the**IAS**hub

QEP UPPCS MAINS 2025-26

Theme : Urbanisation

PART B

Uttar Pradesh

MK YADAV SIR   **DIVYA MA'AM**

==

1	PREVIOUS YEAR QUESTIONS (2018-2024)

SYLLABUS	SUB-THEME	QUESTION
Urbanization	Urbanisation & Related Issues	• Discuss the solution to urban problems. **(8 Marks, 2018)** • Write a note on the role of urban planning for development of basic civic amenities in slums. **(8 Marks, 2019)** • Define urbanization. Discuss the problems caused by fast pace of urbanization. **(12 Marks,2019)** • Do you agree that urbanization and slums are inseparable? Explain. **(8 Marks, 2021)** • Examine the nature of Urbanization in India and discuss the social implication of fast pace of urbanization. **(12 Marks,2021)** • The process of urbanization leads to development or devastation in the society. Write your views. **(12 Marks,2023)**
	Smart Cities	• Enumerate the core infrastructure elements for Smart City development. **(8 Marks,2018)** • What is the 'Smart City Mission'? Discuss the main characteristics of cities of Eastern Uttar Pradesh selected under this scheme. **(8 Marks,2020)** • What is the Smart City Mission? Discuss the main characteristics of Cities in Eastern UP selected under the scheme. **(8 Marks, 2022)** • What is smart city? Describe its main characteristics. **(8 Marks,2024)**
Smart Villages	Concept & features	• Throw light on the concept of smart village in India and describe the main features of smart village. **(12 Marks, 2024)**
Rural Settlements		• Discuss the spatial distribution of types of rural settlements in Ganga Plain. **(12 Marks,2019)** • Discuss the patterns of rural settlements in Gangetic Plain. **(8 Marks, 2021)** • Discuss the factors affecting rural settlement patterns in India. **(12 Marks,2022)**

===

OTHER EXPECTED TOPICS FOR 2025/26

4

- **URBAN GOVERNANCE:** Current status, achievements, challenges, & way forward.
- **ENVIRONMENTAL IMPLICATIONS:** Urban Floods, Urban Heat Islands, Air Pollution in Cities, Urban waste management, Depleting ground water resources; Urban wetlands; Climate Change – Urbanisation Nexus etc.
- **SUSTAINABLE URBANISATION:**
    - Sustainable urban Infrastructure (physical & social) & mobility
    - Inclusive Urbanisation
- **URBAN TRANSPORTATION SYSTEM**
    - National urban transport policy; Efficient and affordable urban mass transport, etc
    - **UP Specific:** Uttar Pradesh Transit Oriented Development Policy, 2022; Uttar Pradesh Township Policy-2023
- **EMERGING CHALLENGES OF URBAN INDIA**:
    - Urban Poverty (Informalisation of Urbanisation)
    - Affordable Urban Housing
    - Growth of Tier 2 Cities in India & UP: Opportunities, challenges, way forward
- **URBAN – RURAL INTEGRATION & RELATED SCHEMES (SMART CITIES, PURA, RURBAN MISSION)**
    - Urban amenities in rural areas, RURBAN Mission, Smart Villages etc

==

2   UP STATE SPECIFIC: FACTSHEET

FACTS TO GRAPH (PRACTICE SHEET)		

Population [Census 2011]	• 200 Million (20 Crore) ➔ 16.5 % of Total Population (Most Populated state)
	
	• Urban Population:
	  - 22% of UP's Total Population reside in UP (Vs. 35% at All India Level)
	  - 12% of India's Urban Population reside in UP	

Level of Urbanisation	• UP has **largest urban system** in India (630 municipalities) <u>**BUT**</u>, **ranks 23rd** in the level of urbanization. • **Rate of Growth in Urban Population** *[Census 2001-2011]* - **UP (1.5%)** < **National Average (30%)**	
Districts with maximum urban population %	• Ghaziabad > Lucknow > Kanpur > Gautam Budh Nagar > Meerut	
Districts with minimum urban population %	• Shravasti < Kushinagar < Maharajganj < Sultanpur < Pratapgarh	

Uneven Pattern of Urbanization	• **Western UP (Most urbanised)**: 32.5% urban population
	 • **Eastern UP (least urbanised):** 13.5% urban population **20% Gap**
	
	 • The Central & Bundelkhand Regions: urban populations of 20% & 23% respectively.
	
