
Prelims Exam Topics

WHITE RABBIT TECHNOLOGY DEMONSTRATION NETWORK

Context

The Union Government inaugurated the **White Rabbit Technology-based Indian Standard Time (IST) Distribution Demonstration Network** at RRSL, Jakkur (Bengaluru).

About White Rabbit Technology Demonstration Network

- **Nature:** India's first **high-precision Ethernet-based time distribution network** for disseminating **Indian Standard Time (IST)** across digital infrastructure.
- **Nodal Agency:** **Legal Metrology Division**, Ministry of Consumer Affairs.
- **Collaborating Institutions:** **National Physical Laboratory (NPL), ISRO, BSNL, and SEBI.**
- **Objective:** To establish a **sovereign, secure, and highly precise national time distribution system**, reducing dependence on foreign timing sources such as GPS.

E-COMMERCE COUNCIL OF INDIA (ECCI)

Context

The **Internet and Mobile Association of India (IAMAI)** has launched the **E-Commerce Council of India (ECCI)** to strengthen India's **digital commerce ecosystem**.

About E-Commerce Council of India (ECCI)

- **Nature:** India's **first national platform** for collaboration among stakeholders in the **digital commerce ecosystem**.
- **Launched By:** **Internet and Mobile Association of India (IAMAI).**
- **Objective:** To promote **policy advocacy, research, and industry collaboration** for the growth of e-commerce.

About Internet and Mobile Association of India (IAMAI)

- **Established:** **2004.**
- **Nature:** A **not-for-profit industry body** registered under the **Societies Registration Act, 1860.**
- **Objective:** To promote the growth of **India's internet and digital economy.**

WORLD ARTIFICIAL INTELLIGENCE COOPERATION ORGANIZATION **(WAICO)**

Context

Twenty-nine countries signed an agreement in **Shanghai** to establish the **World Artificial Intelligence Cooperation Organization (WAICO)**.

About WAICO

- **Nature:** An **independent intergovernmental international organization** for cooperation on **Artificial Intelligence (AI)**.
- **Headquarters:** **Shanghai, China**.
- **Objective:** To promote **international cooperation, AI governance, and the responsible development and application of AI**.
- **Guiding Principles:** Operates in line with the **UN Charter**, emphasizing **extensive consultation, joint contribution, shared benefits, and a people-centric approach**.

Founding Members

- **Membership:** Includes **29 countries**, such as **China, Russia, Pakistan, Brazil, South Africa, Malaysia, Indonesia, Kazakhstan, Ethiopia, Kenya, and Serbia**.
- **India's Status:** **India is not a member of WAICO**, making it the **only founding BRICS country outside the organization**.

BOSS SCAM

Context

The **Securities and Exchange Board of India (SEBI)** has warned regulated entities and listed companies about the rising threat of **Boss Scam**, a cyber fraud targeting finance officials.

About Boss Scam

- **Nature:** A **cyber fraud** in which attackers impersonate **CEOs, Managing Directors (MDs), or other senior executives** to induce unauthorized fund transfers.
- **Deepfake Impersonation:** Uses **AI-generated voice cloning, fake video calls, and fabricated social media groups** to mimic senior executives.
- **Malware Attack:** Distributes **malicious ZIP files** that compromise systems and hijack **WhatsApp Web** sessions.

MANASBAL LAKE

Context

Manasbal Lake is showing signs of **ecological recovery**, marked by the return of migratory birds.

About Manasbal Lake

- **Location:** Situated in **Jammu and Kashmir**, in the **Jhelum Valley**.
- **Status:** Considered **India's deepest freshwater lake**, with a maximum depth of **~13 m**.
- **Water Source:** Fed by **precipitation** with outflow into the **Jhelum River**.
- **Surroundings:** Bordered by the **Baladar Mountains**, **Karewa Plateau** (north), and **Ahtung Hills** (south).

DRAFT CORPORATE AVERAGE FUEL EFFICIENCY (CAFE-III) NORMS

Context

The **Ministry of Power** and the **Bureau of Energy Efficiency (BEE)** have released the **Draft CAFE-III Norms** for public consultation.

