

# WEEKLY UPDATES

DATE : 14<sup>th</sup> Oct- 20<sup>th</sup> Oct

## POLITY & GOVERNANCE

### Inter-Parliamentary Union (IPU)

**Context:** Lok Sabha Speaker **Om Birla** is leading a parliamentary delegation to the **149th Assembly** of the **Inter-Parliamentary Union (IPU)** in Geneva.

#### About the Inter-Parliamentary Union (IPU)

1. **Establishment:** Founded in **1889** in Paris to promote **representative democracy** and **world peace**.
2. **Mission:** The IPU facilitates **parliamentary diplomacy** and works to empower parliaments in advancing **peace, democracy, and sustainable development**.
3. **Slogan:** "For democracy. For everyone."
4. **Membership:** Includes **179 member parliaments** and **13 associate members**.
5. **Headquarters:** Moved to **Geneva** in **1921**.
6. **Funding:** Primarily financed through contributions from **public funds** of member countries.

#### Key Structures of the IPU:

1. **IPU Assembly:** The main body where IPU expresses its stance on global issues, bringing together parliamentarians to **study international problems** and make **recommendations**.
2. **Governing Council:** A **plenary policymaking body**, consisting of three representatives from each member parliament. It sets the annual **programme** and **budget**.
3. **Executive Committee:** A **17-member body** responsible for overseeing IPU's administration and advising the Governing Council. It is led by the **IPU President**.
4. **Standing Committees:** Three committees that assist the Assembly in its work.
5. **Meeting of Women Parliamentarians:** A separate body that discusses **gender-related issues** and reports to the Governing Council. It includes both **male** and **female** parliamentarians.

## UN Women Report: Bridging the Gender Gap in Social Protection

**Context:** A recent report from **United Nations Women** reveals a striking global **gender gap** in social protection, leaving billions of women and girls vulnerable to poverty. The report underscores the need for **gender-responsive policies** to improve the **economic security** of women worldwide.

### Key Data Points from the Report:

1. **2 billion women and girls** globally lack access to **social protection** systems, such as cash benefits, healthcare, and pensions.
2. Only **18%** of nearly 1,000 social protection measures introduced by governments in **171 countries** focus on improving **women's economic security**.
3. **63% of women globally** give birth without access to **maternity benefits**—rising to **94%** in sub-Saharan Africa.
4. Women aged **25-34** are **25% more likely** to live in extreme poverty compared to men of the same age.
5. Women in **fragile settings** are **7.7 times more likely** to live in extreme poverty due to factors like conflict and climate change.

### Examples of Gender-Responsive Policies:

- **Mongolia:** Extended **maternity leave** to include informal workers like **herders** and the **self-employed**. Additionally, **paternity leave** was introduced to promote **gender equality in caregiving**.
- **Mexico and Tunisia:** **Domestic workers** are now included in **social security systems**, ensuring better protection and benefits.
- **Senegal:** Expanded the **National Health Insurance** scheme to meet the needs of **rural women**, with support from **UN Women**.

### Challenges Highlighted in the Report:

1. **Gender-specific vulnerabilities:** Women face compounded risks from **conflict, economic shocks, and climate change**, which are inadequately addressed by existing social protection systems.
2. **Inflation Impact:** Rising **food and energy costs** since 2022 have disproportionately affected women, further exacerbating their financial challenges.
3. **Gaps in Maternity Benefits:** The absence of **maternity leave** and financial support during childbearing years leaves women more vulnerable to **economic instability**.
4. **Extreme Poverty:** Women, particularly in **fragile settings**, are more likely to experience **extreme poverty**, underscoring the need for **gender-responsive policies**.

5. **Funding Gap: Low-income countries** require **\$77.9 billion** (15.9% of their GDP) to implement basic social protection systems but often lack the **fiscal capacity** to do so.

## Section 6A of the Citizenship Act, 1955

**Context:** India's **Supreme Court** recently upheld **Section 6A** of the **Citizenship Act**, granting citizenship to Bangladeshi migrants who entered **India before March 25, 1971**, as part of the **Assam Accord**.

### Background:

1. **Enacted in 1985:** Section 6A was introduced through the **Citizenship (Amendment) Act, 1985** following the **Assam Accord**, which aimed to address the **influx of illegal migrants** from Bangladesh after the **1971 Bangladesh Liberation War**.
2. **Purpose of the Assam Accord:** The **Assam Accord** was an agreement between the Indian government and Assam groups to resolve the challenges posed by the **large-scale migration** of people from Bangladesh into **Assam**, significantly affecting the state's demographics.

### Provisions of Section 6A:

1. **Citizenship for Migrants Pre-1966:** Persons of **Indian origin** who entered Assam before **January 1, 1966**, from Bangladesh were granted **Indian citizenship** retroactively.
2. **Migrants Between 1966-1971:** Migrants who entered Assam between **January 1, 1966**, and **March 25, 1971**, were required to register and were granted **citizenship** after **10 years of residence**, provided they met specific conditions.
3. **Post-1971 Migrants:** Persons entering Assam after **March 25, 1971**, were to be **detected** and **deported** as per existing laws.

### About the Citizenship Act, 1955:

1. **Governing Indian Citizenship:** The **Citizenship Act, 1955** regulates Indian citizenship, based on **birth, descent, registration, or naturalization**.
2. **Illegal Immigrants:** Illegal immigrants are those who:
  - Enter **India without valid documents** (e.g., passport, visa), or
  - Enter with valid documents but **overstay** beyond the permitted period.
3. **Single Citizenship:** India follows a policy of **single citizenship** and does not allow **dual citizenship**.
4. **Constitutional Framework:** Citizenship is governed under **Part II** of the **Indian Constitution (Articles 5-11)**, but the Constitution leaves the term "**citizen**" undefined, relying on statutory laws like the **Citizenship Act**.

## Chief Justice of India Appointment Process

**Context:** Chief Justice of India (CJI) **D.Y. Chandrachud** is set to retire on **November 10, 2024**, and has recommended **Justice Sanjiv Khanna** as his successor to become the **51st Chief Justice of India**.

### Process of CJI Appointment:

1. **Seniority Principle:** The **CJI** is typically appointed based on the **seniority** of judges in the **Supreme Court**.
2. **Memorandum of Procedure (MoP):** The **Law Ministry** requests a recommendation from the **outgoing CJI** regarding their successor.
3. **Presidential Appointment:** The **President of India** appoints the next CJI after receiving the recommendation.
4. **Tenure and Retirement:** The CJI serves until reaching the **age of 65**, after which the process repeats with the next CJI's retirement.
5. **Merit and Integrity Consideration:** Although seniority is critical, **merit** and **integrity** are also key factors in the appointment.

### Way Forward:

1. **Gender-responsive Social Protection:** Governments must design **inclusive social protection systems** that specifically address the **challenges faced by women and girls**.
2. **International Support:** Global financial assistance may be required to help **low-income countries** close the **funding gap** and implement comprehensive social protection systems.
3. **Innovative Policies:** Countries like **Mongolia, Mexico, and Senegal** have demonstrated the effectiveness of extending benefits to **informal workers**, showing the potential for **targeted gender-sensitive policies**.
4. **Prioritizing Economic Security for Women:** Governments should focus on measures that enhance **women's access to resources** and **financial support**, improving their **economic stability**.

## Digital Arrest: A New Cybersecurity Threat in India

### Introduction: The Rise of Cybercrimes

The rapid rise of cybercrime has led to the emergence of new fraudulent schemes like **"digital arrest"**, where cybercriminals impersonate government officials to extort money from victims. This scam has targeted even affluent and well-educated individuals, prompting the **Ministry of Home Affairs (MHA)** to take preventive actions and raise awareness.



## What is Digital Arrest?

- **Definition:** Digital arrest refers to a cyber scam where fraudsters pose as **officials from law enforcement agencies** (CBI, ED, police, etc.) and accuse victims of serious crimes like **money laundering** or **drug trafficking**. Victims are coerced into remaining on **video calls** while scammers extort large sums of money to avoid supposed physical arrest.

## Current Status in India

- **Notable Cases:**

1. **Businessman S.P. Oswal:** Duped of ₹7 crore after being falsely accused of involvement in a money laundering case.
2. **Scientist in Indore:** Lost ₹71 lakh after both he and his wife were held under digital arrest for six days.
3. **Bengaluru Lawyer:** Lost ₹14 lakh and was subjected to a fake narcotics test during a digital arrest.

- **Widespread Impact:** Data from the **Indian Cyber Crime Coordination Centre (I4C)** shows several such scams reported across states, with significant financial losses to victims.

## Consequences of Digital Arrest

- **Financial Losses:** Victims lose large sums of money, sometimes their entire savings.
- **Mental Trauma:** The psychological impact is severe, with victims experiencing stress, depression, and in extreme cases, suicidal tendencies.
- **Erosion of Trust:** These scams undermine trust in both **online platforms** and **government systems**, as they exploit the authority of law enforcement agencies.

## Government Initiatives to Tackle Digital Arrest

1. **Indian Cyber Crime Coordination Centre (I4C):** The **I4C** has been actively working to block fraudulent accounts, including over **1,000 Skype accounts** used in digital arrest scams.
2. **Cyber Awareness Campaigns:** I4C's **Cyberdost** platform spreads awareness and issues alerts about digital arrest scams to help the public stay informed.
3. **National Cybercrime Reporting Portal:** Victims can report incidents through the **national cybercrime portal** or call the helpline (1930) for immediate assistance.

## Key Challenges in Addressing Digital Arrest Scams

- **Lack of Awareness:** Many people remain unaware of the existence of these scams, making them easy targets.

- **Cross-border Operations:** These scams often have **international links**, complicating efforts to trace and prosecute the perpetrators.
- **Use of Deepfake Technology:** Fraudsters use advanced technologies like **deepfakes** to convincingly impersonate officials, making it difficult for victims to detect fraud.
- **Inadequate Cybercrime Laws:** India's cyber laws are still evolving and may not be fully equipped to address **new forms of cybercrime** like digital arrest.

### Way Forward: Measures to Combat Digital Arrest Scams

1. **Strengthen Cybercrime Laws:** Amend **cyber laws** to keep pace with rapidly changing technologies and evolving forms of cybercrime.
2. **Public Awareness Campaigns:** Intensify efforts to educate the public about the existence of digital arrest scams and how to protect themselves.
3. **Enhance Technology and Law Enforcement:** Invest in **anti-deepfake technologies** and increase international cooperation to combat **cross-border cybercrimes**.
4. **Collaboration with Financial Institutions:** Work closely with **banks** and financial institutions to monitor and detect suspicious transactions linked to these scams.

## Marital Rape: Legal Framework and Debates in India

**Context:** A three-judge bench led by Chief Justice of India **D.Y. Chandrachud** is hearing petitions challenging the constitutional validity of **Exception 2 to Section 375** of the **Indian Penal Code (IPC)**, which decriminalizes **marital rape** for wives over the age of 18.

### About Section 375 of IPC:

1. **Definition of Rape: Section 375** defines acts constituting **rape** committed by a man against a woman.
2. **Exceptions:**
  - **Exception 1:** Excludes **marital rape** when the wife is above 18 years of age.
  - **Exception 2:** Excludes **medical procedures** from being considered as rape.

### Historical Context:

- **Enacted in 1860** under British colonial rule, with the marital consent age raised to **18 years** through a **2017 Supreme Court ruling**.

### Laws Governing Marital Rape:

1. **Section 375 of IPC:** Decriminalizes **marital rape** for wives over 18, granting immunity to husbands for **non-consensual sex within marriage**.

2. **Independent Thought v. Union of India (2017):** The **Supreme Court** raised the **age of consent** in marriage from **15 to 18 years**, but **marital rape** remained decriminalized.
3. **Section 85 of Bharatiya Nyaya Sanhita (BNS), 2023:** Addresses **cruelty towards women** but doesn't explicitly recognize **marital rape** as a criminal offense.
4. **Protection of Women from Domestic Violence Act, 2005:** Provides civil remedies but lacks provisions for **criminal prosecution of marital rape**.

