by co-predators like leopards, which share the same habitat as the reintroduced cheetahs.
- **Acclimatization Hurdles:** Success in Project Cheetah is measured by the ability of the species to survive and reproduce in the **unprotected open forest**; this loss represents a major hurdle in establishing a self-sustaining wild population.

## 3. About the Kuno National Park (KNP)

- **Location:** Situated in the **Vindhyan Hills** in the Sheopur and Morena districts of **Madhya Pradesh**.
- **Vegetation:** Primarily consists of dry deciduous forests and open grasslands (Savannah-type), which are ideal for high-speed predators like cheetahs.
- **River:** The **Kuno River**, a major tributary of the Chambal River, flows through the park.
- **History:** It was originally selected for the **Asiatic Lion Reintroduction Project** before becoming the primary site for the world's first intercontinental large wild carnivore translocation project (Project Cheetah).

## 4. About The Cheetah Species

### I. Sub-species and Conservation Status

- **African Cheetah (*Acinonyx jubatus jubatus*):**

- **IUCN Status:** Vulnerable.
- **Habitat:** Mostly found in Africa (Namibia, South Africa). These are the cheetahs currently being reintroduced in India.

- **Asiatic Cheetah (*Acinonyx jubatus venaticus*):**

- **IUCN Status:** Critically Endangered.
- **Habitat:** Survives only in **Iran**.
- **Extinction in India:** Officially declared extinct in India in **1952** due to overhunting and habitat loss.

### II. Biological Traits

- **Speed:** The fastest land animal, capable of reaching speeds up to **110 km/h**.
- **Diurnal Nature:** Unlike most big cats (lions/tigers/leopards) that are nocturnal, cheetahs hunt primarily during the **day** to avoid competition with larger predators.
- **Social Structure:** Females are solitary (except when raising cubs), while males often live in small groups called **coalitions**.

**Q. Consider the following statements regarding Kuno National Park and Project Cheetah:**

1. Kuno National Park was initially identified for the Asiatic Lion Reintroduction Project.
2. The Asiatic Cheetah is currently found in India and is classified as Vulnerable by the IUCN.
3. Cheetahs are primarily diurnal animals and generally hunt during the daytime.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

**Answer: (b)**

**Explanation:**

- Statement 1 is correct. Kuno National Park was originally selected for the Asiatic Lion Reintroduction Project.
- Statement 2 is incorrect. The Asiatic Cheetah survives only in Iran and is classified as Critically Endangered by the IUCN.
- Statement 3 is correct. Unlike many other big cats, cheetahs are mainly diurnal hunters.

**4.5. THE RANN OF KUTCH: INDIA'S LIVING SALT DESERT**

**Context**

- Recently, the Little Rann of Kutch in Gujarat has been experiencing severe heatwave conditions, with temperatures frequently crossing 45 degree and at times nearing 48 degree. Nearly 50,000 salt workers are enduring these extreme conditions in shade-less salt pans without electricity while harvesting salt that fulfills around three-fourths of India's salt demand, exposing them to serious health risks.



**1. Physical Geography & Formation**

- The Rann of Kutch is a vast salt marsh region in the northwestern Indian subcontinent, spread across Gujarat's Kutch district and parts of Pakistan's Sindh province. It is geographically divided into the **Great Rann and the Little Rann of Kutch**.
- It is one of the largest seasonal **salt marshes in the world**, known for its unique ecosystem consisting of saline desert plains, grasslands, thorn scrub forests, and wetlands.
- **Origin:** Geologically, it was once a shallow arm of the Arabian Sea. Ongoing tectonic uplift and the deposition of sediments by rivers (**like the Luni**) transformed it into a closed basin.
- **Seasonal Dynamics:** During the monsoon, the area is inundated with shallow water (a mix of seawater and freshwater). As the water evaporates during the grueling summer, it leaves behind a thick crust of salt, forming the famous "**White Desert**."

**2. History and Culture**

- The Rann of Kutch has a rich historical and cultural heritage, with evidence of **Neolithic and Indus Valley Civilization** settlements such as **Dholavira**, the largest Harappan site in India.

