# Prelims exam Topics

## SUPERCONDUCTIVITY AT HIGHER TEMPERATURES

### Context

- Scientists at the University of Houston have improved the superconductivity temperature record at normal pressure using a new method called pressure quenching.

### About Superconductivity

- **Zero Electrical Resistance: Superconductivity** is a phenomenon where certain materials conduct electricity with **zero resistance**, allowing current to flow without energy loss.
- **Perfect Magnetic Behaviour:** Superconductors also exhibit the **Meissner effect**, meaning they **expel magnetic fields**, enabling applications like **magnetic levitation**.
- **Extremely Low Temperature Requirement:** Traditionally, superconductivity occurs only at **very low temperatures close to absolute zero**, requiring expensive cooling systems.

### History of Superconductivity

- **Discovery in 1911:** Dutch physicist **Heike Kamerlingh Onnes** discovered superconductivity in **mercury at about −269°C**, marking the first observation of zero electrical resistance.
- **Development of High-Temperature Superconductors (1986–87):** Scientists discovered **copper-oxide (cuprate) superconductors**, which worked above **liquid nitrogen temperature (−196°C)**, making research more practical.
- **1993 Temperature Record:** The compound **Hg1223 (mercury-based cuprate)** achieved superconductivity at **−140°C at normal pressure**, a record that remained unbroken for decades.
- **Recent High-Pressure Experiments:** Some materials showed superconductivity near **room temperature**, but only under **extreme pressures comparable to Earth's core**, limiting real-world applications.

### What is the Current Experiment

- **New Technique Applied:** Researchers used a method called **Pressure-Quench Protocol (PQP)** to stabilise superconductivity in **Hg1223** at higher temperatures.
- **Improved Temperature Record:** The material showed superconductivity at around **−122°C at normal atmospheric pressure**, about **18°C higher than the previous record**.
- **Reproducible Results:** Multiple experiments confirmed the effect, with **around 78% of the material showing superconductivity**, proving it is a **bulk property rather than a surface effect**.

### About Pressure Quenching

**Pressure quenching** is a technique where a material is **compressed under high pressure, cooled to extremely low temperatures, and then pressure is rapidly released**.

- **Retention of Electronic Properties:** Because atoms cannot rearrange at very low temperatures, the material **retains the electronic structure formed under pressure** even after the pressure is removed.
- **Stabilising Exotic Phases:** This method allows scientists to **stabilise unusual electronic or crystal**

**structures** that normally exist only under extreme pressure.

### Significance of the Current Experiment

- **Energy-Efficient Power Transmission:** Superconductors can enable **lossless electricity transmission**, reducing huge energy losses in power grids.
- **Advances in Technology:** Applications include **MRI machines, high-speed trains (maglev), powerful motors, and quantum computing systems**.
- **Progress Towards Practical Superconductors:** Achieving higher superconducting temperatures at **normal pressure** is a key step toward the **long-term goal of room-temperature superconductivity**.
- **New Research Direction:** The **pressure-quenching technique** may help scientists stabilise superconducting states in **other materials**, accelerating future discoveries.

## NEPAL'S POLITICAL TRANSITION AND STRATEGIC IMPLICATIONS FOR INDIA

### Context

- **Historic Electoral Shift in Nepal:** The **2026 parliamentary elections** brought a decisive victory for **Balendra Shah and the Rastriya Swatantra Party (RSP)**, marking a major shift away from Nepal's traditional political elites.

### Current Political Shift in Nepal

- **Rise of New Political Leadership: Balendra Shah (Balen)**, a former **Kathmandu Mayor and independent reformist figure**, emerged as a national leader representing **anti-establishment and governance reform politics**.
- **Collapse of Traditional Parties:** Long-dominant parties such as the **Nepali Congress and communist factions (CPN-UML, Maoists)** suffered electoral setbacks as voters rejected decades of **political instability, corruption and elite politics**.
- **Youth-Driven Political Mandate:** With **Nepal's median age around 25**, the election reflected **Gen-Z driven political mobilisation demanding better governance, jobs and transparency**.
- **Technocratic and Reformist Image:** Shah's campaign emphasised **clean governance, administrative reforms and nationalism**, appealing to voters frustrated with entrenched political structures.
- **Shift from Ideological Politics:** Traditional alignment patterns — **Nepali Congress leaning toward India and communist parties toward China** — may weaken as the new leadership adopts a **more pragmatic and nationalist foreign policy**.