	 • **High growth & Concentration of population in large cities ➜ SPATIAL POLARISATION**
	   - <u>Class-I towns</u>: **comprise 60%** of urban population (up from just 30% in 1951)
	   - <u>Small towns</u> (especially Class-5 and 6 towns): negative rate of growth	

Economic Disparities Between Urban Areas	• **Industrial Hubs in Western UP** like Noida, Ghaziabad, and Meerut • **In contrast, cities in eastern UP** like Gorakhpur, Varanasi, and Azamgarh are more dependent on agriculture and traditional industries.	
s 2011]	• 23% of the urban population (1 crore)	
Urban Infrastructure/Amenities gap [Dept of Housing & Urban Planning, Govt of UP]	• **Water Supply Connection**: accessed by only 50% households in Nagar Nigam towns • **Water wasted in Leakage:** >40% of total water supplied	

	• **Waste water treatment**: only 35% wastewater gets treated in STPs
	
	• **Urban areas serviced by sewerage system:** Only 20%
	
	• **Toilet Facilities:** 30% Households don't have access
	
	• No city has integrated drainage and solid waste management system.
	  - **Storm Water Drainage:** Only 60% Urban Centres have
	  - **Collection of Solid Waste:** only 88% collected	

Rural & Urban Poverty (2019-21), MPI	• **Poverty (Headcount ratio):** 23% (Vs. 15% All India Level) • **Rural:** 26% Vs. **Urban:** 12% (Rural poverty double that of Urban) • **Achievement:** UP saw the highest decline in the number of multidimensional poor	
Smart City ranking [India Smart City Conclave 2023]	• 10 out of 100 Smart Cities in India are in UP • UP ranked 3rd best in the country in terms of 'Smart Cities'. • Agra emerged as the third smartest city.	
Air Pollution in Cities [World Air Quality Report, IQAir, 2023]	• **UP cities in the top 50 most polluted cities of the world** - Greater Noida (11), Muzzafarnagar (16), Dadri (19), Noida (26), Meerut (28), Ghaziabad (35)	

3 CASE STUDIES & BEST PRACTICES

UP SPECIFIC

- **Connecting Urban Sanitation and Improved River Health**– Mainstreaming FSSM In **Chunar, Uttar Pradesh**
    - **Aim:** To enhance faecal sludge and septage management (FSSM) and improve overall sanitation.
    - **Under Namami Gange Programme**
    - **Key initiatives:** Detailed project report & technical assistance; scheduled desludging and the reuse of treated sludge to achieve cost recovery, stakeholder management and capacity building etc
- **Reviving Neglected Land into a vibrant public park** ➔ **Vanasthali park in Lucknow**
    - **Landscape reclamation activities:** retained the existing teak plantation and incorporated a trail that symbolizes a river and its tributaries, leading to a sprawling lake surrounded by pavilions, play zones, and rolling grassland.
    - **Key challenges overcome during implementation:** fragmented land, urban neglect, and changing the mindset towards the area.
- **Smart City's Integrated Command & Control Centre (ICCC) initiative** Dismantles Operational Barriers and Enhances Public Service Delivery ➔ **Agra**
    - **ICCC established by** Agra Municipal Corporation to improve urban management.
    - **Benefits of ICCC**
        - ✓ **Provides a unified view** of various smart projects & facilitates **real-time data-driven** decision-making ➔ **Empowers municipal officials** to make well-informed decisions in routine and emergency situations.
        - ✓ **Acts as 'nerve center' for city operations:** Connects and manages various city systems like safe city cameras, intelligent transport management, adaptive traffic control, etc.
- **Enhancing Safety of Women Passengers: Pink Autorickshaws Initiative - Gautam Buddha Nagar District**
    - Pink-colored auto rickshaws with safety features for women like driver identification, panic buttons, and GPS monitoring.
    - **Impact:** 318 pink autorickshaws were made operational in Noida for women commuter.
- **Gram Panchayat's CCTV initiative improves safety and well-being in Bhojpur Village, Ghaziabad**
    - 32 CCTV cameras have been installed, a CCTV control room set up within the Gram Panchayat office.
    - **Impact:** enhanced security, well-monitored activities, and overall well-being of residents.

==

| **4** | **URBANISATION IN INDIA** |

4.1 URBANISATION

- **DEMOGRAPHICALLY**, urbanisation refers to a process whereby populations move from **rural to urban** areas, enabling cities and towns to grow.

- **SOCIOLOGICALLY**, urbanisation does not merely mean an increase in the population of cities, but also change in migrants' and residents' attitude, belief, values, and behavioural patterns. It is associated with the ideology of **Urbanism**.
  - **Urbanism is a distinctive way of life** that is characterised by heterogeneity, complex division of labour & interdependence, impersonality, anonymity, transient/non-permanent relations, individualism, high mobility & technology etc.
  - This **way of life** may even stretch beyond the administrative boundaries of cities.

URBAN SYSTEM OF INDIA

An Urban area is defined based on an administrative boundary, a certain threshold of population size & density and nature of work of residents (non agricultural).

- **Statutory Towns:** Settlements that are **notified under law** by the concerned State/UT government and with local bodies such as municipal corporations, municipalities, municipal committees, etc., **irrespective of their demographic characteristics**.
  Note: Out of 4041 statutory towns of India 648 (i.e. 16%) exist in Uttar Pradesh.

