

MAY 2025



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India's first certified Green Municipal Bond

Context:

Ghaziabad Nagar Nigam has issued India's first certified Green Municipal Bond, raising ₹150 crore to develop a [Tertiary Sewage Treatment Plant \(TSTP\)](#).



About India's first certified Green Municipal Bond:

What is a Green Municipal Bond?

- A **Green Municipal Bond** is a debt instrument issued by **urban local bodies (ULBs)** to fund **environment-friendly infrastructure projects** such as water treatment, clean energy, or waste management.
- It aligns with **Green Bond Principles** and is certified for sustainability compliance.

Key Features:

- **Project-specific funding:** Funds used only for green-certified projects like renewable energy, pollution control, etc.
- **Transparency & Certification:** Must adhere to independent third-party audits and ESG standards.
- **Investor Attraction:** Appeals to climate-conscious investors, [ESG funds](#), and global institutions.
- **Financial Innovation:** Encourages fiscal discipline and creditworthiness of ULBs.

Significance:

- **Supports SDGs:** Aligns with [UN Sustainable Development Goals](#) (e.g., SDG 6 – Clean Water).
- **Climate Resilience:** Promotes low-carbon infrastructure in fast-growing urban regions.
- **Water Security:** Enables wastewater recycling and reduces stress on freshwater.
- **Model for Other Cities:** Acts as a replicable framework for other municipal bodies in India.

Relevance in UPSC Exam Syllabus

- **GS Paper 2 – Governance:** Urban Local Bodies, Smart Cities, Public Policy Implementation.
- **GS Paper 3 – Environment & Economy:** Sustainable Development, Wastewater Management, Infrastructure Financing, Green Bonds.
- **Essay & Ethics:** Case study for **sustainable urban development**, PPP-HAM model, and decentralized innovation.

Operation Kagar

Context:

Operation Kagar, a large-scale counterinsurgency campaign, has encircled the last remaining Naxal strongholds in Chhattisgarh-Telangana border regions.



About Operation Kagar:

- **What it is?**
 - Operation Kagar is an **anti-Naxal military campaign** launched in **January 2024** by the Union Government.
 - It integrates **security action, surveillance technology, and development outreach** to dismantle Left-Wing Extremism ([LWE](#)).
- **Core zones:** Bastar (Chhattisgarh), Gadchiroli (Maharashtra), West Singhbhum (Jharkhand).
- **Scale & Strategy:**
 - Involves **1 lakh+ personnel** from CRPF, CoBRA, DRG, STF, and state police.
 - Advanced surveillance tools like **drones, AI, and satellite imagery** are being used.
- **Significance:**
 - Reduced Naxal-affected districts from

106 (in 2015) to just 6 in 2025.

- Aims to restore **state control**, enable **development**, and **protect tribal communities** from Maoist exploitation.
- Over **287 Naxals neutralized** in 2024 and **150+ in 2025** already.

Relevance in UPSC Exam Syllabus

- **GS Paper 3 – Internal Security**
 - **Left Wing Extremism:** Origin, spread, and current scenario.
 - **Security Challenges:** Role of paramilitary forces and inter-state coordination.
 - **Technology in Internal Security:** Use of drones, AI, and NTRO in surveillance.
- **GS Paper 2 – Governance & Welfare**
 - **Tribal Rights:** Protection of Adivasi interests and inclusion in development.
 - **Conflict Resolution Mechanisms:** Cease-fire, dialogue vs. security enforcement models.

Alarming Data from India (2019)

- **Total estimated bacterial infections:** ~15 lakh
- **Resistant to Carbapenems:** Majority of cases involved strains resistant to one of the last-resort antibiotics.
- **Courses procured:** Just over 1 lakh and India accounted for **80.5% (83,468 courses)**.
- **Appropriate treatment given:** Only **7.8% of infections in India** received suitable antibiotics.
- **Consequences of Inadequate Treatment:**
 - Increases **drug resistance**, mortality, and economic burden.
 - **Over 1.1 million deaths** globally per year now directly attributed to **AMR**, surpassing HIV/AIDS and malaria combined.
 - Without intervention, **40 million deaths** are projected globally by 2050 due to AMR.

Bacterial Infections in India

Context:

According to a Lancet Infectious Diseases study, only 8% of bacterial infections in India in 2019 were treated appropriately.



About Bacterial Infections in India:

- **What Are Bacterial Infections?**
 - Caused by harmful bacteria entering the body, often leading to illnesses such as pneumonia, bloodstream infections, or urinary tract infections.
 - Require timely and correct antibiotic treatment for full recovery.

Relevance in UPSC Exam Syllabus:

- **GS Paper 2 – Governance & Social Justice:**
 - **Health policy, public healthcare delivery, and government interventions** in managing AMR.
- **GS Paper 3 – Science and Technology:**
 - **Antibiotic resistance, biotechnology in healthcare, and public health infrastructure.**
 - **Disaster management** (biological hazard preparedness).
- **Essay Paper:**
 - Can be used as a case example under topics like “Health systems in crisis” or “Ethics and Equity in Global Health.”

Repairability Index

Context:

The Committee on Repairability Index in Mobile and Electronic Sector submitted its final report to the Department of Consumer Affairs, proposing a consumer-friendly framework aligned with global best practices.

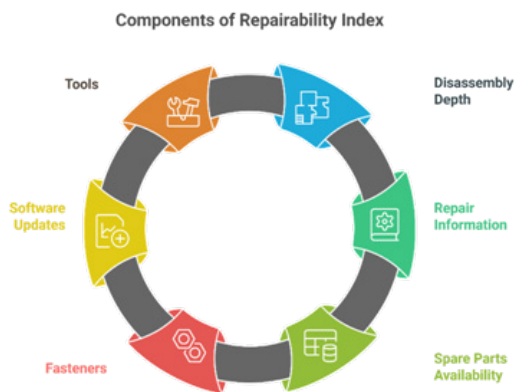
About Repairability Index:

What is the Repairability Index (RI)?