- Historians believe the region was once a navigable archipelago supporting maritime trade. It later became part of the **Maurya Empire and Gupta Empire**.
- During British rule, Mahatma Gandhi's salt protest highlighted the region's significance, while today the **Rann Utsav** celebrates its vibrant local art and culture.
- The Rann of Kutch Biosphere Reserve is inhabited by indigenous communities such as the **Rabari, Koli, Bajanias, Kutchis, Gujjars, and Bharvads**.
- Among them, the **Rabari tribe** is well known for its pastoral lifestyle, camel herding, colorful attire, and traditional embroidery, while all these communities possess deep ecological knowledge of the region's harsh environment.

### 3. Ecological Dimensions & Wildlife

- The Rann of Kutch is the only large flooded grassland region in the Indomalayan realm, supporting diverse ecosystems such as mangroves and desert vegetation due to its unique location between the desert and the sea.
- The Rann of Kutch hosts around 50 mammal species, including herbivores like the Indian **wild ass, chinkara, nilgai, and blackbuck**, along with predators such as the Indian wolf, striped hyena, desert wildcat, and caracal. Notably, the **Indian wild ass is endemic** to this region.
- **Banni Grasslands:** One of Asia's largest and finest tropical grasslands. It is home to the **Maldhari** tribes and the unique **Banni buffalo** breed, which is adapted to grazing at night to avoid the daytime heat.
- **The Concept of "Bets":** During monsoon, the Rann gets flooded for a period of about one month and is dotted with about 74 elevated plateaus or islands, locally called 'bets'. These bets are covered with grass and feed the population of around 2,100 animals.
- **Important rivers draining into the Rann:**
  - Luni
  - Banas
  - Saraswati
  - Rupen

### 4. Conservation and protected areas

- In 2008, the **Rann of Kutch** was designated as a biosphere reserve to conserve its unique biodiversity and promote sustainable development.
- The Kachchh Biosphere Reserve is mainly composed of two major ecosystems — the **Great Rann of Kachchh (GRK) and the Little Rann of Kachchh (LRK)** — covering an area of 12,454 km<sup>2</sup>.
- It includes the Kachchh Desert Sanctuary (in GRK) and the Wild Ass Sanctuary (in LRK).

- **Indian Wild Ass Sanctuary (LRK):** The Little Rann is the only home to the **Indian Wild Ass (Khur)**, listed as **Near Threatened** on the IUCN Red List. They are known for their stamina and ability to survive in high temperatures and saline environments.
- **Flamingo City:** Located in the Great Rann, this is the only known concentrated nesting ground of **Greater Flamingos** in India.

- **Kutch Bustard Sanctuary:** Home to the **Great Indian Bustard** (Critically Endangered), focusing on the grasslands (*Banni*) adjacent to the salt flats.

## 5. The Economic Dimension: Agariyas and Salt

- **Salt Production:** Gujarat accounts for roughly 75% of India's salt production, a significant portion of which comes from the Little Rann.
- **The Agariyas:** This traditional salt-farming community lives in the LRK for eight months of the year. They endure the extreme 45°C+ heat to extract **Karkach salt** (crystals) from brine pumped from underground wells.
- **Environmental Challenge:** The overlap between salt pans and the Wild Ass Sanctuary often leads to debates regarding conservation vs. livelihood.

## 6. Strategic and Political Importance

- **International Border:** The Great Rann of Kutch forms part of the international border between **India and Pakistan**.
- **Sir Creek Dispute:** A 96-km long tidal estuary in the uninhabited marshlands. The dispute lies in the interpretation of the boundary line (mid-channel vs. eastern bank), which impacts the **Exclusive Economic Zone (EEZ)** and maritime resources (petroleum and gas).

### Q. Consider the following statements regarding the Rann of Kutch:

1. The Rann of Kutch was once a shallow extension of the Arabian Sea.
2. The Indian Wild Ass is endemic to the Little Rann of Kutch.
3. Flamingo City in the Great Rann is the only concentrated nesting ground of Greater Flamingos in India.

### Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

**Answer: (d)**

### Explanation:

- **Statement 1 is correct:** Geological evidence suggests that the Rann was once a shallow arm of the Arabian Sea.
- **Statement 2 is correct:** The Indian Wild Ass (Khur) is endemic to the Little Rann of Kutch.
- **Statement 3 is correct:** Flamingo City in the Great Rann is the only known concentrated nesting ground of Greater Flamingos in India.