## Judicial Cases and Verdicts:

1. **Joseph Shine v. Union of India (2018):** The **Supreme Court** rejected the doctrine of **coverture**, asserting that marriage should not limit a woman's autonomy.
2. **Hrishikesh Sahoo v. State of Karnataka (2022)** The **Karnataka High Court** allowed prosecution for **marital rape**, but the ruling was stayed by the **Supreme Court**.
3. **Delhi High Court Split Verdict (2022):**
  - Justice **Rajiv Shakdher** ruled that the marital rape exception violates **Article 21** and bodily autonomy.
  - Justice **C. Hari Shankar** upheld the exception, citing that sexual relations are a legitimate **marital expectation**.

## Arguments Against Criminalizing Marital Rape:

1. **Impact on Marriage:** The government argued that criminalizing marital sexual acts as **rape** could severely affect **conjugal relationships**.
2. **Parliamentary Decision:** The **2013 amendments** retained **Exception 2**, exempting marital rape from being criminalized.
3. **Separate Provisions:** The government acknowledged violations of consent but argued that consequences should differ within **marital relationships**.
4. **Judicial Interference:** The government urged the **Supreme Court** to respect **Parliament's decision** and avoid interference in **socio-legal matters** concerning marriage.
5. **Disproportionate Punishment:** Concerns that criminalizing marital rape may lead to **disproportionate punishment**, overlooking nuances within marriage.

## Arguments in Favor of Criminalizing Marital Rape:

1. **Violation of Consent:** **Consent** remains central to the definition of rape, and **marriage** should not negate a woman's autonomy over her body.
2. **Arbitrary Legal Exception:** The **marital rape exception** discriminates against married women, depriving them of legal protection.

3. **International Norms:** Over **77 countries**, including **Australia, Canada**, and the **USA**, have **criminalized marital rape**, aligning with international standards.
4. **Equal Protection:** The law should offer **equal protection** to all women, regardless of **marital status**.
5. **Supreme Court Recognition:** The Supreme Court has already recognized **marital rape** under the **Medical Termination of Pregnancy (MTP) Act**, supporting broader criminal recognition.

### Way Ahead:

1. **Legislative Review: Parliament** should reconsider the **marital rape exception**, focusing on **gender justice** and equal protection of women's rights.
2. **Public Dialogue:** A broader **socio-legal dialogue** is essential to align **marital rape laws** with evolving social norms and international standards.
3. **Safeguards:** Implement safeguards to prevent **misuse** while ensuring **justice** for victims of marital rape.

## Supreme Court's Verdict on Section 6A of the Citizenship Act, 1955

**Context:** The **Supreme Court of India** upheld **Section 6A** of the **Citizenship Act, 1955**, granting citizenship to migrants who entered Assam between **January 1, 1966**, and **March 24, 1971**, under the **Assam Accord**.

### Background:

1. **Assam Accord (1985):** Set **March 24, 1971**, as the cut-off date for citizenship, aiming to resolve tensions between **indigenous Assamese people** and **migrants**.
2. **Section 6A:** Added to the **Citizenship Act** to implement the Assam Accord, establishing special criteria for **Assam**, different from India's post-Partition cut-off.
3. **NRC (2019):** Updated to identify **legitimate citizens** in Assam, excluding **1.9 million people**, raising concerns about **human rights** and **citizenship**.

### Arguments Against Section 6A:

1. **Violation of Article 14:** Creates an **unequal framework** by applying different rules for Assam.
2. **Cultural Erosion:** Threatens the **cultural identity** of **indigenous Assamese** under **Article 29**.
3. **External Aggression:** Illegal immigration is cited as "**external aggression**", threatening Assam's security.
4. **Accord Betrayal:** Seen as undermining the **spirit of the Assam Accord**.

### Arguments in Favor of Section 6A:

1. **Parliamentary Competence:** Parliament has the authority to regulate **citizenship** under **Article 11**.
2. **Unique Situation:** Assam's demographic challenges justify a **special framework**.



3. **Controlled Process:** Section 6A provides a **regulated, time-bound process** for citizenship.

### Supreme Court Verdict:

1. **Affirmation of Legislative Power:** Reaffirms **Parliament's right** to legislate on citizenship.
2. **Balance of Concerns:** Balances Assam's demographic concerns with **national unity**.
3. **Dissenting Opinion:** Justice **Pardiwala** called for the **prospective invalidation** of Section 6A due to its outdated relevance.

### Way Forward:

1. **Strengthen Border Controls:** Prevent further **illegal immigration**.
2. **Periodic Review:** Review Section 6A periodically for effective implementation.
3. **Safeguard Cultural Identity:** Protect **Assam's linguistic and cultural identity**.

## INTERNATIONAL RELATIONS

### India-Canada Relations: A Diplomatic and Strategic Challenge

**Context:** The bilateral relations between **India and Canada** have reached a low point amidst allegations of **India's involvement** in the **murder of Khalistani separatist Hardeep Singh Nijjar**, leading to a significant diplomatic fallout.

### Background of Bilateral Relations:

1. **Diplomatic Relations:** Established in **1947**, India and Canada upgraded their ties to a **strategic partnership** in 2015.
2. **Trade Relations:** India was **Canada's 10th largest trading partner** in 2022-23, with bilateral trade worth **US\$ 8.15 billion**. However, trade negotiations on **CEPA (Comprehensive Economic Partnership Agreement)** and **EPTA (Early Progress Trade Agreement)** are currently on hold.
3. **Nuclear Cooperation:** Began in **1956** but paused after **India's 1974 nuclear test**. Cooperation resumed in 2010.
4. **Indian Diaspora:** **1.6 million Indian-origin individuals** live in Canada, constituting over **3% of its population**. Canada's House of Commons includes **22 Indian-origin MPs**.

### Current Issues Straining Relations:

1. **Khalistani Extremism:** Canada's perceived **support for Khalistani groups** has caused tension between the two nations.

2. **Nijjar Killing:** Relations worsened after the **June 2023 killing** of Hardeep Singh Nijjar, with Canadian PM **Justin Trudeau** accusing Indian agents of involvement, a claim which India has denied.
3. **Diplomatic Expulsions:** Both countries have **expelled diplomats**, escalating the conflict further.

### Diplomatic Principles:

1. **Diplomatic Immunity:** Defined under the **Vienna Convention on Diplomatic Relations (1961)**, ensuring that diplomats are protected from local jurisdiction.
2. **Termination of Relations:** The **Vienna Convention** also outlines procedures for **ending diplomatic relations** and withdrawing diplomats in cases of conflict.
3. **Western Double Standards:** India has pointed out the **hypocrisy** of Western democracies, including Canada, in supporting certain freedoms when **security concerns** override their commitment to other nations.

### Impacts of the Diplomatic Row:

1. **Diplomatic Fallout:** Reduced diplomatic engagement and the **withdrawal of senior diplomats** have strained official communication.
2. **Economic Impact:** Paused **trade talks** could hurt **bilateral trade** and limit **market access** for both nations.
3. **Diaspora Concerns:** Rising tensions may affect the **Indian diaspora in Canada**, especially Indian students, who constitute **40% of international students** in Canada and contribute significantly to **remittances**.
4. **Strategic Cooperation:** The strain may also affect cooperation in key areas like **nuclear energy, education, and technology**.

### Way Ahead:

1. **Diplomatic Engagement:** Both nations need to engage in **high-level dialogue** to **ease tensions** and address diplomatic challenges.
2. **Security Concerns:** Canada should address **anti-India elements**, while India should ensure **transparent cooperation** in addressing Canadian concerns.
3. **Focus on Trade:** **Resuming trade talks** is crucial for rebuilding economic ties and ensuring mutual growth.
4. **People-to-People Ties:** Strengthen **diaspora ties** through cultural exchanges and ensure that tensions do not harm the people-to-people connection between the two countries.

## Korean Peninsula: Rising Tensions and Historical Context

**Context:** Tensions between **North Korea** and **South Korea** have escalated significantly, with North Korea adopting an aggressive stance towards its southern neighbor.

### Historical Background:

1. **Japanese Occupation (1910-1945):** Korea was under **Japanese control** from 1910 until the end of World War II.
2. **Post-WWII Division (1945):** Following Japan's defeat, Korea was divided along the **38th parallel**, with the **USSR** controlling the **North** and the **USA** controlling the **South**.
3. **Korean War (1950-1953):** In 1950, **North Korea**, backed by the **USSR**, invaded **South Korea**, sparking the Korean War.
  - The war ended in **1953** with an **armistice**, creating the **Demilitarized Zone (DMZ)**, but no formal **peace treaty** was signed.
4. **Nuclear Development:** **North Korea** has pursued a **nuclear weapons program**, leading to **international sanctions**.

### Present Status:

1. **Military Build-up:** North Korea has increased its **nuclear tests** and **missile launches**, while also fortifying its borders.
2. **Diplomatic Stalemate:** Despite earlier **peace talks**, North Korea declared **South Korea** its "**primary foe**" in 2024, reducing hopes for reunification.
3. **Nuclear Tests:** North Korea has **withdrawn** from the **Non-Proliferation Treaty (NPT)** and has conducted **multiple nuclear tests**.

### International Implications:

1. **Global Conflicts:** Tensions on the Korean Peninsula coincide with **other global conflicts**, including **Russia-Ukraine** and **Israel-Palestine**.
2. **Major Power Involvement:** Key stakeholders, such as the **U.S.**, **China**, and **Russia**, are involved in broader **geopolitical competition** linked to the region.
3. **Conflict Possibilities:** While a major conflict may be avoided due to **alliances** and **nuclear deterrence**, smaller incidents or **skirmishes** remain possible.
4. **Complex Alliances:** **North Korea's** ties with **China** and **Russia**, and **South Korea's** alliance with the **U.S.**, add to the complexity of the situation.

### India's Stand:

1. **Neutral Position:** India opposes **North Korean nuclear tests** but maintains a **neutral stance** on **sanctions**.
  2. **Diplomatic Relations:** India has diplomatic ties with both Koreas and played a key role in the **1953 ceasefire**, helping negotiate peace.
  3. **Strategic Partnerships:** India has a **special strategic partnership** with **South Korea**, aligning with South Korea's **Southern Policy** and India's **Act East Policy**.
- India also maintains **diplomatic relations** with **North Korea**.

### Way Ahead:

1. **Diplomatic Engagement:** Resume **dialogue** to **reduce military tensions** and prevent escalation.
2. **International Cooperation:** Leverage **diplomatic ties** with major players like **China, Russia,** and the **U.S.** to mediate **peace**.
3. **Denuclearization Talks:** Revive **international discussions** on **North Korea's denuclearization**.

## Nile River Basin Cooperative Framework Agreement (CFA)

**Context:** The **Nile River Basin Cooperative Framework Agreement (CFA)** came into force on **October 13, 2024**, marking a significant step toward equitable and sustainable management of the Nile's water resources.

### About the Nile River Agreement:

1. **Origin:** The **CFA** replaces colonial-era agreements from **1929** and **1959** that gave **Egypt veto power** over Nile water usage.
2. **Key Amendments:** **Article 14b** ensures that no Nile Basin country's **water security** will be significantly affected by the use of the river's resources.
3. **Nations Involved:** The agreement was negotiated by **nine Nile Basin countries** (Burundi, DR Congo, Egypt, Ethiopia, Kenya, Rwanda, Sudan, Tanzania, Uganda) and was later **ratified** by five nations (Burundi, Ethiopia, Rwanda, Tanzania, Uganda) and **South Sudan** acceded.
4. **Nations Opposed:** **Egypt** and **Sudan** rejected the CFA, particularly **Article 14b**, citing concerns over their **water security**.