### Challenges to the New Leadership in Nepal

- **Managing High Public Expectations:** The government faces pressure to **deliver employment opportunities, economic growth and governance reforms** after decades of political stagnation.
- **Economic Vulnerability:** Nepal's economy remains **heavily dependent on remittances, foreign aid and migrant labour**, limiting policy flexibility.
- **Youth Migration Crisis:** Millions of Nepali youth continue to migrate abroad for employment, highlighting the **domestic job creation challenge**.
- **Governance and Institutional Reform:** The new leadership must tackle **corruption, bureaucratic inefficiency and weak state institutions**.

- **Balancing Major Powers:** Nepal must navigate a delicate geopolitical balance between **India (largest economic partner)** and **China (major infrastructure investor)**.
- **Strategic Infrastructure Concerns:** Projects such as **Pokhara International Airport**, financed by China, remain underutilised and politically sensitive.
- **West Asia Crisis Impact:** With **millions of Nepali migrant workers in the Gulf**, the **West Asia conflict threatens remittance flows and energy security**.
- **Diplomatic Inexperience:** Shah's leadership has limited experience in **conventional diplomacy**, posing challenges in managing complex foreign relations.

### Opportunity for India

- **Renewal of India–Nepal Relations:** The political transition provides a chance to **reset bilateral ties based on mutual respect and development cooperation**.
- **Leveraging Development Partnerships:** India remains Nepal's **largest trading partner, major energy supplier and key infrastructure partner**, particularly in **hydropower and connectivity projects**.
- **Hydropower Cooperation Potential:** Nepal's **hydropower exports to India** could expand significantly, creating a **mutually beneficial energy partnership**.
- **People-to-People Connectivity:** The **open border and 'Roti-Beti' cultural ties** provide a strong foundation for strengthening bilateral relations.
- **Regional Connectivity and Growth:** India and Nepal can jointly pursue **sub-regional economic integration through initiatives such as BBIN (Bangladesh-Bhutan-India-Nepal)**.
- **Strategic Stability in the Himalayas:** Strengthening cooperation can help maintain **regional stability amid growing Chinese infrastructure presence** in Nepal.
- **Learning from Past Frictions:** India can move beyond the negative perception created by the **2015 blockade episode**, adopting a **non-intrusive and partnership-based approach**.

## HELIUM SUPPLY DISRUPTIONS AND MRI SERVICES

### Context

- The **war in West Asia and disruption of shipping through the Strait of Hormuz** has raised concerns about **helium supply**, which is essential for operating **MRI (Magnetic Resonance Imaging) machines**. Qatar, a major exporter, supplies **around one-third of the world's helium**, and much of it passes through the Gulf region.

### How Helium is Used in MRI Machines

MRI machines rely on **superconducting magnets** that generate extremely strong magnetic fields to create detailed images of internal organs. These magnets must be cooled to **cryogenic temperatures (around −269°C)** to maintain superconductivity. Helium helps as follows:

- **Liquid Helium as the Ideal Coolant: Liquid helium**, with the **lowest boiling point among all elements**, is used to maintain these extremely low temperatures. Its **chemical inertness and cryogenic stability** make it the only practical coolant for superconducting MRI magnets.
- **Maintaining Magnet Stability:** Without sufficient helium, the superconducting magnets may lose their superconducting state — a process known as **quenching** — which can disrupt MRI operations and potentially damage equipment.

### Helium Requirements in MRI Systems:

- **Installation Stage:** A new MRI machine may require **up to 1,500 litres of liquid helium** during installation.
- **Maintenance Refilling:** Traditional MRI systems may require **hundreds of litres annually** to maintain cooling.

### Types of MRI Systems Based on Helium Use:

- **Helium-free systems:** Require **minimal helium (<10 litres)** and do not need refilling.
- **Zero boil-off systems:** Use **sealed systems that minimise helium loss**, requiring occasional small refills
- **Non-zero boil-off systems:** Older machines that require **regular helium replenishment**.

## SUDAN–SOUTH SUDAN CONFLICT

### Context

- Ongoing wars in **Sudan and South Sudan** have created one of the **largest humanitarian crises in the world**, with **over 12 million people displaced** since the Sudan conflict began in **April 2023**.