The **Repairability Index** is a **standardized, self-declared score** provided by **Original Equipment Manufacturers (OEMs)** to indicate how easily a product, like a smartphone or tablet, can be **disassembled, repaired, and maintained**.

Features of the RI Framework:

- **Self-declared by OEMs:** No additional compliance burden; based on standardized scoring criteria.
- **Covers 11 key components** prone to failure (battery, display, camera, charging port, etc.).
- **Evaluated on 6 core parameters:**



- **Rating Scale:** Five-point numeric scale.
- **Mandatory Display:** At physical/e-commerce points of sale and via QR code on packaging.

Significance of the RI:

- **Empowers Consumers:** Facilitates informed choices and promotes **transparency**.
- **Promotes Sustainability:** Encourages mindful utilization over wasteful consumption.
- **Supports Right to Repair:** Complements India's Right to Repair Portal launched in 2022.
- **Strengthens Circular Economy:** Helps extend product life and reduce e-waste.

Relevance to UPSC Exam:

- **GS Paper 2 – Governance & Policy Implementation:**
 - Consumer protection, e-governance initiatives, and stakeholder consultations in policymaking.
- **GS Paper 3 – Environment, Economy & Technology:**

- Sustainable consumption, circular economy, e-waste management, and digital product lifecycle management.

- **GS Paper 4 – Ethics in Governance:**

- Accountability of private sector, transparency, and consumer rights ethics.

Orange Economy

Context:

Prime Minister of India championed the 'orange economy' at the World Audio Visual and Entertainment Summit (**WAVES**) 2025 in Mumbai, urging global companies to "Create in India, Create for the World."



About Orange Economy:

What is Orange Economy?

The **orange economy**, also called the **creative economy**, includes **economic activities driven by culture, art, media, innovation, and intellectual property**. It spans **film, music, design, gaming, publishing, performing arts, advertising, and digital content creation**.

Key Features:

- **Culture-Centric:** Builds on a nation's **heritage, art, and language**.
- **Talent-Driven:** Relies heavily on **individual creativity and digital tools**.
- **IP-Focused:** Generates revenue through **copyrights, trademarks, and digital IP**.
- **High Job Creation:** Offers large-scale **employment in media, design, and technology**.

Significance:

- **Boosts Soft Power:** Enhances India's cultural influence globally through entertainment and

storytelling.

- **Supports GDP Growth:** Global creative economy is valued at over **\$2.25 trillion** (UNCTAD, 2023); India's M&E sector valued at **\$28 billion** (2025), with growth projected to **\$100 billion**.
- **Youth Employment:** Provides **dynamic career avenues** for India's young workforce.

Relevance in UPSC Exam Syllabus:

- **GS Paper 2 – Governance & Policies**
 - Government support for creative industries, **media regulation**, and **international collaboration** in content creation.
 - Role of **institutions and policy incentives** like WAVES, Startup India, etc.
- **GS Paper 3 – Economy & Technology**
 - Contribution of **non-traditional sectors** (like the creative economy) to GDP, exports, and employment.
 - Importance of **IPR protection**, creative startups, and digital infrastructure.
- **Essay / Ethics**
 - Value-based content creation and **ethical responsibility** in media.
 - Creativity vs automation debate — “**enrich humans, not turn them into robots**” (PM Modi quote).

ABC Rules

Context:

Kerala has demanded changes to the Animal Birth Control (ABC) Rules as increasing stray dog attacks and rabies cases spark public health concerns.

About ABC Rules:

- **What are ABC Rules?**
 - The **Animal Birth Control (ABC) Rules, 2023**, notified under the **Prevention of Cruelty to Animals Act, 1960**, regulate stray dog population control through **sterilisation and immunisation**, not culling.
 - ABC Rules mandate local bodies to **establish dog sterilisation centres**, maintain proper facilities, and carry out **humane capture, neutering, vaccination, and release** of dogs.

How It Works?

- **Capture:** Stray dogs are humanely captured by trained personnel.
- **Sterilisation & Vaccination:** Dogs undergo spaying/neutering and anti-rabies vaccination.
- **Release:** After recovery, dogs are released in the same locality as per Supreme Court guidelines.

Significance:

- **Prevents overpopulation** of strays without violating animal rights.
- Ensures **public health protection** by reducing rabies incidence.
- Encourages **scientific and ethical animal management** instead of culling.

Relevance in UPSC Exam Syllabus

- **GS Paper 2 – Governance & Policy**
 - **Health Governance:** Rabies control, intergovernmental coordination on zoonotic diseases.
 - **Policy & Implementation:** Local bodies' role under **73rd/74th Amendment**, Centre-State dynamics on public health and animal welfare.
- **GS Paper 3 – Environment & Ethics**
 - **Biodiversity and Animal Welfare:** Humane management of urban wildlife.
 - **Ethics** (GS Paper 4): Balance between **human safety and animal rights**.
- **Essay/Case Studies**
 - Use as a **case study** for governance failure, ethical dilemma (animal rights vs. human safety), and decentralized health interventions.

Lancet Report on Sexual Violence Against Children

Context:

A Lancet study revealed that over 30% of girls and 13% of boys in India faced sexual violence before the age of 18, highlighting a deep-rooted child safety crisis.



About Lancet Report on Sexual Violence Against Children:

What is the Study?

- Published in **The Lancet**, the report is a **global meta-analysis** covering over **200 countries (1990–2023)**, led by the **Institute for Health Metrics and Evaluation (IHME)**, University of Washington.
- It estimates **age-standardised prevalence** of child sexual abuse globally for the first time using consistent metrics.

Key Findings:

- India:**
 - 30.8% of girls and 13% of boys** experienced sexual abuse before 18.
 - Highest prevalence for girls in South Asia.
- Global Average (2023):**
 - 18.9% females, 14.8% males** experienced childhood sexual abuse.
 - 70% of victims** were first abused before the age of 18.

Impacts of Child Sexual Abuse:

- Leads to **lifelong mental health disorders**: depression, anxiety, PTSD.
- Affects **education, trust in institutions, and future socio-economic participation**.
- Creates an **intergenerational trauma cycle**, affecting family and community wellbeing.
- Highlights **systemic failures** in prevention, reporting, and survivor rehabilitation.