### Nile River Facts:

- **Length:** The **Nile** is one of the world's longest rivers, stretching approximately **6,695 kilometers**.
- **Sources:** Major sources include **Lake Victoria**, the **Blue Nile**, the **White Nile**, and the **Kagera River**.
- **Countries Involved:** The **Nile Basin** includes parts of **Tanzania, Burundi, Rwanda, DR Congo, Kenya,** and **Egypt**.



- **Delta:** The Nile forms a **delta** as it flows into the **Mediterranean Sea**.
- **Principal Streams:** The river is primarily fed by three tributaries: the **Blue Nile, Atbara, and White Nile**.

## Five Eyes Intelligence Alliance

**Context:** In the wake of the **2023 killing of a pro-Khalistan preacher**, the U.K. has declared confidence in **Canada's judicial process**, bringing attention to the **Five Eyes Alliance**, of which Canada is a member.

### About Five Eyes Intelligence Alliance:

1. **Members:** The alliance comprises five **English-speaking countries**:
  - **Australia, Canada, New Zealand, United Kingdom, and United States.**
2. **Purpose:** A **multilateral intelligence-sharing network**, primarily focused on **surveillance and signals intelligence (SIGINT)**.
3. **Classified Information:** Intelligence shared within the alliance is marked as '**Secret—AUS/CAN/NZ/UK/US Eyes Only**', giving the alliance its name.
4. **Background:** Evolved during **World War II** to counter the **Soviet threat** during the **Cold War**.
  - The **U.S.** and **U.K.** initially collaborated after **breaking German and Japanese codes**.
5. **Formation:** In **1946**, the **BRUSA Agreement** (now known as the **UKUSA Agreement**) formalized the intelligence-sharing partnership between the **U.S.** and **U.K.**.
  - Initially focused on **signals intelligence** like **radio** and **satellite communications**.
6. **Expansion:** **Canada** joined in **1948**, followed by **Australia** and **New Zealand** in **1956**, forming the five-nation alliance.
7. **Scope:** The alliance covers six key areas, including **traffic analysis, cryptanalysis, decryption, and acquisition of communication-related information**.
8. **Significance:** The **Five Eyes Alliance** is one of the most extensive **intelligence-sharing networks** globally and plays a crucial role in **global surveillance and intelligence operations**.

## Battle of Walong (1962)

**Context:** To commemorate the **62nd anniversary** of the **Battle of Walong** during the **1962 Sino-Indian War**, the Indian Army is planning a month-long series of events.

### About Battle of Walong:

1. **Location:** The battle took place in **Walong, Arunachal Pradesh**, near the **McMahon Line**, a key battleground during the **1962 Sino-Indian War**.

2. **Indian Forces:** The **11th Infantry Brigade**, comprising the **4th Sikh, 6th Kumaon, and 3rd Battalion of 3 Gorkha Rifles**, defended Walong with around **800 men**.
3. **Chinese Offensive:** On **October 21, 1962**, over **4,000 Chinese troops** launched an attack. Despite being outnumbered and having limited resources, Indian forces held the line for **27 days**.
4. **Tactics:** Indian troops effectively used the **terrain** to set up **ambushes** and **defensive positions**, significantly slowing down the Chinese advance.
5. **Outcome:** Indian forces withdrew on **November 16, 1962**, after inflicting heavy casualties on the Chinese and delaying their advance.
6. **Significance:** The defense at Walong forced China to **divert additional troops from Tawang**, showcasing India's **bravery** and **resilience** in what was India's only **counterattack** during the war.

## Italy-Albania Migration Pact

**Context:** Italy has begun intercepting migrants at sea and sending them to Albania for asylum processing under a **migration pact** signed in **November 2022** by Italian Prime Minister **Giorgia Meloni** and Albanian Prime Minister **Edi Rama**.

### Key Points about the Pact:

1. **Asylum Processing in Albania:** Migrants intercepted at sea are sent to **Albania**, where their **asylum claims** are processed.
2. **Screening Criteria:** Only men from **“safe” countries** like **Bangladesh** and **Egypt** are sent to Albania.
  - Vulnerable individuals, including **women, children, and men** with illnesses or signs of **torture**, are sent to **Italy**.
3. **Places in News:**
  - **Schëngjin:** Port where intercepted migrants arrive in Albania.
  - **Gjadër:** Site used to hold migrants during the processing of their asylum claims.
  - **Lampedusa:** Southern Italian island where vulnerable migrants are taken after screening.

## DEFENCE & SECURITY

### THAAD Missile System

**Context:** In light of increasing tensions in **West Asia**, particularly due to **Iran's missile attacks on Israel**, the U.S. has decided to deploy the **Terminal High Altitude Area Defense (THAAD)** missile system to strengthen Israel's air defense.

#### About THAAD:

1. **Purpose:** THAAD is designed to intercept and destroy **short- to medium-range ballistic missiles** in their **final flight phase**, providing a reliable defense mechanism against incoming missile threats.
2. **Key Features: Radar Detection:** Uses an advanced radar system to detect and track incoming missiles at a significant distance.
  - **Kinetic Energy Interception:** Instead of explosive warheads, THAAD uses **kinetic energy** to destroy incoming missiles, minimizing the risk of collateral damage.
  - **Range:** THAAD can engage targets within a range of **150 to 200 kilometers**.
  - **Contractor:** The system is primarily developed and manufactured by **Lockheed Martin**.
3. **Deployment History:** First deployed in **2008**, THAAD complements the **Patriot missile defense system** but provides a broader area of coverage for missile interception.

### Non-Kinetic Warfare

**Context:** The **Parliamentary Standing Committee on Defence** has prioritized discussions on the **Indian armed forces' readiness** to tackle "**hybrid warfare**", with a specific focus on **non-kinetic warfare**.

#### About Non-Kinetic Warfare:

1. **Definition:** Non-kinetic warfare refers to forms of warfare that go **beyond physical combat** and involve techniques like **cyberattacks, electronic warfare, psychological operations, information manipulation, and economic disruptions**.
  - It often involves **non-military stakeholders** and aims to **cripple a country's infrastructure or governance systems** without direct military engagement.

#### Methods Used in Non-Kinetic Warfare:

1. **Cyber Warfare:** Attacking **critical infrastructure** like **power grids, hospitals, and communication networks** to disrupt a nation's functioning.

2. **Information Warfare:** Spreading **disinformation** or controlling the **narrative** to influence public perception and sway **decision-making**.
3. **Electronic Warfare:** Jamming or **intercepting communication systems** to disrupt military or civilian coordination.
4. **Psychological Warfare:** Manipulating **public opinion** and morale through **fear, misinformation, or propaganda**.
5. **Economic Warfare:** Disrupting a country's **financial systems** or **trade networks**, weakening its economy through targeted sanctions, market manipulation, or hacking financial infrastructure.

### Impact of Non-Kinetic Warfare:

1. **Greater Deadliness Without Combat:** Non-kinetic warfare can destabilize or defeat a nation without the need for physical confrontation. Conflicts can be won through **invisible means** like economic or psychological pressure, often with **fewer casualties** than traditional warfare.
2. **National Destabilization:** A well-executed **cyberattack** or **economic disruption** can **cripple a nation** without deploying conventional forces, making it a highly effective and less risky strategy in modern conflicts.

### Examples of Non-Kinetic Warfare:

1. **Russia-Ukraine Conflict:** Extensive use of **cyberattacks** and **disinformation** campaigns to undermine Ukraine's governance and infrastructure.
2. **Israel-Palestine Conflict:** Tactics of **psychological warfare** and **information control** to influence international and domestic audiences.
3. **Lebanon:** Use of **pager blasts** as a disruptive technique, illustrating low-cost, high-impact non-kinetic methods.

### Counter-Drone Technologies:

1. **Kinetic Options:** **Physically** shooting down drones using conventional means like **missiles** or **gunfire**.
2. **Non-Kinetic Options:** Disrupting drone operations using **jamming, taking control**, or using **laser** and **electromagnetic waves** to **disable** or **intercept** drones.

### Importance for India:

1. **Modern Warfare Landscape:** As non-kinetic warfare becomes a key feature of modern conflicts, India must develop **both kinetic and non-kinetic capabilities** to defend against emerging threats.
2. **Hybrid Warfare Threats:** India faces potential threats from state and non-state actors employing **cyberattacks, disinformation campaigns, and electronic warfare**.



3. **Strategic Preparedness:** Strengthening **cyber defenses, electronic warfare capabilities, and psychological operations** is essential for maintaining national security and resilience in a **hybrid warfare** environment.

## ECONOMY

### National Green Hydrogen Mission: Pioneering Green Hydrogen Use in India

**Context:** As part of the **National Green Hydrogen Mission**, the **Union Government** has sanctioned three pilot projects to demonstrate the use of **green hydrogen** in **steel production**.

#### About the National Green Hydrogen Mission:

1. **Budget:** A budget outlay of **₹19,744 crore** has been allocated up to FY 2029-30 for various **green hydrogen initiatives**.
2. **Objectives:** Establish India as a **global hub** for **green hydrogen** production, utilization, and export.
  - Promote **decarbonization** across industries, especially in the **steel, mobility, and energy** sectors.
3. **Pilot Projects:** Focus on demonstrating **green hydrogen** use in sectors such as **steel, mobility, and shipping**.
  - **Three steel sector projects** have been sanctioned, with financial support of **₹347 crore**.
4. **SIGHT (Strategic Interventions for Green Hydrogen Transition):** Incentivizes the domestic manufacturing of **electrolysers**.
  - Promotes the **production and usage** of green hydrogen.

#### Expected Outcomes by 2030:

1. **Green Hydrogen Production:** Production of at least **5 MMT** of green hydrogen annually.
2. **Renewable Energy Capacity:** Addition of around **125 GW** of **renewable energy capacity**.
3. **Investment:** Over **₹8 lakh crore** in green hydrogen projects.
4. **Employment:** Creation of **6 lakh jobs** through green hydrogen initiatives.
5. **Reduction in Fossil Fuel Imports:** Reduction of over **₹1 lakh crore** in fossil fuel imports.
6. **GHG Emissions Reduction:** Averting nearly **50 MMT** of **greenhouse gas emissions** annually.

## Phase-wise Implementation:

1. **Phase I (2022-26):** Focuses on **demand creation** and **deployment** of green hydrogen in sectors that already use hydrogen.
2. **Phase II (2026-30):** Expands into **new sectors** with the **commercialization** of green hydrogen.

## India's Renewable Energy Milestone: Crossing 200 GW Capacity

**Context:** As of **October 10, 2024**, India has surpassed the **200 GW mark** in renewable energy capacity, marking a significant achievement in the country's push towards a cleaner and sustainable energy future.

## India's Renewable Energy Targets

1. **By 2030:** Aim to achieve **500 GW** of installed electricity capacity from **non-fossil fuel sources**.
2. **Net-Zero by 2070:** As committed during **COP26**, India plans to achieve **net-zero emissions** by 2070.

## Current Renewable Energy Status (as of October 2024):

Category	Installed Capacity (GW)	Contribution (%)
Solar Power	90.76 GW	20.05%
Wind Power	47.36 GW	10.46%
Large Hydro	46.92 GW	10.36%
Small Hydro	5.07 GW	1.12%
Bio Power	11.32 GW	2.50%
<b>Total Renewable</b>	<b>201.45 GW</b>	<b>46.30%</b>
<b>Total Installed Capacity</b>	<b>452.69 GW</b>	

Source: Central Electricity Authority, Government of India

## Government Initiatives to Boost Renewable Energy:

1. **National Green Hydrogen Mission:** Focuses on developing **green hydrogen** to reduce carbon emissions and enhance **energy security**.
2. **PM-KUSUM Scheme:** Provides **solar irrigation pumps** to farmers, encouraging the use of **solar energy** in agriculture.
3. **PLI Schemes (Production-Linked Incentives):** Supports **domestic manufacturing** of **solar PV modules** by offering financial incentives to boost production.
4. **100% FDI:** Permits **full foreign direct investment** in renewable energy projects through the **automatic route**, attracting international capital.
5. **Waiver of ISTS Charges:** Exempts renewable energy projects from **inter-state transmission system** charges until **June 2025**, promoting the growth of clean energy.
6. **Renewable Purchase Obligation (RPO):** Mandates that power utilities purchase a **set percentage** of their energy from **renewable sources** until **2029-30**.