Composition of Urban Population

Census Towns
54.3 million
14.4 % of Urban

Statutory Towns
318.5 million
84.5% of Urban

Outgrowths
4.3 million
1.14% of Total

Urban India
377.1 million
31.1 % of Total

- **Census Towns:**
  - Settlements that are classified as urban in the census after they have met the following criteria:
    - ✓ **Population Size**: a minimum population of 5,000/
    - ✓ **Nature of Work**: at least 75% of the male 'main workers' engaged in non-agricultural pursuits.
    - ✓ **Population Density**: density of population of at least 400 persons per sq. km.
 - These are **governed as villages** and **do not** necessarily have urban local bodies.

- **Outgrowths:**
  - These are viable units, such as a village, clearly identifiable in terms of their boundaries and locations.
  - Outgrowths **possess urban features** in terms of infrastructure and amenities, such as pucca roads, electricity, etc., and are physically contiguous with the core town of the urban agglomeration.

- **Urban agglomeration = City/Towns along with their outgrowths.**
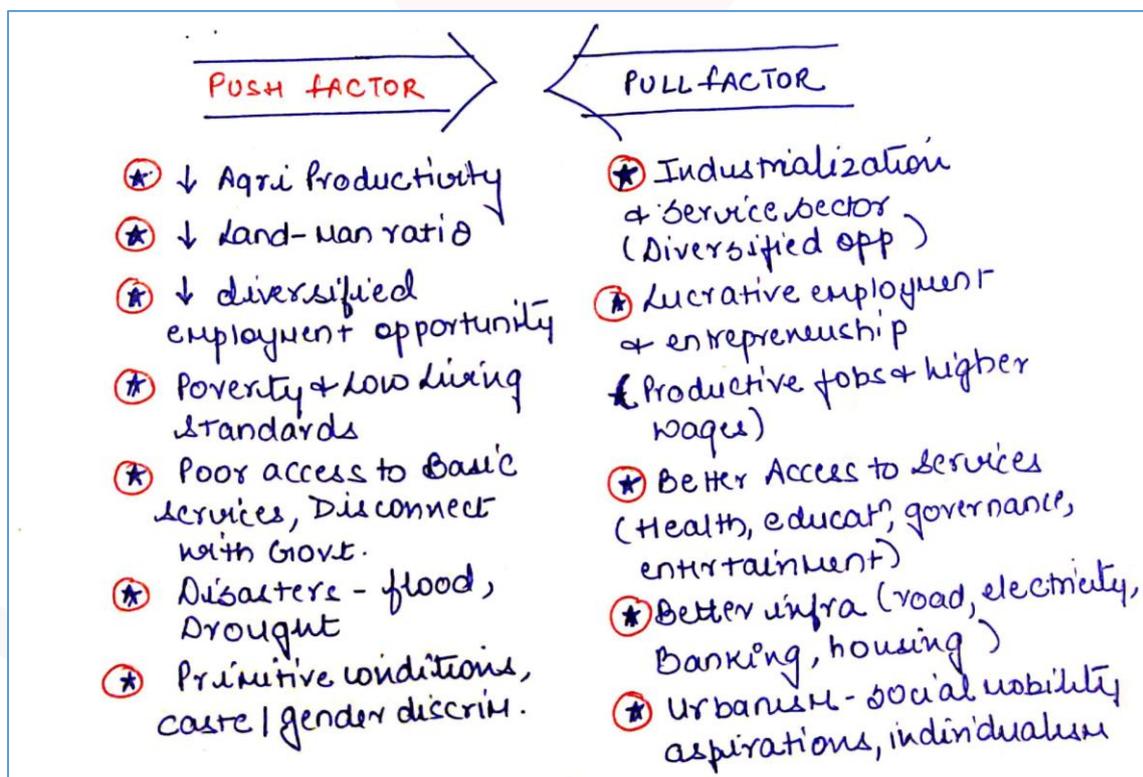 - They are defined under Census of India.
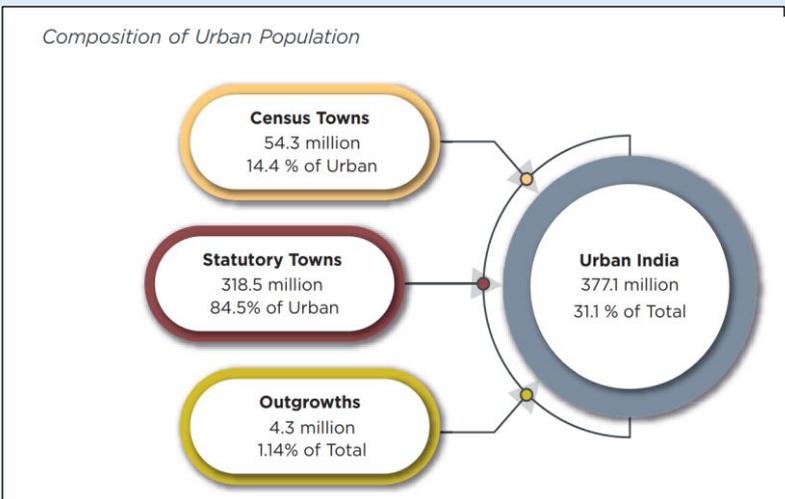
OTHER RELATED TERMS

- **Suburbanisation:**
  - When cities/towns tend to get overcrowded or over-urbanised, it may result in urbanisation of **fringe areas around the city/town** as an outlet. They are often more developed than hinterlands, with a higher density of housing, amenities, and infrastructure.