### Sudan: From Independence to the Current Crisis

| Period | Event / Phase | Key Details and Outcomes |
|---|---|---|
| **1956** | **Independence** | Sudan gained independence from **Anglo-Egyptian rule** on **January 1, 1956**; became one of Africa's earliest independent nations. |
| **1955–1972** | **First Civil War** | Conflict between the **northern government** and **southern rebels (Anya Nya)** over autonomy and resource control. Ended with the **Addis Ababa Agreement (1972)** granting limited self-rule to the South. |
| **1983–2005** | **Second Civil War** | It resumed after President **Jaafar Nimeiry** imposed **Islamic law (Sharia)** across Sudan. Ended with the **Comprehensive Peace Agreement (CPA)** in 2005, paving way for South Sudan's independence. |
| **2003–2005** | **Darfur Conflict** | Government-backed **Janjaweed militias** carried out atrocities against non-Arab groups in **Darfur**; over **3 lakh killed** and **millions displaced**. President **Omar al-Bashir** indicted by **ICC** for war crimes. |
| **2011** | **Partition of Sudan** | **South Sudan separated**, becoming the world's newest nation. Sudan lost major **oil revenues**, deepening economic and political instability. |
| **2019** | **Ouster of Omar al-Bashir** | After **30 years of authoritarian rule**, Bashir was ousted by **mass protests**. A **civilian–military transitional government** was established. |
| **2021** | **Military Coup** | **Gen. Abdel Fattah al-Burhan** seized power, dissolving the transitional government and halting the democratic process. |
| **April 2023 – Present** | **Civil War between SAF and RSF** | • Clashes between **Sudanese Armed Forces (SAF)** led by **Burhan** and **Rapid Support Forces (RSF)** led by **Hemedti**. UN estimates around 15–20k confirmed deaths, **13 million displaced**, and **famine confirmed** in parts of **Darfur**. |

| | | |
|---|---|---|
| | | • **Food insecurity**, **collapse of health systems**, and **cholera, malaria, and measles outbreaks** are rampant.<br>• Civilians face **systematic attacks** and **aid blockades** by both sides. |

**Main Parties in Conflict:**


- **Sudanese Armed Forces (SAF)** led by **Gen. Abdel Fattah al-Burhan**
- **Rapid Support Forces (RSF)** led by **Gen. Mohamed Hamdan Dagalo (Hemedti)**

**Origins of the Conflict:**

- The conflict began after a **power struggle following the 2021 military coup** that ended Sudan's civilian transitional government.

**Territorial Division:**

- **SAF controls northern and eastern Sudan**, including **Port Sudan**.
- **RSF controls western regions**, especially **Darfur**.

**Crisis due to Intensifying Conflicts in Sudan and South Sudan**

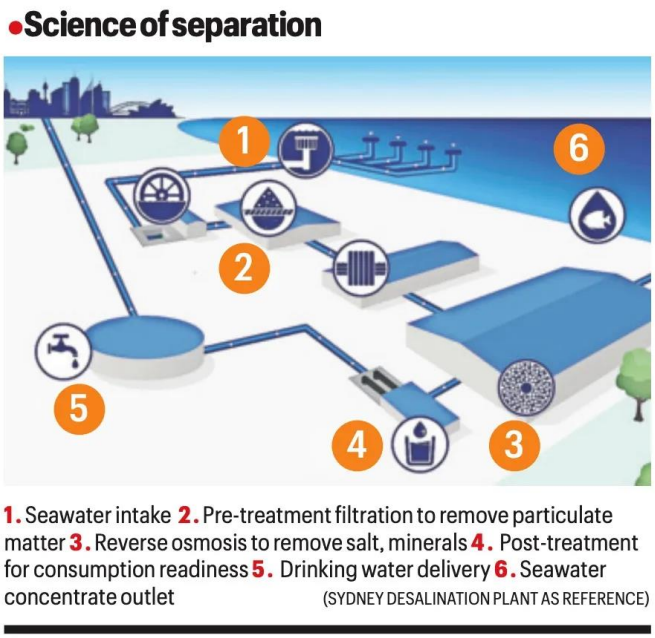
- **Humanitarian Crisis:** The conflict has displaced **over 12 million people**, with millions fleeing to neighbouring countries.
- **Ethnic Violence: RSF-led attacks in Darfur** against non-Arab communities have triggered **genocide allegations and mass killings**.
- **Food and Health Emergency:** War has caused **famine risks, disease outbreaks, and collapse of healthcare services**.
- **Territorial Fragmentation:** Sudan is **divided between SAF and RSF control**, raising fears of long-term political fragmentation.
- **Regional Instability:** Renewed conflict in **South Sudan and tightened borders in neighbouring states** have worsened the refugee crisis.