Relevance in UPSC Exam Syllabus:

- GS Paper 2 – Governance, Social Justice**
 - Issues related to children, **POCSO Act**,

child protection mechanisms (NCPCR, ICPS).

- Policy gaps, Centre–State coordination, and **data-led governance**.
- GS Paper 4 – Ethics, Integrity, Aptitude**
 - Moral responsibility of institutions** towards vulnerable populations.
 - Case studies on **ethical leadership, public trust, and safeguarding dignity of minors**.
- Essay / Case Study**
 - Useful in essays on **“Justice for Children”, “Safeguarding the Vulnerable”,** and governance reforms.

Framework for Standardizing Regulation Formulation & Public Feedback Process

Context:

The Reserve Bank of India (RBI) has introduced a new Framework for Formulation of Regulations aimed at standardizing regulatory processes and ensuring transparency and public participation in policymaking.



About Framework for Standardizing Regulation Formulation & Public Feedback Process:

- What it is?**
 - A comprehensive framework issued by RBI to **bring consistency, transparency, and accountability** in drafting and revising regulatory instruments.
- Key Features:**
 - Unified Scope:** Applies to all regulations—directions, guidelines, notifications, policies, and standards issued by RBI.

- **Public Consultation Mandate:** Draft regulations must be published on RBI's website with a **Statement of Particulars** and kept open for public comments for **at least 21 days**.
- **Impact Assessment:** Draft must mention **objectives, impact analysis**, and reference to international best practices and global standards.
- **Feedback Incorporation:** RBI to publish a **general response to public comments** along with the final regulations.
- **Periodic Review:** RBI will review existing regulations based on **supervisory feedback, global practices, and relevance** in the evolving environment.
- **Importance:**
 - Promotes **regulatory transparency and inclusivity**.
 - Ensures **evidence-based policymaking** with public and expert input.
 - Aligns Indian regulatory governance with **global benchmarks**.
 - Helps reduce **redundancies** and improve regulatory efficiency.

Relevance in UPSC Syllabus

- **GS Paper 2:**
 - Governance: Role of regulatory bodies (RBI), transparency and accountability mechanisms.
 - Polity: Citizen participation in policy processes.
- **GS Paper 3:**
 - Economic Development: Financial regulation, institutional reforms.

Plastic Pollution Crisis in the Himalayas

Context:

A new report from [The Himalayan Cleanup 2024](#) shows that over 70% of plastic waste in the Indian Himalayas is non-recyclable, with single-use food and beverage packaging being the dominant source of pollution.

About Plastic Pollution Crisis in the Himalayas:

- **Main Source:** Over 80% of plastic waste in the Himalayas originates from **single-use food and beverage packaging**.
- **Non-Recyclable Waste:** 71% of collected plastic is **non-recyclable**, including multi-layered plastics (MLP), with limited or no market value.
- **Top Polluting Brands:** Instant noodles (Wai Wai, Maggi), energy drinks (Sting, Mountain Dew), and snacks (Lays, Bingo) contribute significantly.

Policy Recommendations from THC 2024 Report:

- **Ban Multi-Layered Plastics (MLPs):** These form nearly 68.5% of waste and are non-recyclable.
- **Extended Producer Responsibility (EPR):** Hold brands accountable for their packaging waste.
- **Ban Junk Food & Energy Drinks near Schools:** To reduce child exposure and littering.
- **Mandatory Labelling:** Enforce clear, front-of-pack warnings on high-risk products.
- **Shift from Recycling to Redesign:** Embrace a **'design-out-waste'** approach for sustainable packaging.
- **Strengthen Local Bodies:** Equip rural and mountain municipalities with resources and training for waste management.

Regional Data Highlights:

- **Sikkim:** 87% plastic waste, 92% from food packaging.
- **Darjeeling & Kalimpong:** 95.5% plastic, 72% non-recyclable.
- **Ladakh:** 93.3% plastic, 75.8% non-recyclable.
- **Uttarakhand & Nagaland:** Over 80% plastic, 64–67% non-recyclable.
- **Arunachal Pradesh:** 29.4% plastic, 99.6% of it food-related.

Relevance in UPSC Syllabus

- **GS Paper 3 – Environment**
 - **Pollution and Solid Waste Management:** Case study for non-recyclable plastic.
 - **Conservation and Ecology:** Highlights threats to Himalayan ecosystems.
 - **Disaster and Vulnerability:** Waste mismanagement in fragile regions.
- **GS Paper 2 – Governance & Policy**
 - **Environmental Governance:** Regulatory gaps in plastic packaging.
 - **Policy Interventions:** Need for integrated waste management in hilly areas.
- **Essay & Ethics**
 - Topics on **sustainable living, corporate responsibility, and ecological ethics**.

Vruthi Campaign

Context:

Kerala launched the 'Vruthi' campaign in October 2024 to combat the rising waste crisis through mass public participation and decentralized solutions.



The recent 'Clean Kerala Conclave 2025' showcased innovative practices and collective achievements in waste management.

About Vruthi Campaign:

- **What is Vruthi?**
 - 'Vruthi' means **cleanliness of body and mind**.
 - It is a **statewide behavioural change campaign** for garbage-free Kerala.
 - Part of the '**Malinya Muktham Nava Keralam**' mission.
- **Key Features:**
 - Involves **all societal levels** — from the Chief Minister to sanitation workers.
 - Mobilises **Haritha Karmasena**, youth, schools, artists, and local bodies.
 - Focuses on **technology-neutral and context-specific solutions** like composting, local segregation, etc.
 - Encourages **competition among local bodies** for achieving 100% garbage-free status.
- **Significance:**
 - Shifted Kerala's waste collection coverage from **40% to 75% of households** in

just one year.

- Tackles the **post-liberalisation waste boom** driven by urbanisation and plastic use.
- Demonstrates the power of **decentralised governance and people's participation** in environmental solutions.