- **Other Factors Driving suburbanisation:** High cost of living in core city/town area; work from home culture; intensive communication & transport network between city & surrounding areas; inclusion of surrounding areas of town within its municipal limits etc. **For eg. Delhi & NCR region.**

- **Hinterlands:** They refer to areas that are located beyond the outskirts of a city or town, typically **in rural or sparsely populated areas**. These areas are often characterized by large tracts of land, agriculture, and natural landscapes.

- **Rurban cluster**
  - **Definition:** It is a cluster of **geographically contiguous villages** with a population of 25000 to 50000 in plain and coastal areas; & 5000 to 15000 in desert, hilly or tribal areas
  - **Envisaged under:** Shyama Prasad Mukherji Rurban Mission launched by Ministry of Rural Development in 2016.
  - **Objective -** to stimulate local economic development, enhance basic services, and create well planned **SMART VILLAGES ie.** an area which possesses the economic characteristics and lifestyles of an urban area while retaining its essential rural features.
  - Recently, the **Aibawk cluster in Aizwal, Mizoram** became the first cluster to be completed under the **Shyama Prasad Mukherji Rurban Mission**.

- **Slums**: It is a residential area where dwellings are **unfit for human habitation** by reason of dilapidation, overcrowding, lack of ventilation, sanitation etc. which are detrimental to safety, health & morale.
  - **Slums have their own micro culture –** sometimes referred to as 'culture of poverty'. They also perform the function of socialisation of new migrants to city's way of life.

4.2 CAUSES OF URBANISATION: PUSH & PULL FACTORS

PUSH FACTOR / PULL FACTOR

PUSH FACTOR
- ↓ Agri Productivity
- ↓ Land-man ratio
- ↓ diversified employment opportunity
- Poverty + Low Living Standards
- Poor access to Basic Services, Disconnect with Govt.
- Disasters - flood, Drought
- Primitive conditions, caste/gender discrim.

PULL FACTOR
- Industrialization + Service sector (Diversified opp.)
- Lucrative employment + entrepreneurship (Productive jobs + higher wages)
- Better Access to Services (Health, educat", governance, entertainment)
- Better infra (road, electricity, Banking, housing)
- Urbanism - social mobility aspirations, individualism