## IMPORTANCE OF DESALINATION PLANTS IN THE GULF

**Context:**

- The **desalination plants in Gulf countries** are crucial for water supply across the **Gulf Cooperation Council (GCC)** region.
- **Dependence on Desalination:** GCC countries — **Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the UAE** — have **very low rainfall and no major rivers**, making **desalination the primary source of freshwater** for domestic and industrial use.

- **Desalination Infrastructure:** The GCC region has **over 170 desalination plants** with a combined capacity of **about 22 billion litres of water per day**, supplying water for rapidly growing urban populations.
- **How Desalination Works:** Seawater is converted into drinking water mainly through **reverse osmosis (membrane filtration)** or **thermal distillation**, separating salt and impurities from seawater.
- **Environmental Concerns:** Desalination is **energy-intensive**, often powered by fossil fuels, and produces **large amounts of brine waste**, which can harm marine ecosystems.




- **Strategic Importance:** Any conflict in the Gulf could disrupt desalination plants, posing a serious water security risk for Gulf states heavily dependent on this technology.

## HUDSONIAN GODWIT

### Context

The 15th Conference of the Parties (COP-15) to the Convention on the Conservation of Migratory Species of Wild Animals (CMS) opened in Pantanal, Brazil, with a high-priority focus on the near-extinction of the Hudsonian Godwit.

### About Hudsonian godwit

- It is a large shorebird in the sandpiper family, Scolopacidae.
- **Breeding Grounds:** They nest in three remote sub-Arctic pockets: Western Alaska, the Mackenzie Delta (NWT), and the Hudson Bay Lowlands (Ontario/Manitoba).
- **Wintering Grounds:** They spend the southern summer in **Patagonia** and **Tierra del Fuego** (Chile and Argentina).
- In a single stretch, a Hudsonian godwit can fly up to 11,000 km without eating, drinking, or sleeping.
    - Before long distance migration , the birds undergo physiological changes, shrinking their digestive organs to save weight and nearly doubling their body mass with fat stores.
- Their migration is a study in Aerodynamics and Metabolic efficiency, utilizing high-altitude winds (Jet Streams) to cross the ocean.
- Indicator Species: Its decline reflects the degradation of three distinct ecosystems: Arctic tundra, mid-continental wetlands, and coastal mudflats.

- **Major Threats**
    - **Arctic Phenological Mismatch:** Due to climate change, spring is arriving earlier. Chicks are now hatching *after* the peak of the insect "bloom" they need to survive, leading to high starvation rates.
    - **Stopover Habitat Loss:** The wetlands in the U.S. Great Plains—crucial "gas stations" for their journey—are being drained for agriculture.
    - **Aquaculture in the South:** In Chile, the expansion of salmon and oyster farming has disturbed the intertidal mudflats where the birds feed during the southern winter.
- **IUCN Red List:** Vulnerable

**Convention on the Conservation of Migratory Species of Wild Animals (CMS)**

- Also known as the **Bonn Convention**, it is an international treaty established in **1979** under the aegis of the United **Nations Environment Programme**.
- It is the **only global treaty dedicated exclusively** to the conservation of **terrestrial, aquatic, and avian migratory species** across their entire migratory range.
- CMS has **130 Parties**, including **India** and the **European Union**.
    - India has signed CMS MoUs for Siberian cranes, marine turtles, dugongs, and raptors, and is a signatory to the Central Asian Flyway Action Plan.
- **Core objectives**: conserving migratory species, promoting **international cooperation**, and facilitating **scientific and technical collaboration** among member states.
- It enables **species-specific conservation instruments**, including legally binding agreements and **Memoranda of Understanding (MoUs)**.
    - **Appendix I** lists **threatened migratory species** requiring strict protection.
    - **Appendix II** includes migratory species that **need or would benefit from international cooperation**.

## NASA'S CERES

### Context

As part of the Earth Observing System (EOS), NASA's CERES (Clouds and the Earth's Radiant Energy System) instruments are the primary tools for measuring Earth's Energy Budget.

### About CERES

- CERES is a suite of space-based radiometers designed to measure both solar-reflected and Earth-emitted radiation from the top of the atmosphere (TOA) to the Earth's surface.
- **Operational Goal:** To provide a long-term, high-accuracy record of the Earth's radiation budget.
- **Platform:** Currently operating on several satellites, including **Terra**, **Aqua**, and **Suomi NPP**.
- CERES measures three specific components of the Earth's energy flow:
    1. **Incoming Solar Radiation:** The energy received from the Sun.
    2. **Reflected Shortwave Radiation:** Sunlight reflected back into space by clouds, aerosols, and the Earth's surface (Albedo).