7. **Viability Gap Funding:** Offers financial assistance for offshore wind energy projects to make them economically viable.
8. **Green Energy Open Access Rules 2022:** Facilitates easier access to renewable energy for businesses, encouraging wider usage of clean energy.

## Challenges in Renewable Energy Development:

1. **High Upfront Costs:** The initial investment for infrastructure like solar and wind energy is high, which can deter development.
2. **Intermittency & Variability:** Solar and wind energy are weather-dependent, making them less predictable and challenging to integrate into the grid.
3. **Infrastructure Needs:** Renewable projects require large areas of land and skilled personnel for proper installation and maintenance.
4. **Policy & Regulatory Hurdles:** Inconsistent policies and bureaucratic delays create uncertainty and slow down project implementation.
5. **Raw Material Access:** The sector faces a shortage of rare earth materials, critical for manufacturing renewable energy technologies.
6. **Geographical Disparities:** Resources like wind and solar are not evenly distributed across regions, limiting adoption in certain areas.

## The Way Ahead for Renewable Energy:

1. **Technological Advancements:** Invest in energy storage solutions and smart grids to better manage the variability of renewable energy.
2. **Policy Consistency:** Develop stable and long-term policies to create a favorable environment for investment in the renewable sector.
3. **Capacity Building:** Enhance training programs to develop skilled technicians for efficient deployment and maintenance of renewable energy systems.
4. **International Collaboration:** Foster partnerships with global entities for access to technology and raw materials, bolstering the renewable sector.

## Minimum Support Prices (MSP)

**Context:** The Indian government recently approved an increase in the Minimum Support Prices (MSP) for six Rabi crops for the 2025-26 marketing season.

### Recent Revision in MSP for Rabi Crops:

- **Crops Affected:** Wheat, Rapeseed & Mustard, Lentil (Masur), Barley, Gram, and Safflower.

## About Minimum Support Price (MSP):

1. **Definition:** MSP is the **guaranteed price** paid to farmers by the government for their produce, ensuring they receive a **minimum income** regardless of market fluctuations.
2. **Determination:** MSP is recommended by the **Commission for Agricultural Costs and Prices (CACP)** based on factors like:
  - **Cost of production**
  - **Demand and supply**
  - **Market trends**
3. **Approval Process:** Final decision on MSP is made by the **Cabinet Committee on Economic Affairs (CCEA)**, chaired by the **Prime Minister**.
4. **Crops Covered Under MSP:** MSP is announced for **22 crops**, including:
  - **14 Kharif crops**
  - **6 Rabi crops**
  - **2 commercial crops**
  - **Fair Remunerative Price (FRP)** is set for sugarcane.



## Types of Production Costs Considered:

1. **A2:** Paid-out costs for inputs like seeds, labor, and fertilizers.
2. **A2+FL:** Includes **unpaid family labor**.
3. **C2:** Comprehensive cost including **rent** and **capital interest**, used as a **benchmark reference**.

**Budget 2018-19 and MSP:** The **MSP** is set at **1.5 times** the **All-India weighted average cost of production**, ensuring that farmers receive **fair returns** for their crops.

## India's Direct Tax Collections: FY2023-24

**Context:** India's **direct tax collections** for FY2023-24 reached a significant milestone, constituting **56.72%** of the total tax revenue, marking the highest contribution in 14 years.

### Key Data Released by the Central Board of Direct Taxes (CBDT):

Parameter	FY2023-24	Comparison/Trend
Direct Tax to Total Tax Revenue	56.72%	Highest since FY2010 (60.78%)
Indirect Tax to Total Tax Revenue	43.28%	Decreased from FY2022-23
Direct Tax to GDP Ratio	6.64%	Highest in over 20 years
Personal Income Tax Collection	₹10.45 lakh crore	Higher than corporate tax collection



<b>Corporate Tax Collection</b>	₹9.11 lakh crore	Lower due to 2019 corporate tax rate cuts
<b>Tax Buoyancy</b>	2.12	Improved from 1.18 in FY2022-23
<b>Income Tax Filers</b>	8.09 crore	Up from 7.4 crore in FY2022-23
<b>Total Taxpayers</b>	10.41 crore	Up from 9.37 crore in FY2022-23
<b>Cost of Tax Collection</b>	0.44%	Lowest since 2000-01

## ENVIRONMENT & ECOLOGY

### Oceans on Brink: Assessing Progress Toward the 30×30 Target

**Context:** A report titled “On Track or Off Course? Assessing Progress Toward the 30×30 Target in the Ocean” highlights the disparity between **pledges** and **actual protection** of marine ecosystems.

#### Key Findings:

- Limited Protection:** Only **2.8%** of oceans are effectively protected, while **8.3%** are designated **Marine Protected Areas (MPAs)**, but most lack proper enforcement.
- Slow Progress:** Since **COP15**, the increase in protected areas is just **0.5%**, making the **30% target** by 2030 unlikely to be achieved.
- Blue-washing:** Some countries, such as the **UK**, declare large MPAs but manage less than **1%** effectively.
- Regional Disparities:** Significant gaps exist between declared and managed MPAs in regions like **Latin America, Caribbean, North America, and Europe**.
- Few Leaders:** Only **14 countries** have met the **30% protection target**, with **Palau** and the **UK** safeguarding significant portions of their marine environments.

#### Impact:

- Climate Regulation:** Oceans absorb **90% of heat** from human activities and **30% of CO2 emissions**. Weak protection undermines this vital role.
- Biodiversity Loss:** Poorly managed MPAs allow for **overfishing** and **habitat destruction**, leaving species vulnerable.
- Livelihoods at Risk:** Coastal communities dependent on the oceans for **fishing** and **tourism** face threats to **food security** and **income**.
- Economic Costs:** Inaction increases **disaster response costs** and the burden of **ecosystem restoration**.

## Challenges:

1. **Weak Enforcement:** MPAs exist largely on paper but lack **monitoring** and **enforcement**.
2. **Geopolitical Barriers:** Weak governance in **international waters** hinders effective protection.
3. **Economic vs. Conservation:** **Industrial activities** like mining often take precedence over conservation efforts.
4. **Lack of Funding:** Developing nations lack the resources to manage MPAs, and **promised financial aid** is slow to arrive.
5. **Delayed Agreements:** The **High Seas Treaty**, crucial for protecting international waters, faces slow progress.

## Solutions:

1. **Expand MPAs:** Increase the **number** and **size** of MPAs, following **Panama's example** of expanding **Banco Volcán**.
2. **Strengthen Management:** Enforce proper **management** of MPAs, with the **UK's Blue Belt Programme** serving as a model.
3. **Incorporate Indigenous Knowledge:** Engage local communities, as seen in **Canada's Gitdisdzu Luyeks MPA**, to enhance conservation efforts.
4. **Deliver Financial Aid:** Developed nations must meet their **funding commitments** to support conservation in developing countries.
5. **Improve Monitoring:** Better **data collection** is needed to assess and enhance the effectiveness of MPAs.

## Best Practices:

1. **Community-based Conservation:** Engaging locals, as in **Mozambique**, reduces reliance on unsustainable fishing.
2. **Indigenous Knowledge** Incorporating **traditional knowledge** improves ecosystem management and protection.
3. **Adaptive Management:** Flexible management, such as in the **Blue Belt Programme**, allows for continuous improvement.
4. **Scalable Models:** **Panama's Banco Volcán** provides a model for scalable MPA expansion.
5. **Public-Private Partnerships:** Collaborating with **private stakeholders** can bring additional funding and technology to marine protection efforts.

## Greenwashing Guidelines: Regulating Misleading Environmental Claims

**Context:** The **Central Consumer Protection Authority (CCPA)** has introduced guidelines to tackle **greenwashing** in India. These guidelines aim to regulate misleading environmental claims and ensure transparency in promoting sustainable products and services.

### What is Greenwashing?

- **Definition:** **Greenwashing** refers to the deceptive practice where companies make **unsubstantiated or exaggerated claims** about the environmental benefits of their products or services to **mislead consumers**.
- **Purpose:** Companies often use terms like **“eco-friendly,” “organic,” or “sustainable”** without proper evidence to attract **environmentally conscious consumers** and enhance their brand image.

### Greenwashing Guidelines (2024):

#### Who Do the Guidelines Apply To?

1. **Manufacturers, Service Providers, and Traders:** Any individual or company promoting products or services using **environmental claims**.
2. **Advertisements Across Media:** Includes advertisements in **digital, print, television,** and other media platforms.
3. **Companies Making Environmental Claims:** Entities promoting products as **“eco-friendly,” “organic,” or “sustainable”** must back up such claims with **verifiable evidence**.

#### Principles:

1. **Transparency and Accuracy:** Environmental claims must be **clear and truthful**, avoiding vagueness or exaggeration.
2. **Substantiation with Evidence:** Claims must be supported by **reliable scientific evidence** or **credible certifications**.
3. **Prohibition of Vague Terms:** Terms like **“green” or “eco-friendly”** cannot be used without proper substantiation.

#### Key Features:

1. **Clear Definitions:** The guidelines define **greenwashing** and **environmental claims** explicitly for both **consumers and businesses**.
2. **Substantiation Requirements:** Companies are required to provide **scientific evidence** or **certifications** to support their environmental claims.

3. **Disclosure Requirements:** Companies must disclose relevant details, such as which aspect of the product is environmentally beneficial (e.g., the **manufacturing process** or **packaging**).
4. **Third-Party Certification:** Acceptance of **third-party certifications** as proof to support claims.
5. **Prohibition of Misleading Terms:** Vague and **unsubstantiated terms** are banned unless clearly explained with **evidence**.

### Need for the Guidelines:

1. **Consumer Protection:** The guidelines aim to protect consumers from **misleading environmental claims**.
2. **Promoting Transparency:** Ensures **transparency** and **integrity** in the marketplace, fostering trust.
3. **Encouraging Sustainable Practices:** Promotes genuine adoption of **sustainable business practices** by holding companies accountable for their claims.

### Significance:

1. **Consumer Trust:** Enhances **trust** in environmental claims made by companies.
2. **Prevention of Deception:** Prevents **deceptive advertising practices**, promoting honesty in the green marketplace.
3. **Encouragement of Sustainability:** Encourages businesses to make **honest contributions** to **environmental sustainability**.
4. **Accountability:** Strengthens **accountability** for companies making environmental claims.

### Limitations of the Guidelines:

1. **Ambiguity in Terms:** Terms like “**sustainable**” or “**eco-friendly**” may still have **different interpretations** across industries, leading to ambiguity.
2. **Limited Scope for Informal Sectors:** **Small businesses** or informal sectors may struggle to meet the **stringent evidence** and **certification requirements**.
3. **Enforcement Challenges:** Monitoring compliance across diverse sectors can be **logistically difficult**.
4. **Data Verification:** Limited availability of **independent certification bodies** may complicate enforcement.
5. **Consumer Awareness:** Consumers may not fully understand **technical terms** or have the tools to verify claims, reducing the effectiveness of the guidelines.



## Water Chestnut (Goer): A Vital Resource in Kashmir

### Introduction: Importance of Water Chestnut in Kashmir

The **water chestnut**, locally known as “**Goer**” in Kashmir, is an essential aquatic vegetable that grows in **Wular Lake**, one of Asia’s largest freshwater lakes. It serves as a significant income source for local communities, particularly those from economically weaker backgrounds. However, environmental changes have led to a decline in its production, threatening local livelihoods.