#### 4.6. INDIA'S FIRST SATELLITE-TAGGED GANGES SOFTSHELL TURTLE RELEASED

##### Context

- Recently, coinciding with the observation of Endangered Species Day on May 15, 2026, wildlife biologists successfully released India's first satellite-tagged Ganges Softshell Turtle (*Nilssonina gangetica*) into the **Kaziranga National Park** and Tiger Reserve.
- The initiative—jointly conducted by the **Wildlife Institute of India (WII)**, the **Assam Forest Department**, and **funded by the National Geographic Society**—marks a shift from passive observation to active bio-telemetry. Tracking this freshwater apex predator along the northern banks of the Brahmaputra River will provide data on its migratory pathways, breeding zones, and micro-habitat usage.



##### 1. About Active bio-telemetry

**Active bio-telemetry** is a wildlife tracking technique in which a transmitter attached to an animal continuously sends real-time location and movement data to satellites, radio receivers, or GPS systems.

##### It helps scientists monitor:

- Migration patterns
- Habitat use
- Behaviour and survival
- Threats from poaching or habitat loss

In conservation, active bio-telemetry is widely used for tracking endangered species such as turtles, tigers, elephants, and birds.

##### 2. The Species Profile – Ganges Softshell Turtle

- **Taxonomy & Identification:** Locally known as the Indian Softshell Turtle (*Nilssonina gangetica*), it is a large freshwater reptile. It is distinguished from other riverine turtles by its **prominent arrowhead-shaped markings** on the top of its head, a compressed carapace that aids in fast swimming, and a distinctive tube-like snout used as an underwater snorkel.
- **Geographical Distribution:** Endemic to the northern and eastern regions of the Indian subcontinent. It is primarily found across the major mud-bottomed river networks of the **Indus, Ganga, Yamuna, Mahanadi, and Brahmaputra river basins**.
- **Ecological Role:** Operating as an apex riverine predator and scavenger, it fulfills a vital **ecosystem cleanup service** by feeding on carrion, dead organic matter, and fish, directly checking the bacterial degradation of river ecosystems.
- **Conservation & Legal Status:**
  - **IUCN Red List:** Endangered

- **Wildlife (Protection) Act, 1972:** Schedule I (afforded the highest tier of legal protection alongside the Royal Bengal Tiger).
- **CITES:** Appendix I
- **Major Threats:** Rampant illegal poaching networks targeting its meat for domestic black markets, habitat loss driven by unauthorized riverbed sand mining, and mortality caused by heavy monsoonal gill-net fishing.

### 3. About Kaziranga National Park & Tiger Reserve

- **Geographical Matrix:** Situated partly across the Golaghat and Nagaon districts of Assam, the park occupies the dynamic **floodplains of the Brahmaputra River Valley**. It is bounded by the Brahmaputra river channel along the north and the **Karbi Anglong Hills** to its immediate south.
- **Hydro-Geomorphic Features:** The landscape is a complex mosaic of wet alluvial tall elephant grasslands, tropical moist deciduous forests, and numerous shallow oxbow lakes locally termed **Beels**. The **Diphlu River** flows directly through the core area of the sanctuary.
- **International Designations:** Designated as a **UNESCO World Heritage Site** in 1985.
  - Identified as an **Important Bird Area (IBA)** by BirdLife International.
  - Recognized as a core Tiger Reserve since 2006.
- **The Big Five Richness:** While famous globally for holding over two-thirds of the world's population of the **Great Indian One-Horned Rhinoceros**, its "Big Five" megafauna include the **Asian Elephant, Royal Bengal Tiger, Wild Water Buffalo, and Swamp Deer (Barasingha)**.
- **Turtle Conservation Hub:** As per the Wildlife Institute of India (WII), Assam serves as a top global priority zone for freshwater chelonian conservation. Out of the eight distinct species of softshell turtles found across India, **five species breed naturally within the Kaziranga ecosystem alone**.

#### Q. With reference to Active Bio-telemetry, consider the following statements:

1. It enables real-time tracking of animal movement through transmitters.
2. It is mainly used for tracking only marine species.
3. It helps scientists study migration patterns and habitat use.

Which of the statements given above is/are correct?

- (a) 1 and 3 only
- (b) 2 only
- (c) 1, 2 and 3
- (d) 3 only

**Answer: (a)**

**Explanation:**

- **Statement 1 is correct:** Active bio-telemetry uses transmitters attached to animals to send real-time movement and location data through satellites, GPS, or radio systems.