Relevance in UPSC Exam Syllabus:

- **General Studies (GS) Paper II:**
 - **Governance:** Decentralized waste management, role of local bodies (Panchayati Raj Institutions), and people's participation.
 - **Government Policies & Interventions:** 'Malinya Muktham Nava Keralam' mission and its impact.
- **GS Paper III:**
 - **Environment & Ecology:** Waste management, plastic pollution, and sustainable urbanisation.
 - **Disaster Management:** Tackling waste crisis as an environmental challenge.
- **Essay & Ethics (GS Paper IV):**
 - **Behavioural Change:** Public participation, community-driven initiatives, and Swachh Bharat linkages.
 - **Case Study:** Kerala's model of decentralized governance in waste management.

Mission D3

Context:

Mission D3, a social reform movement started in November 2024 by tribal youths in Alirajpur and Jhabua districts, is successfully eliminating dowry, liquor, and DJ music from tribal weddings.



About Mission D3:

- **What is Mission D3?**
 - A grassroots social campaign led by **Bhil and Bhilala tribal youths** to cleanse tribal marriages of **3Ds**: Dahej (Dowry), Daroo (Liquor), and DJ music.
- **Aim:** To promote simple, debt-free weddings and prevent financial exploitation of poor tribal families.
 - To curb the cycle of debt and migration post-marriage.
- **Key Features:**
 - **Community-driven:** Initiated by activist **Nitesh Alawa** and supported by local leaders, police, and MLAs.
 - **Rapid adoption:** Spread across **Jhabua and Alirajpur** with visible support from elected officials and traditional musicians.
 - **Social impact:** Families now save ₹1–5 lakh otherwise spent on unnecessary customs, preventing reliance on money-lenders.
 - **Cultural revival:** Traditional instruments like **dhols and madals** are replacing DJs in marriage ceremonies.

Relevance in UPSC Exam

- **GS Paper 1 – Indian Society**
 - Tribal customs, social reform movements, and cultural transformation.
- **GS Paper 2 – Governance and Policy**
 - Role of **civil society and grassroots activism** in policy impact and social change.
- **GS Paper 4 – Ethics and Integrity**
 - Public participation, value-based leadership, and reform from within the community.
- **Essay / Case Study**
 - Use as a **case study on ethical leadership, customary reform, or community empowerment.**



About Zero-Emission Trucking:

- **What is Zero-Emission Trucking (ZET)?**
 - **Zero-Emission Trucking (ZET)** refers to freight transportation using **battery electric or hydrogen fuel cell trucks** that emit **no tailpipe emissions**, unlike traditional diesel vehicles.
- **Key Features:**
 - Powered by **clean energy** (electricity or hydrogen).
 - Equipped with **high-capacity batteries or fuel cells**.
 - Integrated with **charging/refueling infrastructure** and **smart mobility systems**.
 - Enables **lower maintenance costs** and **longer operational lifespans**.
- **Significance:**
 - **Environmental:** Trucks account for **~40% of fuel consumption** and **transport emissions**—ZETs drastically reduce this footprint.
 - **Health & Air Quality:** Reduces **PM2.5 and NOx** pollution in urban-industrial corridors.
 - **Energy Security:** Lowers dependence on diesel imports by transitioning to domestically sourced electricity/hydrogen.
 - **Economic Efficiency:** Optimizes logistics, boosts industrial productivity, and enables **future-ready infrastructure**.
 - **Alignment with Schemes:** Supports **PM E-DRIVE (₹500 crore)** and **Atmanirbhar Bharat** initiatives

Zero-Emission Trucking

Context:

Principal Scientific Adviser to the Government of India, released a report on India's Priority Corridors for Zero-Emission Trucking.

Relevance in UPSC Exam

- **GS Paper 3 – Environment & Infrastructure**
 - Sustainable transportation, clean energy technologies, electric mobility.
- **GS Paper 3 – Economic Development**
 - Logistics modernization, reduction of fuel imports, promoting Make in India.
- **GS Paper 2 – Governance & Policy Implementation**
 - Role of public-private partnerships, planning, and regulatory frameworks.
- **Essay / Ethics / Case Studies**
 - Case study on green logistics for climate ethics, inclusive growth, and energy justice.

Dirang Geothermal Well

Context:

India's Northeast witnessed a milestone in clean energy as Arunachal Pradesh's Dirang became home to the region's first geothermal production well.



About Dirang Geothermal Well:

- **What it is?**
 - A **renewable geothermal energy project** using **closed-loop binary Organic Rankine Cycle (ORC)** to tap Earth's subsurface heat for sustainable applications like electricity, heating, and agricultural processing.
- **Location:** Situated in **Dirang, West Kameng district, Arunachal Pradesh**, nestled in the eastern Himalayan terrain.

Key Features:

- **Developed by:** Centre for Earth Sciences and Himalayan Studies ([CESHS](#)), Itanagar
- **Supported by:** Ministry of Earth Sciences, Arunachal Pradesh govt, with global scientific partners from **Norway, Iceland, and Guwahati**.
- **Temperature Reservoir:** ~115°C — ideal for direct-use geothermal technologies.
- **Low-impact drilling** with precision targeting fault zones between quartzite and schist formations.

Significance:

- First such project in **Northeast India**, with potential to **power Dirang entirely via geothermal energy**.
- Reduces dependence on diesel and wood in cold Himalayan climates.
- Can **improve agricultural productivity and quality of life** in high-altitude areas.
- Adds to India's geothermal potential (~10,600 MW), ensuring **base-load renewable power**, unlike intermittent sources like solar/wind.

Relevance in UPSC Exam Syllabus:

- **GS Paper 1: Geography**
 - Geothermal energy as part of **renewable resources** and **natural phenomena**.
- **GS Paper 2: Governance**
 - Role of **decentralised clean energy** in hill state development and tribal regions.
- **GS Paper 3: Environment & Energy**
 - **Renewable Energy Technologies**, sustainable development, international scientific cooperation (e.g. Norway, Iceland).
 - India's clean energy targets, **carbon neutrality**, and implications for climate resilience.

India's 3-Pillar Doctrine

Context:

Prime Minister recently unveiled a 3-Pillar Doctrine on national security in response to cross-border terrorism, asserting a policy of zero tolerance and decisive retaliation.