### About Water Chestnut (Goer) in Kashmir

1. **Aquatic Vegetable** Water chestnuts grow abundantly in the **Wular Lake** region. In other parts of India, they are commonly referred to as “**Singhara.**”
2. **Harvest Season** The collection season typically begins in **late September** and continues through the autumn months.
3. **Labor-intensive Harvesting** The harvesting process is physically demanding. **Villagers** use boats to collect water chestnuts and wear protective footwear to avoid injury from the plant’s sharp spines.
4. **Edible Part** The **edible kernel** is peeled, dried, and ground into flour. It is widely consumed, particularly during religious festivals such as **Navaratri.**

### Uses of Water Chestnut

1. **As Food:** The **white, crunchy, and sweet flesh** can be eaten fresh or dried. It is an important food item during **fasting rituals** in various parts of India.
2. **As Fuel:** The **dried outer shells** of water chestnuts are used as fuel in **traditional Kashmiri fire pots (kangri)**, particularly during the winter months.
3. **Nutritional Value:** Water chestnuts are rich in **potassium** and **fiber**, low in **sodium** and **fat**, and a good source of **carbohydrates.**

### Economic Significance

- **Source of Income:** Water chestnuts are a primary source of **seasonal income** for the economically weaker sections living around **Wular Lake.**

### Challenges Facing Water Chestnut Production

#### 1. Environmental Factors:

- **Dry weather** conditions and the increasing spread of **marshland** around **Wular Lake** have led to a decline in water chestnut production.

2. **Impact on Livelihoods:** The decline in production is directly affecting the **livelihoods** of the communities dependent on water chestnut harvesting.

## Kaziranga National Park: Second-Largest Butterfly Hub in India

**Context:** Kaziranga National Park, renowned for its **one-horned rhinoceros**, has gained recognition as the **second-largest butterfly diversity hub** in India, following **Namdapha National Park** in Arunachal Pradesh.

### Butterflies in Kaziranga:

1. **Species Diversity:** Home to **446 butterfly species**, making Kaziranga the second-most diverse butterfly hub in India.
2. **Newly Recorded Species:** **18 new species** have been documented, including notable species such as **Burmese Threering, Glassy Cerulean, and Peacock Oakblue**.
3. **Butterfly Conservation Efforts:** The **Butterfly Conservation Meet-2024** raised awareness of the importance of **butterfly conservation** and highlighted Kaziranga's butterfly diversity.

### About Kaziranga National Park:

1. **Location:** Situated in **Golaghat and Nagaon districts of Assam**.
2. **UNESCO World Heritage Site:** Declared a **national park in 1974** and recognized as a **UNESCO World Heritage Site**, housing **two-thirds** of the world's **one-horned rhinoceros population**.
3. **Biodiversity:** Kaziranga is home to a variety of fauna, including **royal Bengal tigers, leopards, capped langurs, and migratory birds**.
  - Known for its **tall elephant grass, water lilies, and wet alluvial grasslands**.
4. **Flora and Fauna:** Famous for **elephant grasses, rattan cane**, and aquatic plants like **water hyacinths**.
  - Hosts important species like the **Bengal florican** and **western hoolock gibbon**, India's only **ape species**.
5. **Ecological Importance:** Kaziranga represents the **largest undisturbed area** in the **Brahmaputra Valley floodplains**, providing critical habitats for a diverse range of wildlife species.

# BIOTECHNOLOGY & HEALTH

## Improving Availability of Orphan Drugs: Addressing India's Rare Disease Burden

### Introduction: Context of the Delhi High Court Directive

Recently, the Delhi High Court has taken steps to enhance the availability of orphan drugs, which are essential for treating rare diseases. The World Health Organization (WHO) defines rare diseases as chronic, debilitating conditions affecting 1 or fewer individuals per 1,000 people.

### Definition and Overview of Rare Diseases

- **Lack of a Unified Definition in India:** India does not have a standard national definition for rare diseases.
- **Global Definition:** Globally, a rare disease affects fewer than 1 in 2,000 individuals.
- **India's Case:** Over 450 rare diseases have been identified, including conditions like **Spinal Muscular Atrophy (SMA)** and **Gaucher's Disease**.

### Current Status of Rare Diseases in India

- **Prevalence:** Approximately **50-100 million Indians** are affected by rare diseases, with a significant portion being children.
- **High Mortality:** Due to limited treatment options, many patients do not live into adulthood.
- **Treatment Gaps:** Around **80% of patients** with rare diseases lack the necessary treatment.

### Classification of Rare Diseases

1. **Group 1:** Diseases treatable through a one-time, curative procedure.
2. **Group 2:** Conditions requiring long-term treatment but with relatively lower costs.
3. **Group 3:** Diseases that demand lifelong, expensive treatment options.

### Key Challenges in Addressing Rare Diseases

- **Limited Treatment Options:** Only less than 50% of identified rare diseases have available treatments.
- **High Drug Costs:** Medications for rare diseases, known as orphan drugs, are prohibitively expensive.
- **Low R&D Investment:** Pharmaceutical companies hesitate to invest in treatments for rare diseases due to perceived low profitability.
- **Late Diagnosis:** It takes an average of **seven years** to diagnose rare diseases, leading to delays or incorrect treatment.

- **Insufficient Medical Expertise:** Many healthcare professionals are not adequately trained to diagnose or treat these conditions.

### Government Initiatives to Support Rare Disease Treatment

1. **National Policy for Rare Diseases 2021:** This policy aims to provide financial assistance and establish **12 Centres of Excellence (CoEs)** for treating rare diseases.
2. **PLI Scheme for Orphan Drugs:** This initiative provides financial incentives for the domestic production of orphan drugs.
3. **Customs Duty Waiver:** Waivers on import duties for rare disease drugs intended for personal use.
4. **Crowdfunding Portal:** A digital platform for the public to donate funds to support the treatment of rare disease patients.

### Recommended Steps for Improvement

1. **Broaden Treatment Access:** Increase the number of treatable rare diseases and expand the CoEs network across India.
2. **Enhanced Financial Support:** Provide greater financial assistance for patients, especially those requiring lifelong treatment, to reduce their financial burden.
3. **Increase R&D Investments:** Promote research and development efforts to create affordable and accessible treatments for rare diseases.
4. **Healthcare Professional Training:** Enhance training for medical professionals to improve diagnosis and management of rare diseases.
5. **Public Awareness:** Raise public awareness about rare diseases to enable early diagnosis and foster better understanding.

## Precision Medicine and Biobanks: Advancing Personalized Healthcare in India

### Introduction: Context and Relevance

Precision medicine is an emerging healthcare approach that personalizes treatment based on an individual's genetic, environmental, and lifestyle factors. Although India has made notable progress in this field, **biobank regulations** remain inadequate, which poses a challenge to further advancements.

### Understanding Precision Medicine and Biobanks

1. **Precision Medicine** This medical approach customizes treatments for each individual based on their **genetic composition, lifestyle, and environmental factors**, rather than using a one-size-fits-all treatment method.



2. **Biobanks** Biobanks are repositories that collect and store biological samples like **blood, tissue, and DNA**, along with **genetic data** from consenting participants for use in research.

## Importance of Biobanks in Precision Medicine

- **Data Repository:** Biobanks hold genetic data that is essential for identifying disease patterns and for developing **targeted therapies**.
- **Research Support:** They form the backbone for researching **genetic disorders, chronic diseases, and personalized treatments**.
- **Diversity in Research:** A broad and diverse genetic database ensures that precision medicine benefits individuals across various ethnic groups and demographics.

## Status of Precision Medicine and Biobanks in India

- **Growing Market:** India's precision medicine market is projected to exceed **\$5 billion by 2030**, reflecting its rapid expansion.
- **Existing Biobanks:** India currently has **19 registered biobanks**, with large-scale genetic data collection initiatives like the **Genome India Project** and **Phenome India** underway.
- **Policy Gaps:** India lacks comprehensive **biobank regulations**, creating obstacles for further growth in precision medicine.

## Best Practices from Foreign Countries

- **Comprehensive Laws:** Countries like the **U.S., U.K., Japan, and China** have specific laws regulating biobanks, covering crucial aspects like **informed consent, privacy, and data security**.
- **Centralized Oversight:** These nations have established **centralized authorities** to oversee biobank operations, ensuring compliance with ethical standards and proper data protection.

## Significance of Biobank Regulations

- **Ethical Standards:** Robust regulations can ensure **informed consent**, protect participants' rights, and prevent **genetic data misuse**.
- **Boosting Research:** Regulated biobanks enhance **public trust**, encouraging greater participation in precision medicine research.
- **Global Collaboration:** Harmonizing Indian biobank laws with **global standards** can facilitate international collaboration in **drug development** and **clinical research**.

## Key Challenges

- **Absence of Regulation:** India does not have a central authority to govern biobanks, leading to **ethical concerns** and potential **data misuse**.

- **Informed Consent Issues:** Participants often lack full awareness of how their samples will be used, which risks violating **privacy rights**.
- **Limited Public Trust:** Without strong privacy protections, **public participation** in biobank-related research remains low.
- **Foreign Access:** Weak regulations allow **foreign companies** to access Indian genetic data without ensuring that benefits return to the local population.

## Way Forward

1. **Formulate Comprehensive Biobank Laws:** Implement detailed biobank regulations focusing on **privacy, consent**, and ethical handling of biological samples.
2. **Establish a Central Regulatory Authority:** Create a national body to regulate and oversee biobank operations, ensuring consistency and adherence to ethical standards.
3. **Encourage Public Participation:** Increase public trust through **awareness campaigns** and guarantees of **data protection** to promote greater participation in biobank research.
4. **Promote Research and Collaboration:** Foster collaboration between **Indian** and **international research institutions**, while ensuring equitable access to research outcomes.
5. **Support Domestic Drug Development:** Encourage the development of **locally manufactured drugs** based on biobank data to reduce treatment costs and increase accessibility.

## Drugs Technical Advisory Board (DTAB) Recommendations on Antibiotics

**Context:** The **Drugs Technical Advisory Board (DTAB)** has recommended stricter regulations on **antibiotics** to combat **antimicrobial resistance (AMR)** in India, suggesting that all antibiotics be classified as “new drugs” under the **New Drugs and Clinical Trial (NDCT) Rules, 2019**.

### Recent Recommendations by DTAB:

1. **Inclusion of Antibiotics as “New Drugs”:** All **antibiotics** would be categorized as “**new drugs**”, requiring stricter **documentation** and **regulation** for their manufacturing, marketing, and sale.
2. **Union Government Control: Manufacturing and marketing approvals** for antibiotics would now require clearance from the **Union government**, shifting control away from state authorities to ensure centralized oversight.
3. **Prescription Mandatory:** Antibiotics will only be available with a **valid prescription**, limiting over-the-counter sales and reducing **indiscriminate use**.

4. **Labeling Changes:** Antibiotics will feature a **blue strip or box** on their packaging to help consumers identify **antimicrobial products**, thereby increasing public awareness.
5. **Focus on Antimicrobial Resistance (AMR):** This initiative aims to combat the growing problem of **antimicrobial resistance (AMR)**, where common infections such as **UTIs, pneumonia, and typhoid** are becoming resistant to **standard treatments**.

### Significance:

- **Curbing AMR:** These measures will help slow the **rise of drug-resistant infections** by reducing the **misuse of antibiotics**.
- **Centralized Regulation:** Bringing antibiotics under central control ensures **uniform regulation** across the country, preventing variations in enforcement.
- **Public Health Protection:** Mandatory prescriptions and enhanced labeling will safeguard **public health**, preventing **self-medication** and the misuse of antibiotics.

### About Drugs Technical Advisory Board (DTAB):

- **Role:** It is the **highest statutory body** advising the Indian government on **technical drug-related matters**.
- **Established under:** The **Drugs and Cosmetics Act, 1940**.
- **Part of:** **Central Drugs Standard Control Organization (CDSCO)**.
- **Nodal Ministry:** **Ministry of Health and Family Welfare**.
- **Functions:** Advises both central and state governments on technical matters related to the administration of the **Drugs and Cosmetics Act**.