- **Statement 2 is incorrect:** It is not limited to marine species. It is widely used for terrestrial, freshwater, and aerial wildlife such as turtles, tigers, elephants, and birds.
- **Statement 3 is correct:** Scientists use this technique to study migration routes, habitat use, behaviour, breeding patterns, and survival of species.

#### 4.7. MONSOON LIKELY TO REACH KERALA BY MAY 26

##### Context

The India Meteorological Department (IMD) has forecast that the Southwest Monsoon is likely to arrive in Kerala around **May 26**, with a possible variation of four days. This is ahead of the climatological **normal onset date of June 1** — making it an early arrival year.



##### 1. Key Data Trends & Observations

- **Early Onset Trend:** The standard calendar date for the monsoon's arrival over mainland India (Kerala) is **June 1**. An onset on May 26 indicates an accelerated atmospheric pipeline moving up from the Southern Hemisphere.
- **The Andaman Pipeline:** The monsoon typically establishes itself over the Andaman and Nicobar Islands and the Bay of Bengal before embarking on a roughly **10-day journey** to the Kerala coast.
- **The Disconnect Between Onset and Quantum:** An early onset **does not automatically correlate** with high volume or well-distributed rainfall. Total seasonal volume depends on sustained cross-equatorial pressure gradients throughout June–September.
- **Disruptive Factors:** The steady advance of the monsoon branch can be actively impeded or deflected by synoptic features, such as a fermenting tropical cyclone in the Arabian Sea or the Bay of Bengal during late May.

##### 2. About the Southwest Monsoon: Core Geographical Concepts

- The **Southwest Monsoon** originates from the **South Indian Ocean** as the **South-East Trade Winds**, which after crossing the equator deflect rightward (due to the **Coriolis Effect**) and become the South-West Monsoon over India
- It enters India via **two branches**:
  - **Arabian Sea Branch** → hits the Western Ghats first → Kerala, Karnataka, Goa, Maharashtra
  - **Bay of Bengal Branch** → enters through Myanmar and Northeast India → advances westward
- The **Inter-Tropical Convergence Zone (ITCZ)** — a low-pressure belt — shifts northward in summer, pulling the monsoon winds deep into the subcontinent
- Kerala is the **first landfall point** because it lies at the south-western tip of the peninsula, directly in the path of the Arabian Sea Branch

### 3. The El Niño Warning

Global climate agencies are closely monitoring the possible development of **El Niño** conditions in the Pacific Ocean. An El Niño event is generally linked to **weaker monsoon rainfall, rising temperatures, and drier conditions** across India. The IMD has already projected **below-normal rainfall for the June-to-September monsoon season at 92% of the Long Period Average (LPA)**.

### 4. Key concepts to remember:

Term	What It Means
<b>El Niño</b>	Unusual warming of central/eastern Pacific Ocean surface waters; weakens Indian monsoon
<b>La Niña</b>	Cooling of Pacific waters; generally strengthens Indian monsoon
<b>LPA (Long Period Average)</b>	This is the benchmark check used to calculate whether a monsoon is "normal," "above normal," or "below normal." It represents the average rainfall recorded over a historical window of 50 years.
<b>Normal Rainfall</b>	96–104% of LPA
<b>Below Normal</b>	90–96% of LPA

### Q. Consider the following statements regarding the Southwest Monsoon in India:

1. The Southwest Monsoon originates as South-East Trade Winds in the Southern Hemisphere.
2. Kerala is the first landfall point of the monsoon because it lies directly in the path of the Arabian Sea Branch.
3. El Niño conditions are generally associated with stronger monsoon rainfall over India.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

**Answer: (a)**

**Explanation:**

- **Statement 1 is correct:** The Southwest Monsoon originates as South-East Trade Winds over the South Indian Ocean and, after crossing the equator, deflects due to the Coriolis Effect.
- **Statement 2 is correct:** Kerala is the first landfall point because it lies at the southwestern tip of India along the Arabian Sea Branch.
- **Statement 3 is incorrect:** El Niño usually weakens the Indian monsoon and is associated with below-normal rainfall.

\*\*\*

## 5.1. HANTAVIRUS OUTBREAK

### Context

Recently, a Dutch-flagged cruise vessel, the MV Hondius, has been hit by a deadly outbreak of **Hantavirus (Andes strain)** during its voyage from Argentina. After stops in the South Atlantic, the vessel reached the **Canary Islands (Spain)** in May 2026, where a complex repatriation and evacuation operation began under World Health Organization (WHO) monitoring.