3. **Outgoing Longwave Radiation (OLR):** Thermal infrared energy (heat) emitted by the Earth's surface and atmosphere.

## WMO STATE OF THE CLIMATE REPORT

### Context

On March 23, 2026 (World Meteorological Day), the World Meteorological Organization (WMO) released its flagship State of the Global Climate 2025 report.

### Key Takeaways from WMO's State of Climate Report

**1. Atmospheric Concentrations:**

Greenhouse gas (GHG) levels have reached concentrations not seen in human history.

- **Carbon Dioxide**: Now roughly 50% higher than pre-industrial levels; concentrations are at their highest in 2 million years.
- **Methane & Nitrous Oxide:** Both have reached their highest levels in at least 800,000 years.
- **The Energy Gap:** Despite renewables surpassing coal in electricity generation in 2025, total global emissions reached record highs because clean energy cannot yet keep pace with rising global energy demand.

**2. Earth's Energy Imbalance (EEI)**

For the first time, the WMO has included EEI as a core climate indicator.

- **Heat Surplus:** The gap between incoming solar radiation and outgoing heat reached a 65-year high in 2025.
- About 91% of this excess heat is absorbed by the oceans, 5% by land, 3% by melting ice, and only 1% by the atmosphere.
    - Because so much heat is stored in the oceans, the planet will continue to warm for decades even if all emissions were to stop today.

**3. Ocean Warming and Acidification**

The oceans are bearing the brunt of the energy surplus, leading to irreversible changes.

- **Record Heat Content:** 2025 set a new record for ocean heat (0–2000m depth), with the rate of warming doubling in the last 20 years (2005–2025) compared to the previous 45 years.
- **Acidification:** Oceans have absorbed nearly 29% of human-generated $CO_2$ since 2015, causing surface pH to drop to levels likely unprecedented in 26,000 years.
- **Marine Heatwaves:** Despite La Niña, nearly 90% of the global ocean surface experienced at least one marine heatwave in 2025.

**4. Cryosphere Retreat**

The "white shields" of the planet are failing, creating a dangerous feedback loop.

- **Glacier Loss**: Glaciers suffered their most severe mass loss on record over the 2022–2025 period.
- **Sea Ice:** Arctic sea ice remained at near-record lows, while Antarctic sea ice recorded its third-lowest extent ever, following the record lows of 2023 and 2024.

**5. Socio-Economic and Health Impacts**

The climate crisis is no longer just an environmental issue; it is a humanitarian emergency.

- **Heat Stress**: Over 1.2 billion people (one-third of the global workforce) now face occupational heat risks annually, particularly in agriculture and construction.
- **Food Insecurity:** Climate-driven disasters are triggering "cascading impacts" on social stability, migration, and biosecurity (pests and animal diseases).
- **Disease:** Warmer temperatures have accelerated the spread of mosquito-borne diseases like Dengue, which now puts half the global population at risk.

## GARO HILLS COUNCIL AMENDMENT

### Context

The Garo Hills Autonomous District Council (GHADC) has amended its membership rules to make it mandatory for candidates to possess a valid Scheduled Tribe certificate in order to contest elections to the council.

### Background

- **About the council**: The Garo Hills Autonomous District Council is a local self-governing body created to protect the rights and interests of tribal communities in the Garo Hills region.
- **Mixed population context:** The region has both tribal and non-tribal residents, especially in border areas, which led to disputes over electoral eligibility.
- **Tensions and unrest:**
    - Disagreements between tribal and non-tribal groups led to protests and law-and-order concerns.
    - Scheduled council elections were postponed, and the council's term was extended.
    - The earlier executive head resigned, and new leadership facilitated the passage of the amendment.

### Key provision of the Amendment

- **ST certificate made mandatory:** Only individuals belonging to recognised Scheduled Tribes can now contest elections to the council.
- **Exclusion of non-tribals**: Non-tribal residents, even if permanent inhabitants, are no longer eligible to become members.

### Rationale

- **Protection of tribal interests:** The amendment aims to ensure that governance in autonomous councils remains in the hands of indigenous tribal communities.
- **Long-pending demand:** Tribal groups had been demanding such a provision for decades to preserve their political representation.