About India's 3-Pillar Doctrine:

- **What it is:**
 - A **comprehensive national security doctrine** aimed at **eliminating terrorism at its roots**, deterring state sponsors of terror, and **projecting India's strategic autonomy** through retaliatory and policy measures.
- **The Three Pillars:**
 - **Decisive Retaliation on India's Terms:** India reserves the right to respond **militarily and diplomatically** at a time and place of its choosing.

E.g. Surgical Strikes (2016), [Balakot Airstrike](#) (2019), Operation Sindoor (2025).

- **Zero Tolerance for Nuclear Blackmail:** India rejects the use of **nuclear threats as strategic cover** for terrorism, asserting that nuclear deterrence will not restrict conventional responses.
- **No Distinction Between Terrorists and Their Sponsors:** The doctrine erases the line between **non-state actors and their state enablers**, holding **sponsoring nations accountable** through sanctions, diplomatic isolation, and economic disengagement.

- **Significance:**

- Reflects a **shift from strategic restraint to strategic assertiveness**.
- Enhances India's **deterrence credibility** and redefines **rules of engagement** in counterterrorism.
- Signals **geopolitical resolve** to both domestic and global audiences.
- Empowers India's global image as a nation unwilling to compromise on sovereignty or national security.

Relevance in UPSC Exam Syllabus:

- **GS Paper 2: International Relations**
 - India's **foreign policy approach** to terrorism.
 - **India-Pakistan relations**, cross-border terrorism and treaty diplomacy (Indus Waters Treaty suspension).
- **GS Paper 3: Internal Security**
 - **Counter-terrorism doctrines**, hybrid warfare, strategic retaliation.
 - **National security policy frameworks** and India's evolving security paradigm.
 - Relevance of military, diplomatic, and economic tools in **modern security doctrines**.

Five-Point Global Action Plan to Protect Fragile Mountain Ecosystems

Context:

Union Environment Minister addressed the 1st Sagar-matha Sambaad in Nepal, presenting a five-point global action plan to protect fragile **mountain ecosystems**, with a focus on the Himalayas.



About Five-Point Global Action Plan to Protect Fragile Mountain Ecosystems:

What It Is?

- It is a strategic framework proposed by India to promote **climate-resilient, inclusive, and cooperative conservation** of mountain ecosystems globally, especially within the Himalayan region.

Five-Point Global Action Plan to Protect Fragile Mountain Ecosystems:

- Enhanced Scientific Cooperation:** Foster trans-boundary research and monitoring on glaciers, biodiversity, and hydrology in mountain systems.
- Building Climate Resilience:** Develop early warning systems, climate-resilient infrastructure, and disaster preparedness (e.g., for **GLOFs**).
- Empowering Mountain Communities:** Mainstream local knowledge and livelihoods into climate policies and promote green jobs and sustainable tourism.
- Providing Green Finance:** Push for adequate and predictable climate finance from developed nations, aligned with **UNFCCC** and Paris Agreement obligations.
- Recognizing Mountain Perspectives:** Ensure mountain issues are integrated in global climate negotiations, SDG targets, and development finance frameworks.

Relevance in UPSC Exam Syllabus:

- GS Paper 3 – Environment & Ecology**
 - Climate change impacts on **fragile ecosystems, cryosphere, and transboundary biodiversity**.
- GS Paper 2 – International Relations & Environmental Agreements**
 - India's engagement in **global environmental diplomacy and climate governance**.
- GS Paper 1 – Geography**
 - Issues related to **mountain ecosystems, disaster vulnerability, and sustainable development**.

Mixed Green Manure

Context:

The **National Seeds Corporation (NSC)** has introduced two mixed green manure kits to promote eco-friendly soil enrichment practices, enhancing sustainability in Indian agriculture.



About Mixed Green Manure:

What is It?

- Mixed green manure involves **cultivating multiple plant species together** specifically to be **ploughed back into the soil** to enhance fertility and structure.
- Unlike single-species green manures, this method offers **complementary benefits** through **synergistic crop interactions**.

Key Features:

- Crop Diversity:** Combines legumes (e.g., cowpea, guar) for nitrogen fixation with cereals (e.g., maize, sorghum) for biomass and soil structure.
- Deep and Fibrous Roots:** Crops like **Dhaincha and Sunhamp** loosen compacted soil; fibrous roots improve **aggregation and aeration**.
- Natural Weed Control:** Some plants secrete **allelopathic chemicals** that inhibit weed growth; dense cover suppresses weeds physically.
- Biodiversity Enhancement:** Supports **beneficial soil microbes, pollinators, and natural pest predators**.

Significance:

- Reduces Chemical Dependency:** Lessens need for synthetic fertilizers and herbicides.

- **Improves Soil Health:** Increases **organic carbon content** and **microbial activity**.
- **Supports Sustainable Agriculture:** Aligns with goals of **natural farming** and **regenerative practices**.
- **Cost-Effective:** Kits are subsidised and suitable for small and marginal farmers (half-acre coverage)

Relevance in UPSC Exam Syllabus

- **GS Paper 3 – Agriculture:**
 - Soil health and organic farming
 - Sustainable **cropping patterns**
 - Agroecology and natural resource management
- **Prelims:** Farming practices, government initiatives, green manure, National Seeds Corporation

India's Science Museum Movement

Context:

Saroj Ghose, the visionary behind India's science museum movement and founding Director-General of the National Council of Science Museums (NCSM), passed away at 89.



About India's Science Museum Movement:

- **What is the Science Museum Movement?**
 - A nationwide initiative to promote **scientific temper** through **interactive, experiential learning** in museums.
 - Led by **Saroj Ghose** and institutionalized under the **National Council of Science Museums (NCSM)**.
 - Focuses on **decentralized science centres** to make science accessible beyond textbooks.
- **Key Features:**
 - **Interactive Exhibits:** Encourages hands-on learning rather than passive observation.
 - **Decentralized Model:** Established **26 science museums** across India, including rural areas.
 - **Innovative Outreach:** Mobile science exhibitions, workshops, and digital initiatives.
 - **Global Recognition:** Ghose served as **President of the International Council of Museums (ICOM)**.
- **Significance:**
 - **Promotes Scientific Temper:** Aligns with **Article 51A(h)** of the Indian Constitution.
 - **Informal Education:** Bridges gaps in formal education through engaging displays.
 - **Inspires Future Scientists:** Sparks curiosity among students and researchers.