### 1. About the Hantavirus

- Hantaviruses are a group of viruses **carried by rodents** that cause severe respiratory or kidney disease in humans worldwide.
- **Transmission Source:** While usually spread by rodents, investigators believe the first case contracted it in South America. Crucially, the Andes strain is the only Hantavirus known for **human-to-human transmission**, likely occurring here in the close quarters of the ship.
- **Symptoms:** Characterized by "Hantavirus Pulmonary Syndrome" (HPS)—fever, muscle aches, and rapid progression to severe respiratory distress (fluid in lungs).
- **Fatality Rate:** High, typically around **38–40%**.
- **Treatment:** No specific vaccine or treatment exists; patients require hospitalization and supportive care (often requiring ventilators).

### 2. Geography of Canary Islands

- **Location:** An archipelago in the Atlantic Ocean, located off the northwest coast of **Africa** (Morocco/Western Sahara), but politically part of **Spain**.
- **Origin:** Volcanic archipelago; home to **Mount Teide** (on Tenerife), which is the highest peak on Spanish soil.
- **Strategic Status:** An **Outermost Region (OR)** of the European Union.
- **Key Islands:** Tenerife (where the evacuation occurred at Santa Cruz), Gran Canaria, Lanzarote, and Fuerteventura.
- **Climate:** Subtropical and semi-arid, influenced by the **Canary Current** (a cold ocean current) and trade winds.

### Q. With reference to the Hantavirus, consider the following statements:

1. It is a viral disease primarily transmitted to humans through contact with infected rodents.
2. The Andes strain of the virus is notable because it can spread through human-to-human contact.
3. There is currently a WHO-approved vaccine available for the Hantavirus Pulmonary Syndrome (HPS).

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

(a) 1 and 2 only

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

**Answer: A**

**Explanation:**

**Statement 1 is correct:** Hantaviruses are **zoonotic** viruses. They are primarily carried and transmitted by rodents (such as mice and rats). Humans generally become infected by breathing in air contaminated with the virus from rodent droppings, urine, or saliva (aerosolization).

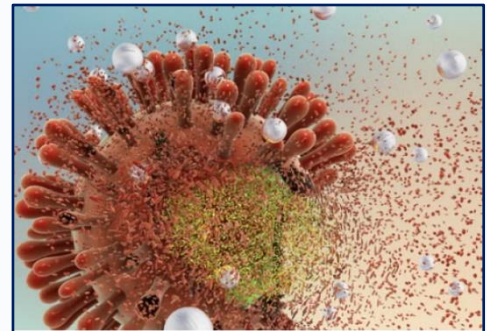
**Statement 2 is correct:** While most hantaviruses do not spread between people, the **Andes virus** (found in South America) is a rare exception. It is the only known strain that can be transmitted through **human-to-human contact**, which is why the outbreak on the *MV Hondius* is being monitored so strictly by health officials.

**Statement 3 is incorrect:** According to the article and current medical status, there are **no vaccines, effective antivirals, or specific treatments** available for Hantavirus Pulmonary Syndrome (HPS). Medical care is limited to "supportive therapy," such as the use of ventilators in an Intensive Care Unit (ICU).

#### 5.4. BREAKTHROUGH IN HIV TREATMENT

##### Context

Recently, researchers explored the use of CAR-T cell therapy to combat Human Immunodeficiency Virus, with a recent study showing that genetically engineered immune cells suppressed the virus in two patients for one and two years without daily medication, raising hopes for a potential functional cure.



##### 1. The Mechanism: CAR-T Cell Therapy for HIV

- **The Process:** T-cells (immune soldiers) are extracted from a patient's blood and genetically engineered to become "living drugs".
- **The Modification:** For HIV, these cells were given "dual features": they were programmed to better find/kill infected cells and engineered with a protective "armor" to prevent the HIV virus from infecting the T-cells themselves.

##### 2. Current Global HIV Landscape

- **Scale:** Approximately **40 million people** are living with HIV globally.
- **Treatment Limitations:** While current antiretroviral drugs make HIV a manageable chronic disease, the virus hides in "reservoirs" in the body and rebounds immediately if treatment is stopped.
- **The Goal:** Moving beyond daily drug adherence to long-lasting viral suppression through gene and cell therapy.