### About Autonomous District Councils (ADCs)

**Constitutional Basis**

- **Created under the Sixth Schedule**: Autonomous District Councils are self-governing bodies established under the Sixth Schedule of the Constitution of India to protect the interests of tribal communities.
- **Coverage of tribal areas**: The Sixth Schedule identifies specific tribal regions in Assam, Meghalaya, Tripura and Mizoram, each designated as an autonomous district.
- **Institutional structure**: Every such district is administered through an Autonomous District Council (ADC).

**Composition and Tenure**

- **Total membership:** Each council can have up to 30 members.
- **Mode of selection:** Out of these, 26 members are directly elected by the people, while 4 are nominated by the Governor.
- **Term of office**: Members hold office for a period of five years from the date the council is formed.

**Legislative Functions**

- **Control over local resources:** Councils can make laws related to land use, forest management (excluding reserved forests), and the appointment of traditional leaders.
- **Regulation of social practices**: They can frame rules on matters such as inheritance, marriage, divorce and the functioning of village courts.

**Administrative Functions**

- **Local development activities**: ADCs are empowered to establish and manage basic public services like primary schools, health centres, markets, roads and ferries.
- **Regulation of economic activities:** They can control money-lending and trading activities by non-tribals, subject to approval by the Governor.

**Financial Powers**

- **Taxation authority**: Councils can levy taxes on professions, trades, animals, vehicles and boats.
- **Market and transport levies**: They can collect fees on goods entering markets and tolls on passengers and goods transported via ferries.
- **Local service funding:** Taxes may also be imposed to support services like schools, dispensaries and roads.

# Mains Exam Topics

## EVOLVING DIAGNOSTIC LANDSCAPE FOR TUBERCULOSIS

### Context

- The **World Health Organization (WHO)** recently recommended **near point-of-care molecular tests, tongue swab samples, and sputum pooling strategies** to improve **tuberculosis (TB) diagnosis and testing efficiency**.

### New Diagnostic Tools Available

- **Near Point-of-Care Molecular Tests (NPOC-NAAT):** These **rapid molecular tests** detect **TB bacteria and drug resistance near the patient location**, reducing delays in diagnosis and treatment initiation.
- **Portable Chest X-ray with Artificial Intelligence: Portable CXR machines integrated with AI algorithms** help detect **TB-related lung abnormalities quickly**, enabling **mass screening in communities**.
- **Tongue Swab Testing:** Using **tongue swabs instead of sputum samples** improves TB detection for **children and patients unable to produce sputum**.
- **Sputum Pooling Strategy:** Combining **multiple sputum samples in a single test** increases **testing efficiency and reduces diagnostic costs** during large-scale screening.
- **Molecular Tests (CBNAAT and Truenat): CBNAAT (Cartridge-Based Nucleic Acid Amplification Test)** and **Truenat (indigenous Indian diagnostic platform)** enable **rapid detection of TB and drug-resistant strains**.
- **AI-Enabled Opportunistic Screening: Artificial intelligence integrated into digital X-ray systems** can automatically identify **suspected TB lesions during routine radiological examinations**.

### Shifting Diagnostic Landscape

- **Transition from Microscopy to Molecular Testing:** Earlier TB diagnosis relied on **sputum smear microscopy**, which had **low sensitivity and could not detect drug resistance**.
- **Expansion of Molecular Diagnostics:** India has expanded **NAAT-based molecular testing**, enabling **early detection of TB bacteria and antibiotic resistance**.
- **Community-Based Screening Models:** Programmes such as the **Pradhan Mantri TB Mukt Bharat Abhiyaan** deploy **mobile vans with portable X-ray machines**, bringing TB screening directly to communities.
- **Decentralisation of Diagnostics:** New tools enable **testing at primary health centres and rural clinics**, reducing dependence on large laboratories.
- **Integration with Public Health Systems:** Diagnostic networks are being optimised to ensure **faster testing, sample transportation and rapid treatment initiation**.

### Priorities in Research and Innovation

- **Biomarkers for TB Infection Risk:** Developing **biomarkers to identify individuals at high risk of developing active TB**, improving preventive therapy strategies.
- **Non-Sputum Diagnostic Tools:** Research is focusing on **saliva-based or other non-invasive tests** to detect TB, especially for patients with **low bacterial load**.