About CAFE Norms

- **Nature:** Fuel efficiency and **CO₂ emission standards** that require automobile manufacturers to meet a prescribed **fleet-average fuel economy** instead of model-wise targets.
- **Implemented Under:** Energy Conservation Act, 2001.
- **Implementing Agency:** Bureau of Energy Efficiency (BEE).
- **Objective:** To **reduce fuel consumption, greenhouse gas emissions, and oil imports** by improving vehicle efficiency.
- **Emission Targets:** Tightens fleet-average fuel consumption from **3.996 L/100 km (94.76 gCO₂/km)** in **FY 2027–28** to **3.327 L/100 km (78.90 gCO₂/km)** by **FY 2031–32**.
- **Testing Standard:** Adopts the **Worldwide Harmonised Light Vehicles Test Procedure (WLTP)** in place of the **Modified Indian Driving Cycle (MIDC)**.
- **Compliance Framework:** Assesses compliance over **3-year (FY28–30)** and **2-year (FY30–32)** blocks.
- **Credit Trading:** Introduces a **market-based emission credit trading mechanism** for compliant manufacturers.

- **Evolution:** CAFE-I (FY 2017–18) → CAFE-II (FY 2022–23) → Draft CAFE-III (1 April 2027–FY 2031–32).

EXERCISE PITCH BLACK 2026

Context

An **Indian Air Force (IAF)** contingent has arrived in **Australia** to participate in **Exercise Pitch Black 2026**.

About Exercise Pitch Black

- **Nature:** A biennial multinational air combat exercise focused on **high-end warfare training** and **Large Force Employment (LFE)** operations.
- **Host:** Royal Australian Air Force (RAAF).
- **Participants:** Involves **20 countries**, including **Australia, India, the United States, Japan, France, Germany, Indonesia, Singapore, South Korea, Thailand, and Spain**.

OPERATION SOUTHERN READINESS 26-2

Context

The **Indian Navy** will host **Operation Southern Readiness 26-2**.

About Operation Southern Readiness 26-2

- **Nature:** A multinational maritime security training exercise combining **classroom instruction, simulator training, and sea-based operations**.
- **Host:** Indian Navy at the **Southern Naval Command (SNC), Kochi**.

INVESTMENT FRIENDLINESS INDEX (IFI)

Context

NITI Aayog launched the first **Investment Friendliness Index (IFI)** to assess and improve the investment ecosystem across States and Union Territories under the **Viksit Bharat @2047** vision.

About Investment Friendliness Index (IFI)

- **Nature:** A **state-level investment assessment framework** that evaluates the ability of States and UTs to attract and sustain **domestic and foreign investments**.
- **Published By:** NITI Aayog.

- **Coverage:** Covers **28 States** and **8 Union Territories**.
- **Objective:** To promote **competitive and cooperative federalism** by benchmarking the investment climate across subnational governments.
- **Parameters:** Evaluates performance across **Infrastructure, Business Climate, Resources, Government Policy, Regulatory Ease, Institutional Environment, Financial Health, and Environmental Resilience**.
- **Performance Categories:** Classifies States and UTs as **Top Performers, Frontrunners, Emerging Performers, and Aspiring States**.
- **Peer Grouping:** Compares regions under **Large States, Hilly & North-Eastern States, and Union Territories & City States**.
- **Key Findings**
 - **Top Performers:** Gujarat, Maharashtra, Tamil Nadu, Goa, and Odisha scored above 50.
 - **FDI Concentration:** Maharashtra, Karnataka, Gujarat, Delhi, and Tamil Nadu account for nearly **85% of India's FDI inflows**.
 - **Investment Trend:** India's total investment reached **29.9% of GDP in FY2025**, while **private capital expenditure remained at 8.7% of GDP**, indicating scope for higher private investment.

MH-60R SEAHAWK

Context

The **Indian Navy** has received another **MH-60R Seahawk** multi-role naval helicopter from the **United States**.

