

UNDERSTAND UPSC

GS I

SYLLABUS: URBANISATION PROBLEMS AND THEIR REMEDIES.

URBANISATION ISSUES

THE HINDU, PG.NO: 9.

News: "What are major challenges faced by Indian cities?"

"40% of India's population lives in urban areas, in around 9,000 statutory and census towns."

Urbanisation issues:

- **India lacks precise data on its urban population:** there was no 2021 Census.
- **Non functional 74th CAA:** urban planning is often controlled by private entities.
- **Non transfer of subjects:** less than three of the 18 functions outlined in the 12th Schedule have been universally transferred to urban govts.
- **Limited resources:** cities receive a mere 0.5% of the GDP in intergovernmental transfers.
- **Poverty-driven urbanisation:** with both rural-to-urban and urban-to-urban migration rather, urbanisation followed industrialisation, which created jobs that absorbed rural labour (as happened in western countries).
- **Widening inequality:** exclusive developments serving the wealthy while millions lack basic housing.
- **Overgrown metropolitan centres** of India. Eg. Delhi, Mumbai ranks 2 globally in annual house pricing.
- **Unacceptable levels of air pollution** Eg. Tier 2 & 3 cities across the Gangetic Belt.
- **Water Shortages:** Bengaluru and Delhi are running out of water and the poor have to queue for hours to have access to the bare minimum.
- **Rivers** that brought life to cities have **become open sewers.** Eg. Adyar in Chennai or Yamuna in Delhi. **Only 40% of urban wastewater is treated in India.**
- **Resulting as heat islands:** due to destruction of green spaces and water bodies.
- **Urban Floods:** Low-lying areas of Greater Noida submerged in Yamuna waters.
- **Overflowing Sewages:** led to deaths due to drowning and electrocution in Delhi.
- **Inadequate infrastructure:** resulting in urban slums with poor sanitation and hygiene. Currently, 40% of India's urban population resides in slums.

Initiatives:

- Atal Mission for Rejuvenation & Urban Transformation (**AMRUT**), Smart Cities Mission, Namami Gange Program and National River Conservation Plan, Swach Bharat 2.0 etc.
- **74th CAA (12th schedule):** decentralised the water supply and sanitation services to **Urban Local Bodies.**
- **Urban Infrastructure Development Fund:**
 - Includes **Tier 2 (500) & Tier 3(600)** cities.
 - UIDF managed by **National Housing Bank** and funded through shortfalls of Priority Sector Lending (**PSL**).

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GS II

SYLLABUS: GLOBAL GROUPINGS AND AGREEMENTS INVOLVING INDIA AND/OR AFFECTING INDIA'S INTERESTS.

INDIA-IRAN RELATIONS

THE HINDU, PG.NO: 6.

News: "The BRICS summit boost to India-Iran ties".

"India and Iran share a relationship rooted in historical, cultural, and economic ties that span centuries."

Areas of Mutual Cooperation:

- **Iran as a Key Energy Supplier to India:** before 2019, Iran met almost 12% of India's crude oil needs.
- **Chabahar Port Development:** Gateway to Afghanistan and Central Asia.
- **International North-South Transport Corridor (INSTC):** A multi-modal transportation network linking India, Iran, Russia, and Europe.
- **People-to-People Contacts:** Historical links dating back to the Indus Valley Civilization.
- **Cooperation in combating terrorism and extremism:** Eg. Pakistan and Afghanistan.
- **India's ability to renew ties between Iran and Israel** for a stable Middle East.

Challenges:

- **Reduction in Oil Imports:** From importing 27 million tonnes in 2017-2018, imports dropped to zero by mid-2019. In order to comply with US sanctions on Iran.
- **Ambitious Iran-Oman-India** gas pipeline has been under discussion since 1993.
- **India to balance strategic interests:** one hand with USA and Iran on the other hand to avoid repercussions.
- **Iran's Relations with China:** Both signed a 25-year cooperation agreement worth \$400 billion in 2021.
- **International apprehension** regarding Iran's nuclear program.

Common Global platforms: Shanghai Cooperation Organisation (SCO), BRICS.

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ECONOMY

PRE-CONTEXT

GOODS & SERVICES TAX

THE HINDU, PG.NO: 6.

News: "Festive season GST receipts hold a critical signal for growth".

About GST:

- **Vision:** सरलीकृत कर, समग्र विकास
- One nation, one indirect Tax regime i.e a unified national market.
- Destination based tax.
- **Components of GST:** CGST, IGST, SGST.
- Both CGST, SGST are levied across the value chain on both goods and services.

Taxes subsumed by GST:

- **Central Taxes:** Cess, Surcharge, Central Excise Duty, Service Tax, Customs.
- **State Taxes:** VAT, Entertainment tax, Luxury Tax, Entertainment Tax.
- **Items not covered under GST:** Electricity, Petrol & its products, Alcohol But sales & VAT are levied on Petrol & its products, Alcohol.

GST Issues:

- **GST Evasion:** of ₹2 lakh cr. found in FY24; over 40% in online-gaming—**Directorate General of GST Intelligence report.**
- **Technical issues:** e-way billing system glitches. Eg. **Vacmet India Ltd. Case 2023.**
- **Corruption associated with input credit** Eg. fake companies, ~9,000 fake GSTINs identified, etc.
- **Multiple Tax Slabs:** GST structure includes four main tax rates (5%, 12%, 18%, 28%), causing complexity.
- **Federal issues related to GST**
 - **Loss of Fiscal Autonomy after GST:** In 2000-01 States decided the floor rate for sales tax & two-thirds of their revenue generated from VAT.
 - **Voting rights issue:** Eg: small states like Goa have equal vote with larger states.
 - **Ignoring diversity of issues:** The problems of Assam are not the same as those of Gujarat. Their sources of revenue and expenditure's are different.
 - **GST council recommendations are not binding** on Centre & States, it can't have supremacy over elected Govt.—**SC 2022.**
 - **Shortfall in GST compensation:** is done through a cess on luxury and sin goods. But collection of cess remains inefficient—**CAG Report 2021.**
- **COVID-19 Impact:**
 - It exacerbated revenue deficits of States & there was GST compensation shortfall of 2 lakh crore.
 - Central govt. proposed that States borrow to meet the deficit, leading to disputes over fiscal responsibilities.