- **Improved Diagnosis for Children:** Children often **cannot produce sputum and have low bacterial counts**, making diagnosis difficult; research is exploring **stool-based and alternative testing methods**.
- **Detection of Extra-Pulmonary TB (EP-TB):** EP-TB accounts for **nearly one-quarter of TB cases in India**, requiring better diagnostic tools such as **AI-enabled ultrasound combined with molecular testing**.
- **Implementation Research:** Large-scale **field trials and operational studies** are needed to evaluate **cost-effectiveness and real-world performance of new diagnostic tools**.
- **Community Engagement:** Strengthening **community awareness and participation** can increase **acceptance of screening programmes and preventive therapy**

## Need for Integrated Approach in TB Care

- **Tuberculosis frequently coexists with conditions such as diabetes, chronic respiratory diseases (COPD, asthma), and undernutrition**, requiring simultaneous diagnosis and treatment.
- **TB–Diabetes Bidirectional Screening:** Under the **National TB Elimination Programme (NTEP)**, **TB patients are screened for diabetes and diabetic patients are screened for TB**, as diabetes increases TB risk and worsens treatment outcomes.
- **Addressing Lifestyle Risk Factors: Smoking, alcohol use and poverty-related vulnerabilities** worsen TB outcomes, requiring counselling and preventive interventions alongside treatment.
- **Strengthening Primary Healthcare Platforms:** Institutions such as **Ayushman Arogya Mandirs** can enable **multi-disease screening and comprehensive care**, using TB programmes as an entry point for detecting other diseases.
- **High Prevalence of Depression and Anxiety:** Studies in India show **at least one-third of TB patients experience depression or anxiety**, while **up to two-thirds of drug-resistant TB patients face mental health issues**.

### Need for Integrated TB–Mental Health Care

- **Routine Mental Health Screening:** TB programmes should include **screening for depression and anxiety at multiple stages of treatment**.
- **Training of Health Workers: Primary healthcare workers and community supporters** should be trained to detect signs of **psychological distress, sleep problems and mood changes**.
- **Access to Mental Health Services:** Integration with the **District Mental Health Programme** can ensure **availability of counselling and psychiatric medicines**.

## Role of Nutrition in TB Management

- **Undernutrition as a Major Risk Factor: Undernutrition weakens immunity and is linked to nearly 40% of new TB cases in India**, making nutritional support critical for prevention and recovery.
- **Impact on Treatment Outcomes:** Severely underweight TB patients face **higher risk of mortality, drug toxicity and disease recurrence** if nutrition is not addressed.
- **Evidence from the RATIONS Trial:** The **Reducing Activation of Tuberculosis by Improvement Of Nutritional Status (RATIONS) trial in Jharkhand** showed that providing **monthly food baskets (cereals, pulses, milk powder and oil)** led to **average weight gain of 4.5 kg among TB patients**.

- **Reduced Mortality through Early Weight Gain:** Even a **5% weight gain in the first two months of treatment reduced the risk of death by over 60%**, demonstrating the importance of nutritional interventions.
- **Preventing TB in Vulnerable Families:** Providing **1.5 kg pulses per family member per month** in TB-affected households reduced **new TB cases by nearly half**, highlighting the preventive role of improved nutrition.

**About TB Champion**

**TB Champions** are individuals who have **successfully completed TB treatment and recovered**, and voluntarily engage in **community awareness, counselling, and advocacy**.

- **Part of National TB Elimination Programme:** The **National TB Elimination Programme (NTEP)** supports training programmes that convert **TB survivors into peer educators and community leaders**.
- **Community-Level Support System:** TB Champions provide **peer counselling, treatment guidance, and emotional support** to patients undergoing TB treatment.

**How TB Champions Help Eliminate Stigma**

- **Peer Support and Counselling:** TB Champions use their **personal recovery experiences** to reassure patients that **TB is treatable and curable**, reducing fear and stigma.
- **Community Awareness Campaigns:** Through **community meetings, outreach programmes and storytelling**, they educate people about **TB symptoms, treatment and prevention**.
- **Building Community Trust:** As **local survivors and role models**, TB Champions act as **trusted voices within communities**, bridging the gap between patients and health systems.

## AMENDMENT TO FOREIGN CONTRIBUTION (REGULATION) ACT (FCRA)

### Context

The Government proposes changes to the Foreign Contribution (Regulation) Act, 2010 to address gaps in managing foreign funds received by NGOs. With the aim to improve oversight, ensure proper use of funds, and remove administrative uncertainties.