## SCIENCE & TECHNOLOGY

### Mechazilla: Revolutionizing Space Exploration

**Context:** SpaceX has achieved a significant breakthrough in space exploration with the successful use of **Mechazilla**, a cutting-edge structure designed to catch rockets midair.

#### About Mechazilla:

##### • Structure:

- **Mechazilla** is a massive, **400-ft tall rocket-catching** structure located at SpaceX's **Starbase** in Texas.
- It features giant mechanical arms, known as "**chopsticks**", designed to **catch the Super Heavy booster** midair as it returns to Earth after launch.

#### Working of Mechazilla:

1. **Launch & Ascent:** The **Starship** and its **Super Heavy booster** launch from the ground.
2. **Booster Separation:** At a high altitude, the **booster detaches** from the upper stage of the Starship.
3. **Controlled Descent:** The booster uses **precision thrusters** to guide itself back to the landing site.
4. **Booster Catching:** Mechazilla's **mechanical arms** move into position and catch the descending booster, enabling a **controlled landing**.

#### Significance of Mechazilla:

- **Quick Reusability:** Mechazilla enables rapid turnaround for **rocket refurbishment** and re-launch, making space missions more efficient.
- **Cost Reduction:** The system allows for **quick reuse** of boosters, dramatically **lowering launch costs**.
- **Sustainability:** By minimizing wear and tear on reusable components, Mechazilla enhances the **sustainability** of space exploration.
- **Future of Space Travel:** This innovation could make space missions more **frequent, affordable, and scalable**, advancing humanity's **interplanetary travel** goals.

### X-band Radar: Enhancing Weather Monitoring and Early Warning Systems

#### Introduction: X-band Radar Installation in Wayanad

The **Union Ministry of Earth Sciences** has recently approved the installation of an **X-band radar** in **Wayanad** to enhance the region's ability to monitor weather conditions and provide **early warnings** for



**landslides** and **floods**. This technology will significantly improve the prediction and management of such disasters in this vulnerable area.

### Key Features of X-band Radar

1. **Purpose** : The X-band radar is designed to monitor **small particles** such as **rain droplets** or even **soil movements**, making it particularly useful for detecting early signs of **landslides** and tracking **rainfall intensity**.
2. **Frequency Range**: Operates within the **8-12 GHz** range, corresponding to **wavelengths of 2-4 cm**. This high-frequency range allows for precise detection of small particles.
3. **Technology**: Uses **Doppler radar** technology, combined with **Rayleigh scattering**, to detect the movement of objects. This is crucial for understanding both precipitation patterns and shifts in soil that may indicate landslide risk.
4. **Resolution**: Due to its **shorter wavelength**, the X-band radar produces **higher resolution images**, allowing for detailed analysis of localized weather conditions.
5. **Range**: Though the radar has a **shorter range** compared to lower frequency bands, it is ideal for **localized studies** like those needed in **Wayanad**, where specific and accurate data is crucial for early warning systems.

### Application in Wayanad

- **Landslide and Flood Monitoring**: The radar will be used to monitor **soil movements** and provide **real-time data** on weather patterns, making it possible to issue **early warnings** for landslides and floods.
- **High Temporal Sampling**: The radar will offer frequent updates, helping authorities and local communities respond more effectively to emerging threats.

### Meteorological Uses

- **Tracking Weather Patterns**: The X-band radar is valuable in **real-time tracking** of **cloud formations**, **rain patterns**, and **storm development**, enabling timely predictions of adverse weather conditions.
- **Limitations of X-band Radar**
  - **Shorter Range**: The radar's signal suffers from **higher attenuation**, which limits its range compared to lower frequency bands like C-band or S-band. This means it is best suited for localized weather monitoring.

### Previous Installations in India

- The first X-band radar in India was installed in **New Delhi** in **1970**, marking the beginning of advanced radar usage for weather forecasting in the country.

## Haber-Bosch Process

**Purpose:** The **Haber-Bosch process** is a method to synthesize **ammonia (NH<sub>3</sub>)** by fixing **nitrogen (N<sub>2</sub>)** from the air with **hydrogen (H<sub>2</sub>)**. This ammonia is essential for producing **fertilizers**, which are critical for agricultural productivity.

### Development:

- Invented by **Fritz Haber** in the early 1900s and later industrialized by **Carl Bosch**.
- Considered one of the most significant technological advancements of the 20th century due to its impact on food production and industrial chemistry.

### Significance:

- Enabled the **mass production of fertilizers**, revolutionizing agriculture by increasing crop yields.
- Marked the first large-scale chemical process using **high pressure** for a chemical reaction.

### How it Works:

1. **Reaction of Nitrogen and Hydrogen:** Combines **nitrogen (N<sub>2</sub>)** from the air with **hydrogen (H<sub>2</sub>)** under high pressure (150–200 atmospheres) and a moderate temperature (~400–500°C).
2. **Catalyst:** **Iron-based catalysts** are used to lower the reaction temperature and enhance efficiency.
3. **Pressure & Temperature Balance:** **Higher pressure** increases ammonia yield, while **lower temperatures** favor the reaction but slow down the process. A balance is maintained to optimize production.
4. **Continuous Process:** **Ammonia** is continuously removed to maintain equilibrium, promoting further reaction and product formation.

## Copper Zinc Tin Sulfide Nanoparticles (CZTS)

**Context:** Researchers at the **Institute of Advanced Study in Science and Technology (IASST)**, Guwahati, have developed a **photocatalyst** to degrade **sulfamethoxazole (SMX)**, an antibiotic contaminant, into less harmful byproducts, addressing a critical environmental concern.

### Need:

- **Antibiotic contamination** from drugs like **sulfamethoxazole (SMX)** is an increasing environmental problem, contributing to **antibiotic resistance**, **ecological damage**, and **health risks**.
- **Efficient degradation methods** are required to mitigate these harmful effects.

### About Copper Zinc Tin Sulfide Nanoparticles:

1. **Photocatalyst Developed:** The team synthesized **copper zinc tin sulfide (CZTS) nanoparticles** and a **CZTS-tungsten disulfide (CZTS-WS<sub>2</sub>) composite**.
2. **Composition:** The composite is composed of **earth-abundant, inexpensive, and non-toxic materials** using a **hydrothermal reaction** involving **zinc chloride, copper chloride, tin chloride, and tungsten disulfide**.
3. **Function:** The composite acts as an efficient **photocatalyst**, breaking down **sulfamethoxazole** under light exposure into less harmful byproducts.

## Significance:

1. **Environmental Impact:** Helps reduce the harmful effects of antibiotics like SMX in the environment, thus mitigating risks associated with **antibiotic resistance** and ecological damage.
2. **Efficiency:** The **CZTS-WS<sub>2</sub> composite** showed over **80% radical scavenging efficiency** and antibacterial properties, making it highly effective in degrading pollutants.
3. **Reusability:** The catalyst is **reusable** multiple times without losing its effectiveness, enhancing its **economic viability**.
4. **Photostability:** Demonstrates **excellent photostability**, making it valuable for long-term applications in **light-harvesting** and **photocatalysis**. This increases its potential for sustainable environmental solutions.

## IndiaAI Mission: Advancing Responsible AI

**Context:** The **IndiaAI Mission** has selected eight **Responsible AI projects** under the **Safe and Trusted AI Pillar** as part of the initiative to boost **AI innovation** in India.

### About IndiaAI Mission:

1. **Origin:** Launched during the **Global Partnership on Artificial Intelligence (GPAI) Summit** in 2023 by the **Prime Minister of India**.
2. **Aim:** To build an advanced **AI ecosystem** supporting various sectors, boost **AI innovation**, and promote **ethical AI practices**.
3. **Nodal Ministry:** **Ministry of Electronics and Information Technology (MeitY)**
4. **Implementing Agency:** **IndiaAI Independent Business Division (IBD)** under the **Digital India Corporation (DIC)**.

### Key Components:

1. **IndiaAI Compute Capacity:** Develop AI compute infrastructure with **10,000+ GPUs** via public-private partnerships.

2. **IndiaAI Innovation Centre:** Create **Large Multimodal Models (LMMs)** and **sector-specific foundational AI models**.
3. **IndiaAI Datasets Platform:** Provide access to **high-quality non-personal datasets** for **AI research** and startups.
4. **IndiaAI Application Development Initiative:** Promote **AI applications** addressing challenges in **healthcare, agriculture, and governance**.
5. **IndiaAI FutureSkills:** Expand **AI education** through new programs and set up **Data & AI Labs** in smaller cities.
6. **IndiaAI Startup Financing:** Easier access to funding for **AI startups**, with **Rs 2,000 crore** allocated.
7. **Safe & Trusted AI:** Ensure **responsible AI practices** with indigenous tools and frameworks.



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## PERSONALITY IN NEWS

### 2024 Nobel Prize in Economics: Recognizing Research on Wealth Inequality

**Context:** The **2024 Nobel Prize in Economics** was awarded to **Daron Acemoglu, Simon Johnson, and James Robinson** for their pioneering research on **wealth inequality** between nations. Their work explores the critical role of **political and economic institutions** in shaping a country's prosperity, with a particular focus on the legacy of **colonialism** and the impact of institutional frameworks on development.

#### About Their Work:

- Study of Institutions:** The laureates examined how **political** and **economic institutions** influence a nation's development and prosperity. Their research highlights the long-term consequences of institutional frameworks on wealth distribution and growth.
- Impact of Colonialism:** They explored the systems introduced by **European colonizers** and their enduring effects on **wealth inequality** between nations. These imposed systems often created extractive institutions, which hindered long-term development.
- Comparative Studies:** A key example from their work is the city of **Nogales**, divided by the **U.S.-Mexico border**, illustrating how different institutional arrangements on either side lead to vastly different levels of prosperity.
- Focus on Democracy:** Their research reveals that countries transitioning to **democracy** tend to experience **faster economic growth** than non-democratic regimes, emphasizing the positive relationship between democratic institutions and development.
- Key Publication:** **Daron Acemoglu** co-authored the influential book "**Why Nations Fail**," which delves into the **roots of economic disparity** between countries and explains how institutions play a defining role in shaping national prosperity.

#### Significance of Their Work:

- Understanding Wealth Inequality:** Their research provides valuable insights into how differences in institutional structures explain why some countries thrive economically while others struggle.
- Role of Institutions:** The laureates underscore the importance of **inclusive political and economic institutions** that foster **sustainable growth** and help reduce inequality, in contrast to extractive institutions that benefit only a few.

3. **Practical Implications:** The research offers guidance on how poorer countries can **reform institutions** to promote development. Their findings have direct relevance for policy-makers working to narrow the global **income gap**.
4. **Global Relevance:** Their work addresses one of the world's most pressing challenges—reducing **wealth inequality** between nations—and provides a roadmap for enhancing institutional capacity in developing countries.
5. **Support for Democracy:** The laureates highlight the **positive impact of democracy** on economic growth, suggesting that **democratic institutions** not only enhance political freedoms but also contribute to broader economic success.



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## SCHEMES & INITIATIVES

### Tele-MANAS (Tele Mental Health Assistance and Networking Across States)

**Context:** Launched on **October 10, 2022**, under the **National Tele Mental Health Programme (NTMHP)**, **Tele MANAS** aims to address India's growing mental health crisis by providing easily accessible mental health care.

#### Need for Tele MANAS:

1. **Mental Health Crisis:** 15% of India's adult population requires mental health intervention, and the **treatment gap** is estimated at **70-92%**.
2. **High Suicide Rates:** Annually, over **1 lakh people** die by suicide in India, underscoring the need for accessible mental health support.
3. **Prevalence of Mental Disorders:** Mental disorders are the **second leading cause of years lived with disability (YLDs)** in India.
4. **Limited Access to Care:** Despite mental healthcare being a statutory right under the **Mental Healthcare Act, 2017**, **80% of people** with mental health issues do not seek help.