Relevance in UPSC Exam Syllabus:

- **GS Paper I (Indian Heritage & Culture)** – Science museums as part of India's **cultural and educational infrastructure**.
- **GS Paper II (Governance & Constitution)** – Role of NCSM (**autonomous body under Ministry of Culture**) in promoting scientific temper (Article 51A(h)).
- **GS Paper III (Science & Technology)** – Importance of **informal science education, innovation, and public engagement** in R&D.

Operation Abhyaas

Context:

Operation Abhyaas, a large-scale civil defence preparedness drill, was recently held in several places in India as directed by the Ministry of Home Affairs (MHA) to assess emergency response readiness amid heightened national security concerns.



About Operation Abhyaas:

- **What it is:** A multi-agency **civil defence exercise** conducted to simulate coordinated emergency responses, especially in urban areas during crises like blackouts, terror strikes, and natural disasters.
- **Organised by:** Civil Defence Organisation under the Ministry of Home Affairs, with participation from SDRF, Fire Services, **NDRF**, Police, Home Guards, CRPF, NCC, and medical teams.
- **Aim:** To strengthen inter-agency coordination and build community awareness in responding to large-scale emergencies or wartime-like situations.
- **Key Features:**
 - **High-rise fire evacuation drills**, water rescues, and rope-based rescue simulations.
 - **Blackout drills** including air-raid sirens, curtain blackout instructions, and **emergency kit preparedness**.
 - **Multi-location participation**, including Raichur Railway Station where SCR civil defence teams simulated station-based crisis response.

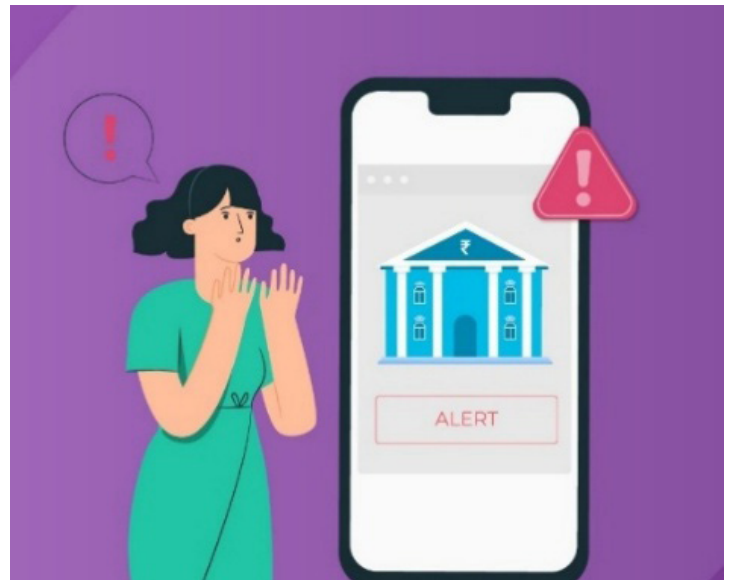
Significance for UPSC Syllabus:

- **GS Paper II – Governance:**
 - Reflects roles of MHA, SDRF, Civil Defence in decentralised emergency governance.
- **GS Paper III – Disaster Management:**
 - Showcases real-time civil defence infrastructure and mock drills as part of **capacity building**.
 - Blackout and evacuation protocols represent **community-level resilience planning**.
- **Essay / Ethics Paper:**
 - Themes of **humanitarian response**, **public trust**, and **ethical disaster management**.

Financial Fraud Risk Indicator (FRI)

Context:

The Department of Telecommunications (DoT) launched the Financial Fraud Risk Indicator (FRI) to combat mobile-based cyber fraud.



About Financial Fraud Risk Indicator (FRI):

- **What is FRI?**
 - FRI is a **multi-dimensional analytical tool** that flags mobile numbers based on their likelihood of being involved in financial fraud.
- **Launched By:** Developed and introduced by the **Department of Telecommunications (DoT)** un-

der the Ministry of Communications.

- **Objective:** To provide **advance intelligence** to financial institutions and prevent **cyber-enabled financial frauds**.
- **Key Features:**
 - **Risk Classification:** Categorizes mobile numbers as **Medium, High, or Very High risk**.
 - **Integration with Digital Payments:** Alerts banks and UPI platforms when a flagged number is involved in a transaction.
 - **Stakeholder Empowerment:** Enables banks, NBFCs, and payment service providers to take **additional customer protection measures**.
 - **Proactive Cyber Shield:** Acts as a **pre-transaction validation tool** to reduce fraud attempts.
 - **Real-time Application:** Works in coordination with fraud detection systems and verification protocols.

Relevance in UPSC Exam Syllabus

- **GS Paper 2 – Governance**
 - **Government Policies & Interventions:** Covers initiatives for **digital governance and citizen protection**.
 - **Transparency & Accountability:** Promotes data-driven regulation to counter fraud.
- **GS Paper 3 – Cybersecurity & Technology**
 - **Challenges of Cyber Security:** Addresses rising **digital payment frauds** and prevention tools.
 - **Science & Tech in Daily Life:** Application of AI/analytics in public financial systems.

Guttala Sculptural Inscription

Context:

A 16th-century sculptural inscription found near Chandrashekhara temple, Guttala (Haveri district, Karnataka), records the death of 6,307 people due to a drought in 1539 CE, making it India's earliest **epigraphic** evidence of a humanitarian disaster.



About Guttala Sculptural Inscription:

- Found near **Chandrashekhara temple**, Guttala village, Karnataka.
- Written in **Kannada script and language** on a stone slab.

What Does It Say?