##### 3. About CAR-T Cell Therapy (Chimeric Antigen Receptor T-cell)

- Chimeric antigen receptor (CAR) T-cell therapy is a revolutionary, personalized form of immunotherapy that modifies a patient's own immune cells (T cells) to recognize and kill

cancer cells. It is primarily used to treat certain advanced blood cancers, such as leukemias, lymphomas, and multiple myeloma, especially when other treatments have failed.

- **Process:**
  - **Collection:** T cells are collected from the patient's blood.
  - **Genetic Modification:** T cells are engineered in the lab to produce Chimeric Antigen Receptors (CARs) that target cancer cells.
  - **Expansion:** Millions of modified CAR-T cells are grown in the laboratory.
  - **Infusion:** The engineered CAR-T cells are infused back into the patient.
  - **Targeting:** CAR-T cells identify and destroy cancer cells inside the body.

#### 4. B- Cell vs T-Cell

Feature	B Cells	T Cells
<b>Site of Maturation</b>	Bone Marrow	Thymus
<b>Type of Immunity</b>	<b>Humoral Immunity</b> (targets pathogens in bodily fluids)	<b>Cell-Mediated Immunity</b> (targets infected or cancerous cells)
<b>Antigen Recognition</b>	Recognizes and binds to antigens <b>directly</b>	Requires antigens to be " <b>presented</b> " by other cells via MHC molecules
<b>Primary Function</b>	Produce and secrete <b>antibodies</b>	Coordinate the immune response ( <b>Helper T</b> ) or kill infected cells ( <b>Cytotoxic T</b> )
<b>Life Span</b>	Generally shorter-lived (except for memory cells)	Often longer-lived; can circulate for many years

#### Q. Consider the following statements regarding CAR-T cell therapy and Human Immunodeficiency Virus:

1. CAR-T cell therapy involves genetically modifying a patient's T cells to target diseased cells.
2. HIV primarily attacks B cells responsible for antibody production.
3. In CAR-T therapy, engineered T cells are expanded in the laboratory before being infused back into the patient.
4. T cells are associated with cell-mediated immunity, while B cells are associated with humoral immunity.

Which of the statements given above are correct?

- (a) 1, 3 and 4 only
- (b) 1 and 2 only
- (c) 2, 3 and 4 only
- (d) 1, 2, 3 and 4

**Answer: (a) 1, 3 and 4 only**

**Explanation:**

- **Statement 1 is correct:** CAR-T therapy genetically engineers T cells to recognize and destroy diseased cells.
- **Statement 2 is incorrect:** HIV primarily attacks CD4 T cells, not B cells.

- **Statement 3 is correct:** Modified CAR-T cells are multiplied in the laboratory before infusion.
- **Statement 4 is correct:** B cells provide humoral immunity, while T cells are responsible for cell-mediated immunity.

### 5.3. PCOS RENAMED AS PMOS

#### Context

- In May 2026, a landmark global consensus published in *The Lancet* and spearheaded by the **Endocrine Society** and **Monash University** officially renamed **Polycystic Ovary Syndrome (PCOS)** to **Polyendocrine Metabolic Ovarian Syndrome (PMOS)**.
- This change, resulting from a 14-year international effort, aims to move beyond a "cyst-centric" definition toward a systemic understanding of the disorder. In the Indian context—where prevalence is estimated at **16–18%**—this reclassification is vital for addressing the high burden of metabolic and insulin-related disorders among women.



#### 1. The Anatomy of the New Nomenclature (PMOS)

The new name is designed to be a more accurate scientific descriptor of the condition's multi-systemic impact:

- **Polyendocrine:** Reflects that the disorder is not localized to the ovaries but involves multiple hormonal systems, including the **Hypothalamus-Pituitary-Ovarian (HPO) axis**, adrenal glands, and pancreatic insulin regulation.
- **Metabolic:** Highlights the core pathophysiology—**Insulin Resistance**. This dimension is critical as it links the condition to long-term risks like Type 2 Diabetes, Cardiovascular Disease, and Non-Alcoholic Fatty Liver Disease (NAFLD).
- **Ovarian:** Retains the reproductive element, acknowledging the disruption in ovulation and androgen (male hormone) production.
- **Syndrome:** Confirms it is a collection of symptoms rather than a single disease with a singular cause.