#### Key Features of Tele MANAS:

1. **24/7 Toll-Free Helpline:** Offers **phone-based counselling, psychotherapy, psychiatric consultations, and referral services**, making mental health support more accessible.
2. **Accessibility:** Aimed at reaching both **urban and remote areas**, providing equitable mental health services across India.
3. **Two-tier System:**
  - **Tier 1:** Provides **initial counselling and referral services**.
  - **Tier 2:** Offers **specialist consultations, follow-up care, and e-prescriptions**.
4. **Integrated Care:** Seamlessly connects individuals to **in-person services and mental health interventions** when necessary.
5. **WHO Recognized Model:** The **World Health Organization (WHO)** has praised **Tele MANAS** as an **effective and innovative model** for delivering large-scale mental health care.

## Prime Minister Early Career Research Grant (PMECRG)

**Context:** The newly operationalized **Anusandhan National Research Foundation (ANRF)** has launched the **Prime Minister Early Career Research Grant (PMECRG)** to support early-career researchers and strengthen India's scientific leadership.

### About PMECRG:

1. **Origin:** Launched under **ANRF** to foster **scientific research** and innovation.
2. **Aim:** The initiative seeks to promote **high-quality research**, accelerate **technological advancements**, and contribute to **India's global leadership** in **science and technology**.
3. **Key Features:**
  - **Flexible Budget:** Provides researchers with the freedom to pursue their projects without budgetary constraints.
  - **Support for Young Researchers:** Focuses on **nurturing young talent** and encouraging **groundbreaking discoveries**.
  - **Research Excellence:** Aims to position India as a **leader** in **science and technology** by backing **innovative research**.

## Mission for Advancement in High-Impact Areas – Electric Vehicle (MAHA-EV) Mission

**Context:** The **MAHA-EV Mission** is part of ANRF's initiative to address critical national challenges, specifically targeting **Electric Vehicle (EV) technologies**.

### About MAHA-EV Mission:

1. **Origin:** Introduced as part of ANRF's **MAHA scheme**, aligned with national priorities like **Atmanirbhar Bharat**.
2. **Aim:** The mission focuses on developing **domestic EV technologies**, reducing **import dependency**, and positioning India as a **global hub** for EV components.
3. **Key Features:**
  - **Three Critical Verticals:** Focuses on **EV Batteries and Cells, Power Electronics, Machines, and Drives (PEMD)**, and **EV Charging Infrastructure**.
  - **Collaborative Approach:** Encourages **multi-institutional collaboration** to drive innovation.
  - **Sustainable Transition:** Supports India's goal of transitioning to **electric mobility** and achieving a **Viksit Bharat by 2047**.



## Anusandhan National Research Foundation (ANRF)

**Context:** Operationalized in **2024**, **ANRF** aims to strengthen the link between **academic research** and **industrial applications** while aligning with **national priorities**.

### About ANRF:

1. **Leadership: Chaired by the Prime Minister**, the foundation held its first Governing Board meeting in 2024.
2. **Ministry:** Functions under the **Ministry of Science & Technology**.
3. **Aim: Bridges the gap** between **academic research** and **industrial applications** to drive **inclusive growth** and **scientific innovation**.
4. **Functions:**
  - Facilitates **industry-aligned translational research**.
  - Promotes **capacity building** and global competitiveness in key sectors.

## Samarthak Vessel

**Context:** The **Samarthak**, a **multi-purpose vessel** built by **L&T Shipyard**, Kattupalli, Tamil Nadu, was launched as part of India's push for **indigenous shipbuilding** under the **Aatmanirbhar Bharat** and **Make in India** initiatives.

### About Samarthak Vessel:

1. **Name: Samarthak** means **Supporter**, reflecting its versatile capabilities.
2. **Shipyard:** Built by **L&T Shipyard** at **Kattupalli**, Tamil Nadu.
3. **Specifications:**
  - **Length:** 106 meters.
  - **Width:** 16.8 meters.
  - **Speed:** Capable of reaching **15 knots**.
4. **Capabilities:**
  - **Towing Ships** and **launching/recovering targets**.
  - **Operating unmanned autonomous vehicles**.
  - Serving as a **platform for trials** of indigenous weapons and sensors.
5. **Significance:** The launch of **Samarthak** demonstrates India's growing expertise in **indigenous shipbuilding**, aligning with national defense and **economic self-reliance** strategies under **Aatmanirbhar Bharat**.

## e-Migrate Portal v2.0

**Context:** In October 2024, **External Affairs Minister Dr. S. Jaishankar** launched the **revamped e-Migrate v2.0 portal** and mobile app, designed to ensure **safe and legal migration** for Indian workers. This initiative aligns with India's commitment to protecting migrant workers' rights, as per the **2030 Agenda for Sustainable Development**.

### About e-Migrate Portal v2.0:

1. **Objective:** The portal promotes **safe, transparent, and inclusive migration** channels for Indian workers seeking overseas employment.
2. **Ministry:** Operated by the **Ministry of External Affairs**.
3. **Key Features:**
  - **Safe and Legal Migration:** Provides a secure platform for **legal migration** processes.
  - **24x7 Multilingual Helpline:** Offers **real-time support** in multiple languages to assist migrant workers with urgent issues.
  - **Integration with Digilocker:** Enables **paperless submissions** of important documents like passports and employment contracts.
  - **Social Security Net:** Expands social security coverage through **insurance policies** and partnerships with the **State Bank of India** for zero-fee digital payment services.
  - **Mobile App:** Developed to provide easy access to services, including a **job search marketplace** for overseas employment opportunities.
4. **Global Alignment:** The platform supports India's participation in **global migration negotiations** and addresses the growing demand for **domain-specific knowledge** in the international labor market.

## World Telecommunication Standardization Assembly (WTSA) 2024

**Context:** The **World Telecommunication Standardization Assembly (WTSA) 2024** is being hosted in New Delhi, marking the first time the event is held in the **Asia-Pacific region**. The assembly is part of India's efforts to drive global discussions on **telecommunication standards** and technology innovation.

### About WTSA:

1. **Frequency:** Held every **four years**, the assembly was first convened in **2002**.
2. **Role:** Serves as the **governing conference** for the **ITU Telecommunication Standardization Sector (ITU-T)**, setting the agenda for **global telecommunication standards**, working methods, and **study group structures**.
3. **WTSA 2024:**

- **Date:** October 14-24, 2024.
  - **Venue:** Bharat Mandapam, New Delhi.
  - **Focus Areas:** Topics include **6G, AI, IoT, big data, cybersecurity, machine-to-machine communications, and quantum technologies.**
4. **Significance:** WTSA sets **global telecommunication standards** that ensure **interoperability** across countries and promotes technological **innovation**.

### About International Telecommunication Union (ITU):

1. **Establishment:** Founded in **1865** as the **International Telegraph Union** and became a **UN specialized agency** in **1947**.
2. **Mission:** Coordinates global **standardization** and development of **telecommunication** and **ICT services**.
3. **Membership:** ITU includes **193 countries** and over **1,000 companies**, universities, and international organizations.
4. **Headquarters:** Located in **Geneva, Switzerland**.

### “Scam se Bacho” Campaign

**Context:** The Indian government and **Meta** have launched the “**Scam se Bacho**” campaign to combat rising **online scams** and cyber fraud.

#### About the “Scam se Bacho” Campaign:

1. **Aim:** To combat rising **online scams** and cyber fraud by fostering **digital safety** and vigilance across India.
2. **Partnership:** Collaboration between **Meta** and key government ministries including:
  - **Ministry of Electronics and Information Technology (MeitY)**
  - **Ministry of Home Affairs (MHA)**
  - **Ministry of Information and Broadcasting (MIB)**
  - **Indian Cyber Crime Coordination Centre (I4C)**
3. **Led by:** The campaign is led by the **Ministry of Information and Broadcasting (MIB)**.
4. **Coverage:** A **national initiative**, targeting India’s over **900 million internet users**.
5. **Features:**

- **Whole-of-government approach** to raising awareness about cyber safety.
- Focuses on educating citizens on preventing cyber threats and scams.
- **Meta's global expertise** in online safety is leveraged to empower Indian users.
- Supported by the highest levels of government, aligning with **Digital India's cybersecurity goals**.

## Indian Development and Economic Assistance Scheme (IDEAS)

**Context:** India has extended a new **Line of Credit (LoC)** of ₹487.60 crore to **Mauritius** under the **IDEAS scheme** for financing a water pipeline replacement project.

### About the IDEAS Scheme:

1. **Origin:** Launched in **2003-04** as the “**India Development Initiative**”, later renamed **IDEAS Scheme**.
2. **Aim:** To promote **India's political, economic, and strategic interests** by providing **developmental assistance** to developing countries.
3. **Administered by:** The **Ministry of External Affairs (MEA)** with support from the **Exim Bank**.
4. **Features:**
  - Provides **Lines of Credit (LoCs)** to developing countries for projects in sectors like **infrastructure, water, and education**.
  - Projects are typically recommended by the MEA and aimed at promoting **socio-economic development** in partner countries.
  - The financing includes **concessional terms** to reduce the burden on developing nations.
  - The scheme strengthens diplomatic ties, particularly with countries in the **Global South**.

## ‘Karmayogi Saptah’

**Context:** Prime Minister **Narendra Modi** inaugurated the ‘**Karmayogi Saptah**’ – **National Learning Week** on **19th October 2024** at the **Dr. Ambedkar International Centre**, New Delhi.

### About Karmayogi Saptah:

1. **Launch Date:** Inaugurated on **19th October 2024** by the Prime Minister.
2. **Objective:** Aimed at promoting **capacity-building** for civil servants through **competency-linked learning**.
3. **National Learning Week (NLW):**
  - Largest learning event for **civil servants**.
  - Focuses on creating a “**One Government**” message, aligning civil servants with **national goals**.
  - Emphasizes **lifelong learning** and **continuous development**.



#### 4. Learning Targets:

- Each Karmayogi is expected to achieve at least **4 hours** of **competency-linked learning**.
- Learning methods include **role-based modules** on **iGOT**, **webinars**, **public lectures**, and **policy masterclasses** by eminent speakers.

#### 5. Workshops & Seminars:

- Ministries and departments will organize **workshops** and **seminars** to enhance **domain-specific competencies**.
- Focus on **improving citizen-centric service delivery** through knowledge sharing and skill development.

## REPORTS & RANKINGS

### Global Hunger Index (GHI) 2024

**Context:** The **Global Hunger Index (GHI) 2024** highlights that **India** continues to face significant hunger challenges, ranking **105th out of 127 countries** with a score of **27.3**.

#### India's Status in GHI 2024:

- **Rank:** India ranks **105th out of 127 countries**.
- **Child Wasting:** India has the **highest global rate** of child wasting at **18.7%**.
- **Stunting:** **35.5% of children** under five years are stunted.
- **Undernourishment:** **13.7% of India's population** is undernourished.
- **Child Mortality:** **2.9% of children** die before their fifth birthday.
- **Comparison:** India lags behind its **South Asian neighbors** like **Bangladesh, Nepal, and Sri Lanka**, which are categorized under **moderate hunger**.

#### Methodology Used in GHI:

- **Indicators:** The GHI uses four key indicators:
  - **Undernourishment**
  - **Child stunting**
  - **Child wasting**
  - **Child mortality**
- **Data Sources:** Data is sourced from **UNICEF, WHO, World Bank, and FAO** for consistent cross-country comparisons.

- **Child Wasting Estimates:** GHI uses vetted estimates included in the **Joint Malnutrition Estimates** and the **WHO Global Database**.