- Dated **Saka 1461, August 18, 1539 CE**.
- Records that **6,307 people** died due to “**bara**” (**drought**).
- A local named **Marulaih Odeya**, son of Nanideva Odeya, buried the dead in baskets to earn merit for ruler **Timmarasa Svami**.
- Sculpture depicts **Marulaih carrying a basket with dead bodies**.

Key Features:

- Rare **sculptural and textual record** of a natural disaster in Indian history.
- Includes **exact toll and social response**.
- Depicts humanitarian act and **local governance structure** (mention of “**seeme**” – territorial unit).
- Offers **visual iconography** to complement textual epigraphy.

Relevance in UPSC Syllabus:

- **GS Paper 1 – Indian Art and Culture**
 - Epigraphy and inscriptions as a source of history.
 - Regional heritage of Karnataka and socio-cultural dynamics during Vijayanaga-

ra/post-Vijayanagara period.

- **GS Paper 3 – Disaster Management**
 - Community-led disaster responses in historical contexts.
 - Learning from traditional coping mechanisms.

Northeast As India's Development Epicentre

Context:

Union Minister declared the Northeast as India's development epicentre at the Rising [Northeast Investors Summit 2025](#).

About Northeast as India's Development Epicentre:

- **What It Is?**
 - A strategic repositioning of India's Northeast from a peripheral region to a central hub for sustainable, inclusive, and skill-driven development.
- **Key Features:**
 - **Cross-Sector Investment Summit:** Focus on **tourism, logistics, digital economy, agriculture, and green enterprises.**



SOAR Programme: *Skilling for AI Readiness* initiative to make youth AI-literate.

- **Grassroots Success Stories:**
 - **Bhabhendra Mohan Borgohain:** Organic tea [FPO](#) with 1 lakh kg capacity.
 - **Merina Lahiri:** Women-led Eri silk FPO with 300 farmers and artisans.
- **Women-Led Growth:** Over **75% female participation** in entrepreneurship schemes.
- **Skill India Impact:** 49,000 youth skilled

in apprenticeships; **3 lakh+** supported in entrepreneurship since 2015.

- **Significance:**
 - **Redefines India's regional development model** through decentralisation.
 - Promotes **border trade, cultural integration, and geo-economic connectivity** with Southeast Asia ([Act East Policy](#)).
 - Builds a **youth-powered innovation ecosystem** in historically marginalised areas.

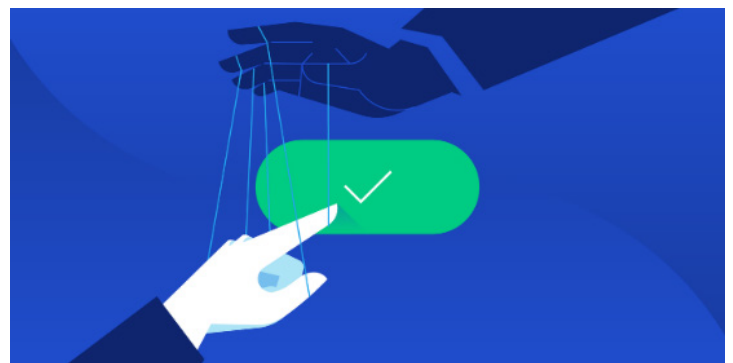
UPSC Syllabus Relevance:

- **GS Paper 2:** Governance, role of civil society, government schemes, North East regional development.
- **GS Paper 3:** [Skill development](#), MSMEs, Inclusive growth, Innovation and entrepreneurship
- **Essay:** Topics like "India's Northeast: From Margin to Mainstream" or "Women-led Growth in New India".

Dark Patterns

Context:

Union Food and Consumer Affairs Minister will hold a high-level meeting with major e-commerce stakeholders to address concerns regarding dark patterns—a growing digital consumer rights issue.



About Dark Patterns:

- **What are Dark Patterns?**
 - Dark patterns are **deceptive interface designs** used in websites or apps to **trick or manipulate users** into making decisions they would not have made otherwise.

- **Key Features of Dark Patterns:**

- **False Urgency:** Creating fake time pressure (e.g., “Only 1 seat left!”).
- **Basket Sneaking:** Adding extra products/services at checkout without consent.
- **Confirm Shaming:** Guilt-tripping users into agreeing (e.g., “No, I don’t want to save money”).
- **Forced Action:** Compelling users to perform unrelated tasks to proceed.
- **Subscription Trap:** Making it easy to subscribe but hard to cancel.
- **Interface Interference:** Deliberately hiding important info or buttons.
- **Bait and Switch:** Promoting one offer, then switching to another.

- **Issues and Challenges:**

- **Consumer Deception:** Erodes trust in digital platforms.
- **Market Distortion:** Gives unfair advantage to unethical sellers.
- **Legal Gaps:** Difficulty in identifying and proving manipulation.
- **User Harm:** Leads to financial losses, [privacy breaches](#), and buyer’s remorse.

Relevance in UPSC Exam Syllabus

- **GS Paper 2 – Governance, Transparency & Accountability:**

- Regulatory frameworks in digital economy
- Role of government in consumer protection
- Public-private partnerships in governance

- **GS Paper 3 – Science & Technology:**

- Ethical issues in technology
- Digital consumer rights and cybersecurity
- Role of AI tools in ensuring responsible digital commerce

- **Essay/Ethics:**

- Ethics in business practices
- Role of transparency in governance and tech policy

Central Apprenticeship Council (CAC)

Context:

The Central Apprenticeship Council (CAC), in its 38th meeting, recommended a 36% hike in stipend for apprentices under NAPS and NATS.



About Central Apprenticeship Council (CAC):

- **Statutory Body** under the Apprentices Act, 1961, advising the Government on apprenticeship policies and implementation.
- **Chaired by** the Union Minister of Skill Development and Entrepreneurship.
- Includes members from Central Ministries, industries, UGC, AICTE, NSDC, and state apprenticeship advisors.