4.3 URBANISATION: KEY CHALLENGES

- **Inadequate housing & proliferation of slums**: The economically weaker sections **(EWS)** and low income group **(LIG)** accounted for 96% of the total housing shortage in India, leading to proliferation of slums.
  - **For eg.** More than 17% of urban households live in slums under unhygienic conditions.
- **Unsafe & insufficient basic amenities**: lack of access to safe water supply (diseases & malnutrition) or uninterrupted electricity, 50% open drainage in slums, no city that is fully sewered, poor solid waste management apparatus, undermotivated sanitation workers etc.
- **Inefficient & Inadequate transport ➔ traffic congestion:** Poor & fragmented Public transport network, huge number of private vehicles, unscientifically designed roads, laxed traffic management, poor adoption of tech based solution etc.
- **Lack of open & green spaces** for recreational activities.
- **Hotbed of Environmental pollution** (Air, water, soil, noise): due to indiscriminate growth of industries, vehicular pollution, ineffective municipal waste management, untreated discharge into rivers, lack of civic sense (littering), groundwater depletion etc.
  - **For eg**. **39 out of 50 cities** in the list of most polluted cities are from India.
- **Governance Deficit & Poor urban planning:** Covered ahead in detail
- **Social Consequences of overurbanisation:** Covered ahead in detail
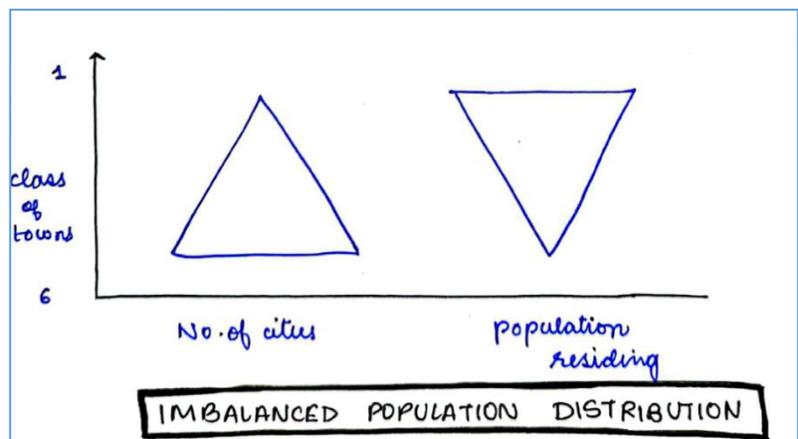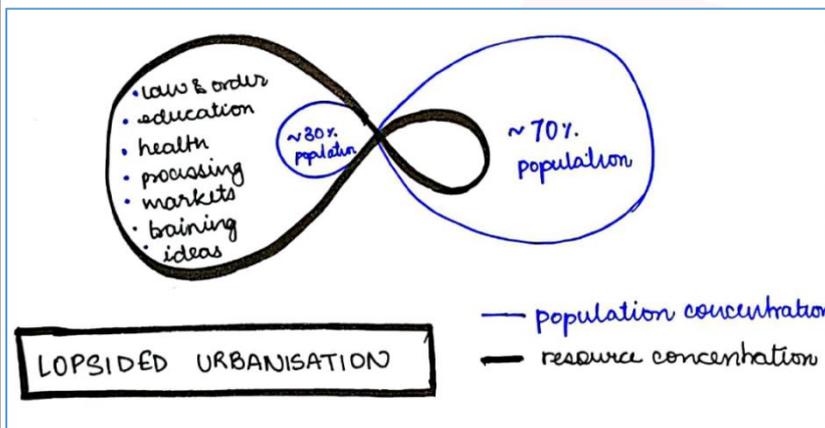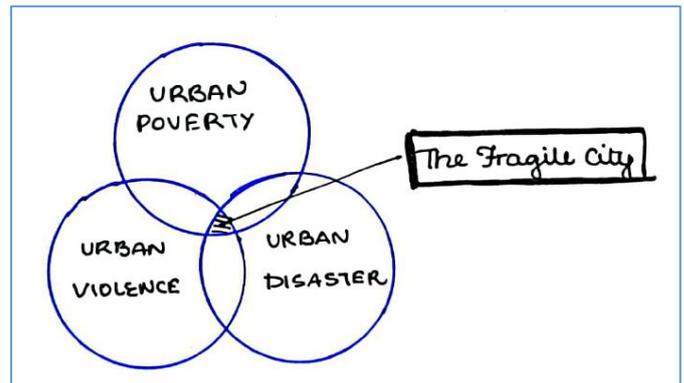
4.4 WAY FORWARD: SUSTAINABLE URBANISATION

ACRONYM AS WAY FORWARD	'CITIES'

WAY FORWARD: INDIA NEEDS 'CITIES' FOR SUSTAINABLE URBAN DEVELOPMENT

- **C – Community Engagement & capacity development:** Foster active community participation in urban planning, decision-making, & governance to ensure inclusivity, transparency, & accountability.
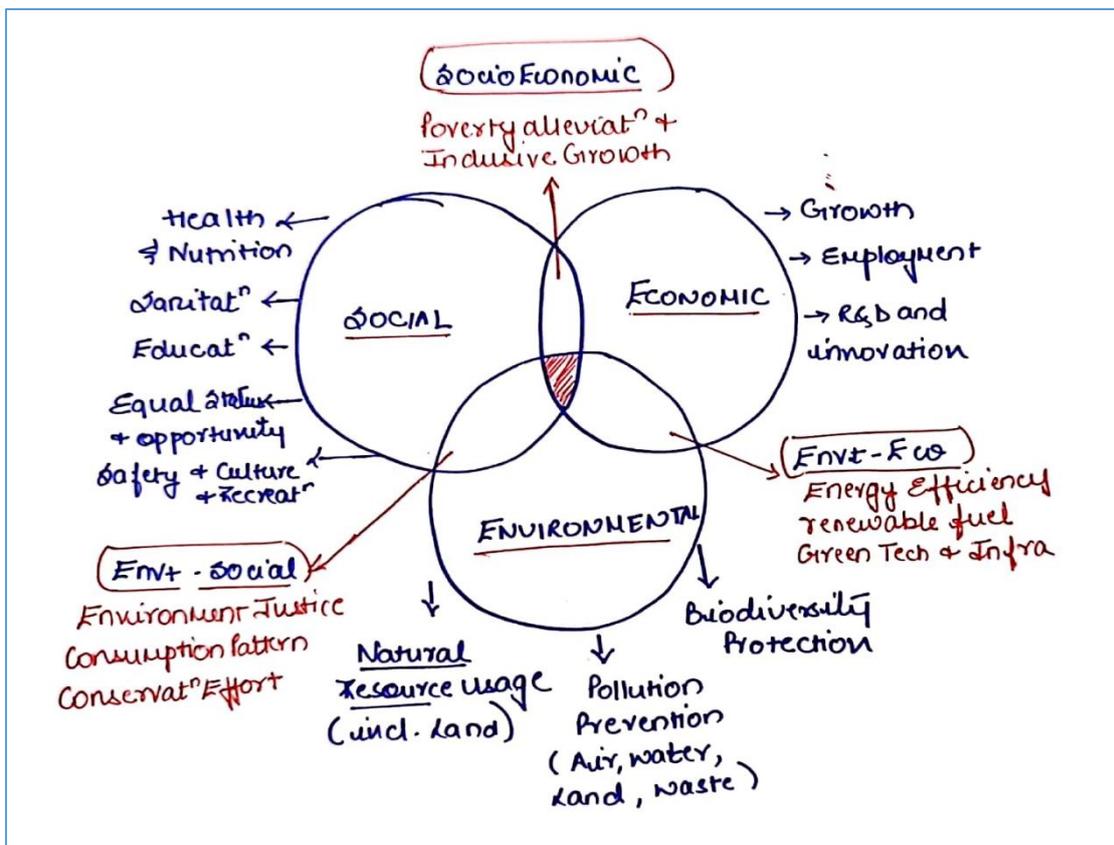 - **Capacity building** of local leadership, functionaries, experts & citizens.
- **I - Infrastructure:** Developing robust **physical** (transport oriented development, power etc), **Social** (housing, health & sanitation facilities, clean water, education, recreational facilities etc) & **Digital Infrastructure.**
- **T – Technology:** to drive efficient citizen centric urban governance and service delivery ➔ automating municipal offices, single window system, e-delivery of services, smart cities & villages. etc
- **I - Innovation:** Encouraging innovation in urban planning, design, and implementation to address specific challenges faced by Indian cities ➔ Data driven Regional planning for balanced dispersal of urban centres.
- **E - Economy:** reimagining Cities as 'engines of growth' with focus on attracting investment and generating employment eg. Industrial corridors, IT parks, trade centres, skill development centres, financial centres etc.
- **S - Sustainability:** Promoting long-term sustainability through the efficient use of resources, renewable energy adoption, circular economy, promoting green spaces and green building practices.