### Limitations of the Report:

1. **Data Discrepancies:** The **Ministry of Women and Child Development** raised concerns about GHI not using data from the **Poshan Tracker**, which reported a lower child wasting rate (**7.2%** vs GHI's **18.7%**).
2. **Survey-based Estimates:** The reliance on survey data might not fully reflect **real-time data** from government systems like **Poshan Tracker**.
3. **National Representation:** GHI's methodology may not capture **regional variations** or improvements from India's nutrition programs.

### Way Ahead for India:

1. **Improved Data Collection:** India should integrate **real-time data** from systems like **Poshan Tracker** to better assess hunger and nutrition.
2. **Focus on Maternal Health:** Address the **intergenerational transfer of undernutrition** by improving **maternal health and nutrition**.
3. **Agricultural Investments:** Focus on **sustainable agriculture** and the production of **nutritious crops** like **millets** to improve dietary diversity.
4. **Strengthen Social Safety Nets:** Enhance access to **Public Distribution Systems (PDS)** and **Integrated Child Development Services (ICDS)** to cover vulnerable populations.

## World Energy Outlook 2024: Key Highlights

The **International Energy Agency (IEA)** in its **World Energy Outlook 2024** emphasizes the rapid transition towards **clean energy** and projects significant changes in the global energy landscape by 2030.

### Key Findings:

1. **Clean Energy Growth:** **More than 50%** of global electricity will come from **low-emission sources** by **2030**.
2. **Renewable Energy Capacity Addition:** A record **560 GW** of **renewable energy capacity** was added in **2023**.
3. **Investment in Clean Energy:** Investment in **clean energy projects** has reached nearly **\$2 trillion annually**, which is **double** the investment in **fossil fuels**.
4. **Nuclear Power's Role:** There is a renewed interest in **nuclear power** to support the clean energy transition, particularly as a stable low-emission energy source.

5. **Electricity Demand Drivers:** Growing demand for electricity is driven by sectors like **industry, electric vehicles (EVs), air conditioning, and AI-linked data centers.**
6. **Renewable Power Capacity Projections:** Renewable energy capacity is expected to increase from **4,250 GW to nearly 10,000 GW by 2030.**
7. **China's Role in Renewables:**
  - **60% of the global new renewable capacity** in 2023 was added by **China.**
  - **By 2030, China's solar power generation** will exceed the total electricity demand of the **U.S.** today.
8. **Carbon Emissions:** Global **CO2 emissions** are set to **peak imminently**, though **energy-related CO2 emissions** hit a record high last year.
9. **Global Temperature Rise:** Current policies are leading the world to a **2.4°C** rise in temperature by **2100**, which exceeds the **Paris Agreement** goal of limiting the rise to **1.5°C.**
10. **Challenges in Developing Countries:** **Policy uncertainty** and **high capital costs** are slowing clean energy adoption in **developing nations.**
11. **COP28 Renewable Energy Target:** The world has pledged to **triple renewable energy capacity** by **2030**, but current progress is **falling short.**
12. **CO2 Emissions and Energy Demand:** **Two-thirds** of the increased energy demand in **2023** was met by **fossil fuels**, which has **slowed the decline** in **coal usage.**

## FAO's "The Unjust Climate" Report: Key Findings and Recommendations

**Context:** A national-level dialogue on **FAO's "The Unjust Climate" report** was held in **New Delhi** on **16 October**, focusing on the climate vulnerabilities of India's rural poor, especially those trapped in **multidimensional poverty.**

### Key Findings of the Report:

1. **Poverty Reduction with Ongoing Challenges:** India has reduced **rural poverty** from **42.5% in 2005/06** to **8.6% in 2022/24**, but **transitory poverty** driven by **extreme weather events** continues to affect vulnerable populations.
2. **Gender Disparities:** **Female-headed households** suffer **8% more income loss** from **heat stress** and **3% more from floods**, exacerbating existing **gender inequalities.**
3. **Vulnerability of Rural Poor:** **Poor households** experience **5% greater income loss** due to **heat stress** and **floods** compared to wealthier households, reflecting the **economic disparity** in climate impacts.

4. **Maladaptive Coping Strategies:** The **rural poor** often resort to harmful strategies, like **selling livestock**, which increases their **vulnerability** to future **climate shocks**.
5. **Worsening Child Labour and Unpaid Work:** **Climate extremes** contribute to an increase in **child labour** and **unpaid work** for women, perpetuating **long-term social inequalities**.

### Policy Recommendations:

1. **Anticipatory Social Protection:** Scaling up **social protection programs** ahead of **extreme weather events** can prevent households from using harmful coping mechanisms, such as selling off **productive assets**.
2. **Workforce Diversification:** Investing in **skills development** and **vocational training** can help rural households diversify away from **climate-sensitive work**, increasing their resilience to **income shocks**.
3. **Gender-Transformative Approaches:** Addressing **gender norms** and improving **women's access to non-farm employment** is essential for **income diversification** and **climate resilience**.
4. **Participatory Agricultural Extension:** Promoting **group-based agricultural experimentation** encourages shared learning among rural farmers, reducing individual risks and helping them adapt to **changing climatic conditions**.
5. **Access to Adaptive Technologies:** **Public investments** in **climate-resilient agricultural technologies** are critical to support **land-constrained households** and improve rural livelihoods.

### About the Food and Agriculture Organization (FAO):

1. **Establishment:** The **FAO** is a specialized agency of the **United Nations**, established in **October 1945**, making it the oldest permanent UN specialized agency.
2. **Mandate:** The FAO's mission is to **defeat hunger** by improving **nutrition**, increasing **agricultural productivity**, raising **rural living standards**, and contributing to **global economic growth**.
3. **Key Functions:**
  - **Research:** Conducts research and provides technical assistance in **agriculture, forestry, fisheries, and land and water resources**.
  - **Education:** Operates **educational programs**, seminars, and training centers for agricultural development.
  - **Data and Statistics:** Maintains global **statistics** on production, trade, and consumption of agricultural commodities.
  - **Publications:** Publishes major reports like **The State of the World's Forests** and **The State of Food Security and Nutrition**.
4. **Headquarters:** Located in **Rome, Italy**.



5. **Membership:** FAO has **194 member states**, along with the **European Union** as a member organization.
6. **Funding:** Receives **100% funding** from its member countries.
7. **Relief Operations:** FAO does not directly manage **food relief** during conflicts or scarcity, as these operations are overseen by the **World Food Program (WFP)**.
8. **Key Reports:** FAO publishes key reports like:
  - **SOFO (State of the World's Forests)**
  - **SOFIA (State of World Fisheries and Aquaculture)**
  - **SOCO (State of Agricultural Commodity Markets)**
  - **SOFI (State of Food Security and Nutrition)**



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## PLACES IN NEWS

### Roopkund Lake

**Context:** Roopkund Lake has gained significant attention due to the **mystery of the skeletons** found at the site. However, environmental changes associated with **climate change** are affecting the lake, raising concerns about its future

#### About Roopkund Lake:

1. **Origin:** A **glacial lake** located at the base of **Mt. Trishul** in the **Garhwal Himalayas**, Uttarakhand, at an altitude of **5,029 meters** (16,500 feet).
2. **River Feed:** A **peri-glacial lake**, primarily fed by **melting snow** and **glaciers** from the surrounding area.
3. **Geographical Location:** Located in the **Chamoli district** of Uttarakhand, within **Nanda Devi National Park**, and is on a popular pilgrimage route to **Nanda Devi**.
4. **Historical Mystery:** The lake contains **human skeletons** dating back to **850 AD**, with DNA studies suggesting the presence of **two distinct groups** of people, likely pilgrims, who perished in a **hailstorm**.
5. **Current Issue:** Due to **climate change**, Roopkund Lake is shrinking, with reduced depth and area resulting from **shifting precipitation patterns** and **increased silting** caused by moraine slides. These changes are affecting both the lake's **ecosystem** and its **cultural significance**.

### Mount Adams: Rising Seismic Activity

**Context:** Mount Adams, the largest volcano in **Washington State**, USA, has recently exhibited an increase in **seismic activity** after being dormant for thousands of years.

#### About Mount Adams:

1. **Location:** Located in **Washington State**, USA.
2. **Height:** Stands at **12,277 feet (3,742 meters)**, making it the **largest active volcano** in Washington by volume.
3. **Width:** Has a diameter of about **18 miles (29 kilometers)**.
4. **Volcanic Field:** Lies within the **Mount Adams Volcanic Field**, covering **1,250 sq.km** with over **120 basaltic volcanoes**.
5. **Glaciers:** Supports over **10 active glaciers**, providing critical water resources to nearby ecosystems.
6. **Last Eruption:** Its last eruption occurred between **3,800 and 7,600 years ago**.

## Stratovolcano Characteristics:

- **Definition:** Stratovolcanoes are tall, steep, cone-shaped volcanoes.
- **Composition:** Built from alternating layers of ash and lava.
- **Eruption Style:** Magma is typically viscous and gas-rich, leading to explosive eruptions.
- **Formation:** Formed at tectonic plate boundaries where continental plates override oceanic plates.
- **Global Prevalence:** Around 60% of Earth's volcanoes are stratovolcanoes, with 85% located in the Pacific's "Ring of Fire."

## Jiangmen Underground Neutrino Observatory (JUNO)

**Context:** The Jiangmen Underground Neutrino Observatory (JUNO), located in China, is set to start operations in 2025, with the aim of gathering crucial data on neutrinos, which could solve fundamental mysteries in particle physics.

### Key Details about JUNO:

1. **Location:** Built 700 meters underground in Guangdong province, China.
2. **Purpose:** Designed to detect neutrinos emitted by nuclear power plants, the sun, and Earth's mantle.
3. **Detector:** The observatory features a 600 metric ton spherical detector equipped with thousands of light-detecting tubes to capture neutrino interactions.
4. **Timeline:** JUNO is expected to start operations in late 2025.
5. **Collaboration:** Involves scientists from countries like France, Germany, Italy, Russia, and the U.S..
6. **Global Impact:** Aims to surpass similar neutrino research projects in the U.S. and Europe, becoming a global leader in this field.

### About Neutrinos:

1. **Fundamental Particle:** Neutrinos are elementary particles produced during nuclear reactions in stars and other high-energy processes.
2. **Hard to Detect:** Neutrinos rarely interact with matter due to their lack of electrical charge, making them difficult to detect.
3. **Origins:** Produced by stars, supernovae, and on Earth by nuclear reactors and particle accelerators.
4. **Importance in Physics:** Studying neutrinos helps scientists understand processes in the sun, the universe's formation, and the Earth's interior.
5. **Future Applications:** Neutrino research could revolutionize astronomy, medical imaging, and even provide long-distance communication capabilities via neutrinos.

## Indian Neutrino Observatory (INO):

1. **Proposal:** Conceived in **2005** to study neutrinos using a detector in **Tamil Nadu's Bodi West Hills**.
2. **Budget:** Initially funded at **Rs 1,500 crore** by the Indian government.
3. **Approval:** Received environmental clearance in **2018**.
4. **Challenges:** Faces opposition due to environmental concerns, including its location in a **tiger corridor** and potential impact on local **ecology**.
5. **Status:** Construction is **stalled** due to opposition from environmentalists and local authorities.

## Coogee Beach and Tar Balls

**Context:** Tar balls were discovered along the length of **Coogee Beach** in **Sydney**, on **October 15, 2024**, causing environmental concerns.

### About Tar Balls:

1. **Formation:** Result from **oil spills**, forming when **oil mixes with seawater**, sand, and debris, creating a hardened substance.
2. **Size & Texture:** Tar balls vary in size from **small pebbles** to **fist-sized**, with either **smooth** or **rough** surfaces, depending on environmental exposure.
3. **Environmental Impact:** Pose significant hazards to **marine life** and **human health** due to **toxic components** like **polycyclic aromatic hydrocarbons (PAHs)**.

### Location in the News:

**Coogee Beach, Sydney:** Black, ball-shaped debris, potentially tar balls, were found along the beach, raising concerns about pollution and environmental safety.