Key Recommendations by CAC:

- **Stipend Hike:** ₹5,000–₹9,000 revised to ₹6,800–₹12,300 (36% rise), linked to CPI and adjusted biennially.
- **Micro-Apprenticeships & AEDP:** Promotion of [apprenticeship-embedded degree programs](#) with new definitions like “Degree Apprenticeship” and “Contractual Staff”.
- **Inclusivity:** Definition of “Person with Benchmark Disability” included, with **reserved training places**.
- **Digital Flexibility:** Allows **online/blended** mode for basic and practical training.
- **Regional Boards:** Proposed to improve NATS administration and outreach.
- **New Industrial Coverage:** Shift from 1987 to **NIC 2008 classification**, covering **emerging sectors** (IT, biotech, renewable energy).
- **Stipend Rationalisation:** Variable based on **local**

cost of living.

- **Insurance Cover:** Proposal for insurance for apprentices during contract period.

Relevance to UPSC Syllabus:

- **GS Paper 2: Governance, Welfare Schemes**
 - **Skilling & Employment:** Role of apprenticeship in enhancing employability and bridging industry-academia gaps.
 - **Inclusive Policy Design:** Empowerment through reforms for youth, women, and persons with disabilities.
- **GS Paper 3: Economic Development**
 - **Human Capital Formation:** Apprenticeship as a tool for capacity building and demographic dividend utilization.
 - **Industry-Skill Alignment:** Boost to MS-MEs, IT, green jobs, and digital skilling.

Menstrual Hygiene Survey 2025

Context:

The everten Menstrual Hygiene Survey 2025 reveals alarming misinformation on social media regarding menstrual health, with only 11.5% of women trusting online advice during emergencies.



About Menstrual Hygiene Survey 2025:

- **What is Menstrual Hygiene?**
 - Menstrual hygiene refers to **safe and healthy practices** during menstruation, including: Use of clean sanitary products (pads, cups, tampons), Proper disposal methods, and Access to sanitation facilities and education.

Key Statistics (India & Global)

- **71.6%** of Indian women find social media informative on periods, but only **11.5%** trust it in emergencies.
- **82.7%** experience menstrual pain, yet **41.5%** use no pain relief.
- **87.8%** use **sanitary pads**, while **5.7%** opt for disposable period panties (*Survey 2025*).
- **35.4%** buy menstrual products online due to convenience.
- **Globally, 500 million** women lack access to menstrual hygiene facilities (*UNICEF*).

Challenges in Menstrual Hygiene:

- **Misinformation & Myths:**
 - False remedies (e.g., coffee for cramps, menstrual blood for skincare).
 - Superstitions (avoiding temples, not washing hair).
- **Stigma & Privacy Concerns:**
 - **37.6%** avoid discussing menstruation online due to privacy fears.
 - **11.4%** fear judgment (*Survey 2025*).

Relevance in UPSC Exam Syllabus:

GS Paper I (Society & Social Issues)

- **Gender & Health:** Menstrual hygiene is linked to women's health, gender equality, and social stigma.
- **Urban-Rural Divide:** Disparities in access to menstrual products and sanitation facilities.

GS Paper II (Governance & Policies)

- **Government Schemes:** SUVIDHA, Swachh Bharat Mission (Menstrual Hygiene Management).
- **Rights & Education:** Right to sanitation under SDG 6 (Clean Water & Sanitation).

Japan Carbon Emissions Trading System

Context:

Japan's Parliament passed a law mandating large firms to participate in a carbon emissions trading system (ETS) starting April 2026.



About Japan Carbon Emissions Trading System: What It Is?

- A **legally binding emissions trading system (ETS)** requiring large firms emitting $\geq 100,000$ tonnes of CO₂ annually to trade carbon credits.

Key Features:

- **Mandatory participation:** For high-emission industries like power, steel, cement, paper, and chemicals.
- **Emission caps:** Each firm will receive an **annual emissions allowance**.
- **Credit mechanism:** Companies exceeding their cap must buy credits from firms emitting below limits.
- **Market-based system:** Designed to incentivize **low-carbon technologies** and emission efficiency.

Significance:

- Aligns Japan with **EU's carbon market model**, encouraging corporate innovation in green tech.
- Supports Japan's **carbon neutrality by 2050** and **46% emissions cut by 2030** (baseline: 2013).
- Enhances **market accountability**, nudging firms toward **sustainable practices**.

Relevance in UPSC Syllabus

- **GS Paper 3 – Environment and Ecology:** The law is relevant for topics like climate change mitigation strategies, carbon markets, and emission control mechanisms.
- **GS Paper 2 – International Relations:** It highlights Japan's leadership in climate action and its role in global environmental governance.

- **Prelims – Environment and Current Affairs:** Important for understanding terms like Emissions Trading System (ETS), carbon credits, and international practices like the EU ETS and Japan ETS.

Glacier Ice Melt

Context:

A new study published in *Science* reveals that glaciers are melting faster than feared, with up to 76% of glacier ice potentially lost if **global warming** reaches 2.7°C.



About Glacier Ice Melt:

What is Glacier Ice Melt?

- Glacier ice melt refers to the long-term loss of glacier mass due to rising global temperatures.
- **Key Findings from the Report:**
 - Even at current temperatures, **39% of 2020 glacier ice mass** is committed to melting over centuries.
 - If temperatures rise to **2.7°C**, only **24%** of glacier ice will remain; limiting warming to **1.5°C** preserves **54%**.
 - **Himalayan glaciers** (serving 2B+ people) may retain only **25%** of ice at 2°C, or **40-45%** at 1.5°C.
 - Regions like the Alps and Scandinavia may lose **nearly all** glaciers at 2°C warming.
 - Ice loss will **continue for centuries**, even after temperature stabilisation.

Relevance in UPSC Exam Syllabus

- **GS Paper 1: Geography**

- Climatology, [cryosphere changes](#), glacial landforms
- Examples: Ngozumpa Glacier in Himalayas, Alpine glacier loss
- **GS Paper 3: Environment & Ecology**
 - Climate change, disaster management, environmental degradation
 - Link with water security, flood risk, sea level rise, and biodiversity loss
- **Essay & Ethics Papers**
 - Themes on intergenerational justice, sustainability, and planetary responsibility