5	URBANISATION IN UTTAR PRADESH

5.1 FACTORS SUPPORTING URBANISATION IN UP

- **Rural to Urban Migration:** Economic opportunities in cities like Lucknow, Kanpur, Ghaziabad, Noida, and Varanasi attract migrants from rural areas.
- **Special Economic Zones (SEZs):** Development of SEZs in areas like Greater Noida, Yamuna Expressway region, and Kanpur.
- **Industrial Clusters:** Growth of textile, leather, electronics, and manufacturing industries in cities like Agra, Kanpur, and Meerut.
- **Startup Ecosystem:** Promotion of IT parks & entrepreneurship hubs, particularly in Noida and Lucknow.
- **Urban Governance Initiatives:** Like AMRUT, Smart cities project (Lucknow, Agra, Varanasi, and Kanpur) etc. are also supporting urbanisation in UP.
- **Infrastructural development:**
  - **Metro Connectivity:** Metro rail projects in Lucknow, Kanpur, and Agra.
  - **Expressways and Highways:** Projects like Purvanchal Expressway, Yamuna Expressway, and Ganga Expressway connect urban centres, spurring development.
  - **Development of new airports, RRTS system**, **real estate boom** etc. are also supporting urban development.
- **Other factors:** Development new educational hubs (Noida, Prayagraj, Lucknow etc.), development of medical facilities, youthful population, etc.

5.2 CHALLENGES OF URBANISATION IN UP

- **Slow paced Urbanisation:** UP has the largest urban system in India but ranks 23rd in urbanization levels.
- **Skewed distribution:** The Western Region is the most urbanized with about 32.5% urban population, while the Eastern Region is the least urbanized at 13.5%.
- **Spatial Polarisation**: Class-I towns are growing faster than small towns (Class 5&6), with 60% urban population residing in Class 1 towns.
- **Non inclusive urbanisation**: The urbanization process is increasingly benefiting larger cities, creating a top-heavy urban structure with significant growth in big cities.
- **Unaffordable housing & proliferation of slums** (23% of the urban population)
- **Critical Gaps in urban amenities**
  - **Water Supply Connection**: accessed by only 50% households in Nagar Nigam towns
  - **Urban areas serviced by sewerage system:** Only 20%
  - **Toilet Facilities:** 30% Households don't have access
  - No city has integrated drainage and solid waste management system.
- **Rising Air Pollution:** UP cities in the **top 50 most polluted cities** of the world. **For eg.** Greater Noida, Muzzafarnagar, Dadri, Noida, Meerut, Ghaziabad etc.

5.3 MAJOR URBANISATION RELATED SCHEMES (STATE LEVEL INITIATIVES)

- **VISION 2030 document:** commits to the fulfilment of the Sustainable Development Goals (SDG).
- **CHIEF MINISTER NAGAR SRIJAN YOJANA (CM-NSY)**
  - launched over the last 5 years to improve infrastructure, including drinking water supply, solid waste management, roads, and street lighting, in 240 urban local bodies.