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SECURITY

PRE-CONTEXT

CYBERSECURITY

THE HINDU, PG.NO: 9.

News: "How cyber scams use social engineering and malicious APKs to swindle users."

"Cyber-attacks can bring a nation to its knees."

"India's impressive expansion in online transactions also coincides with an unprecedented spike in cyber frauds."

- ₹3,000 crore was lost because of ~6,00,000 cases of cyber fraud between FY2020 and FY2024—**response to RTI by RBI.**

Cybercrime methods (most common):

- **Social Engineering Attacks:** Manipulating people into revealing confidential information.
- **Ransomware Attacks:** Malicious software that locks data until a ransom is paid. 53% increase in the ransomware incidents in 2022—**CERT-In report.**
- **Phishing:** Tricking individuals into revealing sensitive information via fake emails or messages. 150 million phishing emails sent globally every day.
- **Identity Theft:** stealing personal information to impersonate someone for financial gain.
- **Cyberstalking and Harassment:** Using the internet to stalk, harass, or bully individuals.
- **Denial of Service:** Blocking access to websites.
- **Cyber Espionage:** using stealthy IT malware to spy on both corporate & military data.
- **Digital arrest scam:** fraudsters target individuals or businesses, posing as law enforcement or government officials, victims are threatened with a digital arrest warrant.

Indian Cyber Crime Coordination Centre (I4C):

- Works under **Ministry of Home Affairs.**
- Aims for comprehensive management of Cyber issues.
- To act as a nodal point to curb Cybercrime in the country.

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HEALTH

PRE-CONTEXT

TUBERCULOSIS

THE HINDU, PG.NO: 7.

News: "Assessing India's tuberculosis burden."

"India had the highest tuberculosis (TB) burden in 2023."

Tuberculosis:

- **Caused by:** *Mycobacterium tuberculosis (Mtb)*.
- **Preventive Vaccine:** Bacillus Calmette-Guerin (BCG).
- Mtb coevolved with humans for a millennia (1000 years).
- Those with **nutritional deficiencies, diabetes, and a habit of smoking** are at the highest risk of contracting TB
- **Multiple Drug Resistance:** microorganisms like bacteria or viruses, develop resistance to multiple antimicrobial drugs, making infections harder to treat.
 - Mtb developed its ability to grow in macrophages (white blood cells).

India and Tuberculosis:

- India contributes to **25% of global TB cases** in 2022.
- TB is **one of the top 10 causes of deaths** in India.
- India has a significant number (~75, 000) of **Multi-Drug Resistant TB** in 2022.
- SDG goal 3 is to end TB by 2030.

National TB Elimination Programme (2017-2025)

- Eliminate TB by 2025 under **National Health Mission**.
- TB elimination means there should be under **one case of TB for a population of 10 lakh**.
- **Progress in reduction of TB cases:** 280 cases per lakh in 2005 to 190 cases per lakh in 2020–**WHO World TB report 2020**.
- **Key components of Programme:**
 - Early detection and diagnosis using **Rapid TB detection kits**.
 - **Nikshay Poshan Yojana:** Direct Benefit Transfer of Rs. 1000 monthly nutritional support to TB patients.
 - **Nikshay digital platform** to monitor TB treatment.
 - **Preventive Vaccine BCG** for newborns.

About New regimen tackling microbial resistance:

- It is comprised of **four drugs** — Bedaquiline, Pretomanid, Linezolid and Moxifloxacin.
- The BPaLM regimen is reputed **to cure drug-resistant TB** in just **six months**, with a **high success rate**.

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SPACE

PRE-CONTEXT

ADITYA L1

THE HINDU, PG.NO: 12.

News: "First science result from Aditya L1, ISRO's sun mission, is out."

Aditya L1:

- This is first Indian Space based mission to study sun.
- **Rocket:** PSLV placed Aditya L1 spacecraft into **LEO**.

Objectives of Aditya L1:

- **Study of Solar upper atmospheric** (chromosphere and corona) dynamics. Eg. Ionised Plasma, Coronal Mass Ejection (CME), Flares Magnetic field topology etc.
- Physics of **solar corona** and its heating mechanism.
- **Orbit:** Halo orbit around Lagrange point 1 of sun earth system.
- **Visible Emission Line Coronagraph (VELC)** aboard Aditya-L1 predicted the onset time of a CME on the sun.
- Using data obtained with the VELC, the team could precisely arrive at the onset time of a CME on the sun on 16 July 2024.

About Lagrangian points:

- Of these five Lagrange points, three (**L1, L2, L3**) are **unstable** and two (**L4, L5**) are **stable**.
- Stable Lagrange Points, form the apex of two equilateral triangles.

Features on Sun:

- **Sunspots:** Cool areas on Sun.
- **Solar flares:** intense bursts.
- **Coronal Mass Ejection:** Large magnetised plasma eruptions, can damage the electronics in satellites in near-Earth space and disrupt radio communication networks on the Earth.

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Thank you!