### About Foreign Contribution (Regulation) Act (FCRA)

- The Foreign Contribution (Regulation) Act (FCRA) was first enacted in 1976 during the Emergency to curb undue foreign influence in India's internal matters.
- It provides a legal framework to regulate the inflow and use of foreign funds, ensuring that such contributions do not harm national interests.

### FCRA, 2010

- The FCRA, 2010 governs how individuals, organisations, and companies in India can receive and utilise foreign contributions.
- Its primary objective is to ensure that foreign funds do not threaten sovereignty, internal security, or public interest.

### Key Amendments under FCRA, 2020

- **Ban on transfer of funds:** Foreign contributions cannot be passed on to other individuals or organisations, ensuring direct accountability of the recipient.

- **Mandatory identification:** Office bearers must provide Aadhaar (or passport/OCI for foreigners) to ensure transparency and proper identification.
- **Designated bank account**: All foreign funds must be received in a specific SBI branch in New Delhi, enabling better monitoring of transactions.
- **Cap on administrative expenses**: The limit on administrative spending was reduced from 50% to 20%, ensuring more funds are used for core activities.
- **Stricter renewal process**: Authorities can conduct detailed checks before renewing registration to prevent misuse or existence of fake entities.
- **Extended suspension period:** Registration can be suspended for 180 days, extendable by another 180 days, allowing more time for investigation.
- **Surrender of registration**: Organisations can voluntarily surrender their licence with government approval if they no longer wish to receive foreign funds.
- **Control over unused funds:** The government can restrict utilisation of unspent funds during inquiries to prevent misuse.

**FCRA Rules, 2022**

- The rules were updated to strengthen safeguards against harmful foreign contributions.
- The limit for receiving money from relatives abroad without prior intimation was increased to ₹10 lakh annually, improving ease for individuals.

**Key proposed amendments (recent)**

- **Creation of a 'Designated Authority':** A special authority will be appointed to manage or dispose of assets created from foreign funds.
    - This applies when an NGO's registration is suspended, cancelled, or not renewed, ensuring assets are not misused or left unmanaged.
- **Wider Definition of 'Key Functionary':** The term will now include directors, trustees, partners, committee members, and others managing the organisation.
    - This ensures that all individuals involved in decision-making are clearly identified and accountable.
- **Liability of Key Functionaries:** Key persons in NGOs can be held responsible for violations under the law.
    - However, they can avoid liability if they prove lack of knowledge or that proper care was taken.
- **Prior Approval for Investigations:** Any investigation by State agencies or police into FCRA-related matters will require prior approval from the Central government.
    - This is aimed at ensuring uniformity and preventing multiple or overlapping inquiries.
- **Framework for Asset Management:** The law earlier regulated only the flow of foreign funds, not the assets created from them.
    - The amendment introduces clear rules for handling such assets, especially during suspension or cancellation of registration.
- **Timelines for Use of Funds**: NGOs receiving funds under prior permission must utilise them

within a fixed time period.
    - This prevents indefinite holding of funds and ensures timely use for intended purposes.
- **Automatic Expiry of Registration:** Registration will automatically end if not renewed, removing ambiguity about the status of organisations.
    - This creates clarity and avoids misuse by inactive entities.
- **Rationalisation of Penalties:** The maximum jail term for violations is proposed to be reduced from 5 years to 1 year.
    - The focus shifts towards administrative compliance rather than harsh punishment.

## Need for FCRA

- **Regulation of foreign funds**: Ensures that foreign donations are used for legitimate and lawful purposes, avoiding misuse.
- **Protection of national interests**: Prevents foreign funding from being used in activities that may harm sovereignty, integrity, or security.
- **Monitoring and accountability**: Establishes a licensing system to track how funds are received and utilised.
- **Mandatory registration:** NGOs must obtain registration or prior permission from the Ministry of Home Affairs, ensuring only eligible entities receive funds.

## Impact of FCRA

- **Strict compliance requirements:** Organisations must follow detailed rules and non-compliance leads to cancellation of licences.
- **Action against misuse:** Licences are revoked in cases of fund diversion or activities against national interest.
- **Operational constraints**: NGOs may lose registration if they remain inactive or fail to meet reporting requirements, affecting their functioning.
- **High number of cancellations:** Over the years, thousands of licences have been cancelled, reflecting strict enforcement.
- **Reduced number of active NGOs:** A significant number of licences have either expired or been cancelled, showing increasing regulatory scrutiny.