- **Need:** To substantiate increasing urbanization amid following interventions by the state:
  - ✓ A total of 240 urban bodies have been created or had their limits expanded across the state.

- **PT. DEEN DAYAL UPADHYAY ADARSH NAGAR PANCHAYAT**
  - **About:** focuses on enhancing development and cleanliness across all sectors of the city, aiming to uplift urban areas with improved amenities.
  - **Eligibility**: One Nagar panchayat is selected every year in each district-by-District Magistrate

- **CHIEF MINISTER GREEN ROAD INFRASTRUCTURE DEVELOPMENT SCHEME (URBAN)**
  - **About:** launched in 2023, with an allocation of Rs. 500 crore for the 2023-24 financial year.
  - **Benefits**: The scheme will provide funding based on the income earned by local bodies in the previous financial year.
    - ✓ Key facilities like utility ducts, footpaths, solar street lights, EV charging stations, and beautification will be added to ensure safe, sustainable, and green roads.

- **SEWERAGE EVAM JAL NIKASI**
  - **About:** aims to provide basic services like sewerage, to urban households as a national priority.
  - **Implementing agency**: The Uttar Pradesh Jal Nigam
  - **Eligibility**: Municipal bodies need to submit detailed project proposals, along with government orders, resolutions, and financial statements for approvals and reimbursement.

- **MUKHYAMANTRI NAGRIYA ALP VIKSIT VA MALIN BASTI VIKAS**
  - **About**: The scheme aims to improve the infrastructure of minority and polluted settlements by constructing Cement Concrete (CC) roads, interlocking, drainage systems, street lighting, etc.
  - **Benefits:** Construction of CC roads and proper drainage systems will help mitigate the problem of waterlogging, especially during the monsoon season.
    - ✓ Interlocking construction ensures smooth traffic flow, enhancing the overall mobility;
    - ✓ Improved infrastructure contributes to public safety by reducing accidents and improving emergency response access.

- **PT. DEEN DAYAL UPADHYAY NAGAR VIKAS**
  - **About:** provides interest-free loans to urban local bodies in the state for developing infrastructure facilities, as per their proposals and requirements.
    - ✓ Facilitates the development of infrastructure facilities in urban areas.
    - ✓ Enables urban local bodies to undertake projects without the burden of interest on loans