#### 2. Why was the Renaming Necessary?

The shift from PCOS to PMOS addresses several critical medical and social gaps:

1. **Correcting a Misnomer:** The term "Polycystic" was misleading. The "cysts" are actually **arrested follicles** (eggs that failed to mature) rather than true clinical cysts.
2. **Reducing Diagnostic Delay:** Previously, many women were denied a diagnosis if their ultrasound did not show "cysts," despite having metabolic or hormonal symptoms. PMOS allows for diagnosis based on broader endocrine markers.
3. **Destigmatization:** By removing the "Ovary-first" focus, the name reduces the heavy stigma associated with fertility and reproductive "failure," framing it instead as a manageable metabolic health journey.

4. **Inclusion of Adolescents:** Since ultrasounds are less reliable in teenagers, the "PMOS" framework allows doctors to focus on early metabolic and hormonal signals (like severe acne or insulin spikes) in younger patients.

### 3. Comparative Dimensions: PCOS vs. PMOS

Feature	Polycystic Ovary Syndrome (PCOS)	Polyendocrine Metabolic Ovarian Syndrome (PMOS)
<b>Primary Focus</b>	Gynecological / Ovarian morphology	Systemic / Endocrine & Metabolic health
<b>Key Symptom</b>	Ovarian "cysts" (visualized on USG)	Hormonal imbalance & Insulin Resistance
<b>Clinical Goal</b>	Often limited to achieving pregnancy	Long-term prevention of chronic diseases
<b>Associated Risks</b>	Infertility, Irregular periods	Diabetes, Heart Disease, Anxiety, Obesity

#### Q. Consider the following statements regarding Polycystic Ovary Syndrome / PMOS:

1. The term PMOS highlights the role of endocrine and metabolic dysfunctions such as insulin resistance.
2. Under the PMOS framework, diagnosis depends only on the presence of ovarian cysts in ultrasound imaging.
3. The renaming from PCOS to PMOS aims to reduce stigma and broaden diagnosis beyond reproductive symptoms alone.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

**Answer: (b)**

**Explanation:**

- **Statement 1 is correct:** PMOS emphasizes endocrine and metabolic dimensions, especially insulin resistance.
- **Statement 2 is incorrect:** PMOS moves beyond a cyst-centric diagnosis and includes broader hormonal and metabolic indicators.
- **Statement 3 is correct:** The renaming seeks to reduce stigma and promote a systemic understanding of the disorder.

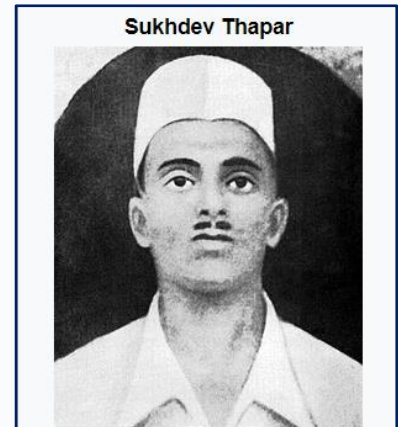
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# HISTORY & CULTURE

## 6.1. SUKHDEV THAPAR (1907–1931): REVOLUTIONARY FREEDOM FIGHTER

### Context

Recently, honorable Home Minister paid tribute to Sukhdev Thapar on his birth anniversary, stating that the immortal revolutionary symbolized indomitable courage, patriotism, and sacrifice, and dedicated his entire life to India's freedom struggle.



### 1. Early Life & Background

- Sukhdev Thapar was born on 15 May 1907 in the Naughara area of **Old Ludhiana**, Punjab. He belonged to a **Punjabi Khatri community** and was brought up by his uncle Lala Achintram after the death of his father.
- Sukhdev was only twelve years old when his uncle was arrested by the British police for organising an agitation against the **Rowlatt Act**. The arrest of his uncle again in 1921 during the Non-Cooperation Movement deepened his resentment and determined his path as a revolutionary.

### 2. Key Revolutionary Contributions

Sukhdev was not just a soldier but a high-level planner for the HSRA.