About MH-60R Seahawk

- **Nature:** A **multi-role, all-weather naval helicopter** designed for maritime operations.
- **Manufacturer:** **Lockheed Martin** (United States).
- **Primary Role:** Conducts **Anti-Submarine Warfare (ASW), Anti-Surface Warfare (ASuW)**, maritime surveillance, search and rescue, medical evacuation, and shipborne operations.
- **Speed:** ~330 km/h.
- **Operational Range:** ~830 km.

- **Armament:** Can carry Mk 54 lightweight torpedoes, AGM-114 Hellfire missiles, and machine guns.

BELGIUM

Context

The first meeting of the India-Belgium Strategic Dialogue was held in Brussels.

About Belgium

- **Neighbouring Countries:** Bordered by the **Netherlands** (north), **Germany** (east), **Luxembourg** (southeast), and **France** (southwest).
- **Water Body:** Bordered by the **North Sea** to the northwest.
- **Major Rivers:** Scheldt, Meuse, and Yser.
- **Major Lakes:** Lake Genval, Lake Gileppe, Lake Eupen, and Lake Robertville.
- **Natural Resources:** Rich in **limestone, cobalt, copper, lead, zinc, tin, and iron.**
- **Diplomatic Importance:** **Brussels** hosts the headquarters of the **European Union (EU)** and **NATO.**



Mains Exam Topics

URBAN SLUMS IN INDIA

Context

The recent rehabilitation of displaced slum households in Delhi underscores the need to understand the structural forces that shape slum growth, vulnerability, and transformation in rapidly urbanising cities.

Why do Cities Expand Outward while Slums Become Denser Inward?

- **Peripheral Land Enables Formal Expansion:** Formal development requires large, contiguous, and legally clear land parcels, which are more readily available on the urban fringe.
 - **Eg: Navi Mumbai and Noida Extension** emerged through large-scale peripheral land assembly.
- **Urban Expansion Reclassifies Slums:** Older peripheral slums become part of the urban core as city boundaries expand around them, without changing their original location.
 - **Eg: Dharavi** evolved from a peripheral settlement into a centrally located slum as Mumbai expanded.
- **Spatial Lock-in Drives Densification:** Once enclosed by formal development, slums have little scope for horizontal expansion, forcing population growth to be absorbed through vertical additions and subdivision of existing dwellings.
 - **Eg: Multi-storey informal housing** is increasingly common in **Dharavi** due to severe land constraints.
- **Centrality Sustains Demand:** Proximity to jobs, markets, and transport continues to attract migrants, making central slums economically valuable despite overcrowding.
 - **Eg: Ejipura (Bengaluru)** remains attractive because of its proximity to major employment centres.
- **Regulatory Exclusion Reinforces Informality:** Restrictive land-use regulations, limited affordable housing, and land-value capture prevent formal markets from absorbing low-income demand, leaving informal settlements as the default option.
 - **Eg: Historically restrictive FSI norms in Mumbai**, despite redevelopment incentives, have not fully reduced congestion due to high redevelopment costs and intermediary-driven land value capture.

Why are Slums Disproportionately Vulnerable to Climate Change?

- **Hazard-Prone Locations:** Slums occupy floodplains, coastal edges, drains, and steep slopes rejected by the formal land market, exposing residents to recurrent climate hazards.
 - **Eg:** Settlements along **Mumbai's Mithi River** face repeated monsoon flooding.
- **Infrastructure Exclusion:** Informal settlements lie outside formal planning and investment, limiting access to stormwater drainage, embankments, and early warning systems that reduce disaster impacts.
 - **Eg:** Formal colonies adjoining slum clusters in **Chennai** are better protected by stormwater drains and flood alerts than adjacent informal settlements.
- **Morphological Heat Trapping:** High building density, narrow lanes, impervious surfaces, and limited green cover create **Slum Heat Islands**, intensifying heat stress beyond city averages.
 - **Eg:** Tin-roofed settlements in **Ahmedabad** experience significantly higher indoor temperatures during heatwaves.
- **Adaptive Capacity Deficit:** Insecure tenure discourages resilient housing investments, while lack of collateral, formal credit, insurance, and savings limits recovery and climate adaptation.
 - **Eg:** Residents of **unauthorised colonies** often rely on temporary repairs due to eviction fears and limited access to institutional finance.

Why did South Korea and Singapore Eliminate Slums, While Many Developing Nations Still Struggle?

- **State-Led Land Governance:** Strong public control over urban land enabled rapid acquisition and planned housing development, unlike fragmented land markets constrained by litigation and contested ownership.
 - **Eg: Singapore's Land Acquisition Act (1966)** enabled the Housing and Development Board (HDB) to rapidly develop large-scale public housing.
- **Labour-Absorbing Industrialisation:** Export-oriented manufacturing generated mass formal employment, enabling migrants to transition directly into formal housing markets instead of informal settlements.
 - **Eg: South Korea's manufacturing boom** absorbed millions of rural migrants into planned industrial towns.
- **Developmental State Capacity:** Centralised political authority enabled swift land acquisition, coordinated planning, and large-scale resettlement before informal settlements became entrenched.

- **Eg: Singapore's PAP government** relocated kampong residents into HDB housing within a generation.
- **Sustained Fiscal Commitment:** Rapid economic growth expanded the fiscal space needed to finance affordable housing as a permanent public investment rather than a one-time welfare intervention.
 - **Eg: South Korea** continuously expanded public housing alongside industrial growth.
- **Asynchronous Urbanisation:** Many developing nations lack the simultaneous alignment of **land governance, labour-intensive employment, state capacity, and fiscal resources**. Service-led growth, fragmented land markets, democratic land acquisition constraints, and weak municipal finances allow urbanisation to outpace formal housing.
 - **Eg: India's** rapid urbanisation has exceeded affordable housing delivery, sustaining informal settlements such as **Dharavi**.

How Can India Build a Future-Ready Inclusive Slum Development Ecosystem?

- **Integrated Habitat Development:** Shift from housing-centric rehabilitation to neighbourhood development by integrating affordable housing with livelihoods, education, healthcare, and social infrastructure.
 - **Ahmedabad Slum Networking Programme (SNP)** improved living conditions by combining infrastructure with community participation.
- **Rights-Based Urban Planning:** Institutionalise housing rights and climate-sensitive land-use planning to build inclusive, resilient, and poverty-responsive cities.
 - **SDG 11** calls for universal access to adequate, safe, and affordable housing by 2030.
- **Livelihood-Linked Rehabilitation:** Integrate resettlement with employment hubs, public transport, and skill ecosystems to ensure that relocation does not disconnect people from livelihoods.
 - Relocation to **Bawana (Delhi)** highlighted how housing without livelihood access can undermine rehabilitation outcomes.
- **Secure and Flexible Land Tenure:** Develop innovative tenure models such as land pooling, community land trusts, and occupancy rights to encourage household investment while ensuring tenure security.
 - **Odisha's JAGA Mission** demonstrated that secure land rights can improve housing investment and financial inclusion.

- **Climate-Resilient Urban Infrastructure:** Prioritise universal access to resilient water supply, drainage, sanitation, green spaces, and disaster-resilient infrastructure in informal settlements.
 - The **World Bank** estimates that resilient infrastructure significantly reduces disaster-related economic losses.
- **Adaptive Land-Use and Housing Regulations:** Reform zoning, FSI/FAR norms, and rental housing policies to expand affordable formal housing and reduce incentives for informal settlements.
 - **Tokyo's flexible zoning system** has helped maintain a relatively affordable housing supply despite high urban density.
- **Participatory and Data-Driven Governance:** Institutionalise GIS-based slum mapping, dynamic urban databases, and community-led planning to enable targeted, evidence-based interventions.
 - **UN-Habitat** advocates participatory slum upgrading as a cornerstone of sustainable urban development.