- **Naujawan Bharat Sabha:** He was a founding member of this organization (formed in 1926), which aimed to mobilize the youth against British rule and communalism.
- **The Saunders Assassination (1928):** Following the death of Lala Lajpat Rai due to a brutal lathi charge, the HSRA decided on a retaliatory strike. Sukhdev is credited with being the primary strategist who chose the team and oversaw the logistics for the assassination of John P. Saunders.
- **Central Assembly Hall Bombing (April 1929):** Sukhdev was also part of the conspiracy to bomb inside the **Central Assembly in New Delhi**. The HSRA had no interest in causing casualties; they merely wanted to draw public attention to the injustice meted out to Indians by the British.
- **Lahore Conspiracy Case:** Three individuals — **Hans Raj Vohra, Jai Gopal, and Phanindra Nath Ghosh** — turned approvers for the British government, leading to a total of 21 arrests including Sukhdev Thapar and Shivaram Rajguru.

**The 1915 First Lahore Conspiracy Case** was a pivotal series of trials held between April and September 1915, targeting members of the Ghadar Party who attempted to incite a pan-Indian mutiny against British rule during World War I. Led by figures like Kartar Singh Sarabha and influenced by Rash Behari Bose, the planned uprising for February 21, 1915, was foiled, leading to 291 convictions, 42 executions, and many life sentences to the Andaman Cellular Jail

### 3. The Hunger Strike and Trial

- While in prison, Sukhdev was a leader in the historic **hunger strike** demanding that Indian prisoners be treated as "political prisoners" rather than common criminals. This strike lasted over 60 days and gained massive public sympathy, effectively using the British court system as a platform to spread revolutionary propaganda.

### 4. Ideology and Legacy

- Sukhdev read about various world revolutions, including the **Russian and French revolutions**. He was especially inspired by the Russian revolution and was quite influenced by **Lenin's revolutionary ideas**.
- His letter to **Mahatma Gandhi**, written just prior to his hanging and protesting against Gandhi's disapproval of revolutionary tactics, throws light on the key ideological divide between the **non-violent (Gandhian)** and **revolutionary** schools of thought in the Indian freedom movement
- **Execution:** Despite widespread national protests and appeals, Sukhdev was hanged in Lahore Central Jail on **March 23, 1931**, alongside Bhagat Singh and Rajguru. He was only **23 years old**.
- **Shaheed Diwas:** Their execution day is observed annually as *Shaheed Diwas* (Martyrs' Day) in India.

### 5. HRA VS HSRA

Feature	HRA	HSRA
Full Form	Hindustan Republican Association	Hindustan Socialist Republican Association
Established	1924	1928
Key Founders	Ram Prasad Bismil, Sachindra Nath Sanyal, Jogesh Chandra Chatterjee	Bhagat Singh, Chandrasekhar Azad, Sukhdev Thapar
Main Objective	Armed revolution to overthrow British rule and establish a federal republic	Socialist revolution along with ending British colonial rule
Ideology	Republican Nationalism	Socialist Republicanism
Major Event	Kakori Train Robbery	Lahore Conspiracy Case and Central Assembly Bombing

#### Q. Consider the following statements regarding Sukhdev Thapar:

1. He was a founding member of the Naujawan Bharat Sabha, which aimed to mobilize youth against British rule and communalism.
  2. He was executed along with Bhagat Singh and Chandrasekhar Azad in Lahore Central Jail in 1931.
- 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

**Answer: (a)**

**Explanation:**

- **Statement 1 is correct:** Sukhdev Thapar was a founding member of the Naujawan Bharat Sabha established in 1926.
- **Statement 2 is incorrect:** Sukhdev was executed along with Bhagat Singh and Shivaram Rajguru, not Chandrashekhar Azad.

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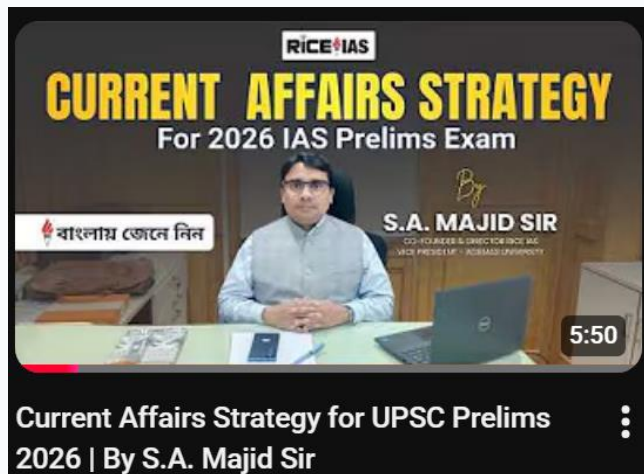
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