- **UTTAR PRADESH TRANSIT ORIENTED DEVELOPMENT POLICY, 2022**
  - **About:** The Uttar Pradesh government has approved the Transit-Oriented Development (TOD) policy to boost urban planning and development around the **Rapid Rail Corridor.**
  - **Focus Areas:** TOD will focus on enhancing accessibility, reducing congestion, and improving connectivity for better urban mobility.
  - **Infrastructure Development:** The policy emphasizes the development of commercial, residential, and mixed-use spaces around key transit corridors, ensuring better land utilization.
  - **Integration with Public Transport**: The policy promotes integration of transit systems, including the Metro and Rapid Rail, to create seamless connectivity between different modes of transportation.
  - **Stakeholder Involvement:** The UP government will involve private developers, local authorities, and other stakeholders for the successful implementation of TOD projects.
  - **Economic and Social Benefits:** The TOD policy is expected to generate employment opportunities, increase property value, and enhance quality of life in urban areas along the rail corridors.
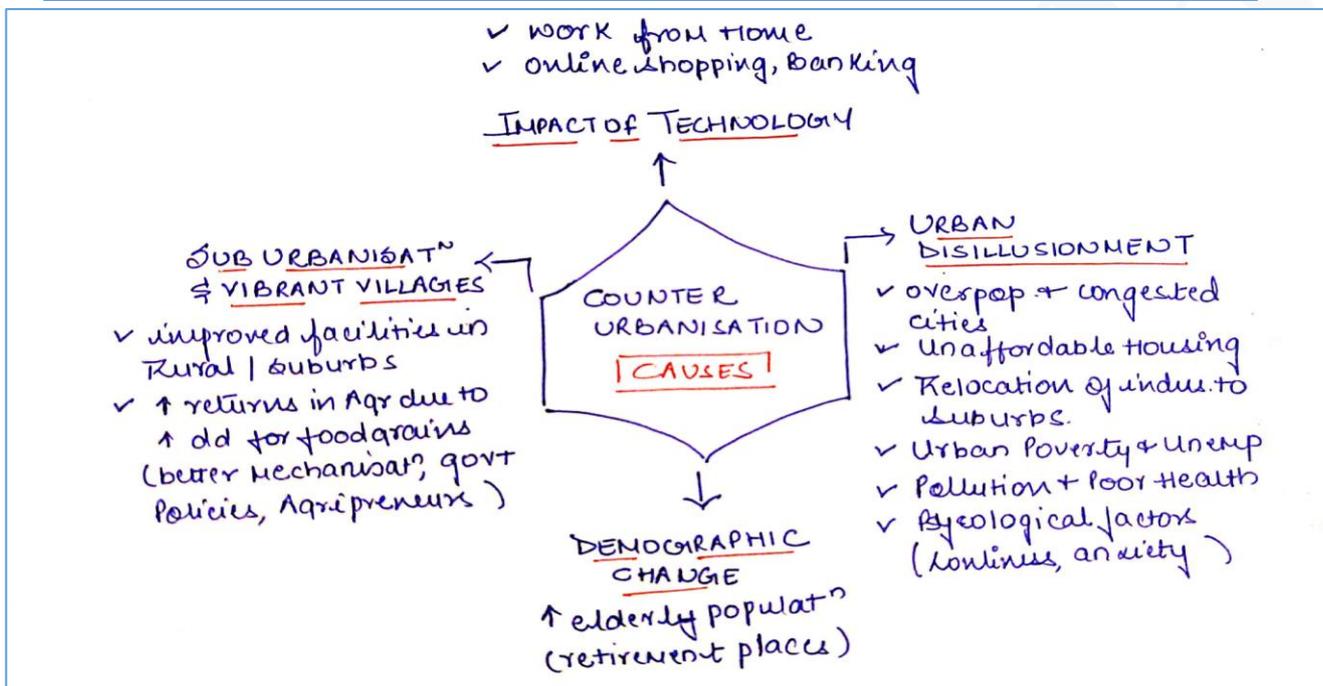
- **UTTAR PRADESH TOWNSHIP POLICY-2023**
  - **About:** It allows townships to be developed on minimum land of 12.5 acres in cities with populations under 2 lakh, and 25 acres in other cities. 24-meter roads will be mandatory for access, with 12-meter roads required inside the township.
  - **Benefits:**
    - ✓ **Infrastructure and Development:** In cities with populations exceeding 50 lakh, projects like sports complexes, sports cities, film cities, IT cities, medicities, and educational hubs will be developed. High-quality design for major buildings and integration of cultural and historical heritage is emphasized.
    - ✓ **Land Allotment and Acquisition:** To safeguard the interests of allottees, the agreement now requires 75% land ownership of the total area, up from 60%. In certain cases, 20% of the land for road networks can be acquired.
    - ✓ **Urban Design and Amenities:** The policy promotes horizontal development, similar to Chandigarh, with provisions for pedestrian footpaths, green belts on unused land, and parking facilities near parks, shopping complexes, and police stations.
    - ✓ **Sustainability:** The policy mandates net zero waste for solid waste disposal and encourages the use of treated water for horticulture in parks and green spaces.

Central Govt Initiatives include: AMRUT, PRASAD, Smart City mission, PM Awas Yojana, Swachh Bharat Mission etc

==

6 COUNTER-URBANISATION: CAUSES & IMPACTS

6.1 COUNTER URBANISATION: POTENTIAL CAUSES

A hand-drawn mind map titled "COUNTER URBANISATION [CAUSES]" with branches:

- **IMPACT OF TECHNOLOGY**
  - ✔ work from home
  - ✔ online shopping, Banking

- **SUB URBANISAT'N & VIBRANT VILLAGES**
  - ✔ improved facilities in Rural / Suburbs
  - ✔ ↑ returns in Agr due to ↑ dd for foodgrains (better Mechanisat'n, govt policies, Agripreneurs)

- **URBAN DISILLUSIONMENT**
  - ✔ overpop + congested cities
  - ✔ Unaffordable Housing
  - ✔ Relocation of indus. to Suburbs.
  - ✔ Urban Poverty + Unemp
  - ✔ Pollution + Poor Health
  - ✔ Psycological factors (loneliness, anxiety)

- **DEMOGRAPHIC CHANGE**
  - ↑ elderly populat'n (retirement places)

6.2 COUNTER URBANISATION: IMPACT

A hand-drawn diagram titled "IMPACT OF COUNTER URBANISATION" split into POSITIVE and NEGATIVE.

POSITIVE

- **URBAN**
  - ✔ ↓ burden on urban infra + services
  - ✔ Improved urban Environment.

- **RURAL**
  - ✔ New ideas, innovation literate popn in rural areas (cultural exchange)
  - ✔ Rural urban linkage improve – better Transport facilities, governance

NEGATIVE

- **URBAN**
  - ✔ de-industrialisat'n
  - ✔ ↓ Eco growth (Cities contri~60% to GDP)
  - ✔

- **RURAL**
  - ✔ ↑ Social conflicts due to ↑ popn + Limited resources.
  - ✔ Burdening of Agri sector
  - ✔ Peace + charm of villages eroded.

6.3 RURBANISATION: SIGNIFICANCE

"Rurbanisation" combines a process of providing all the civic and infrastructure facilities available in big towns and cities to rural areas while at the same time preserving the '**soul of the villages'.**

The objective is to provide better infrastructure facilities, improved connectivity (road, electricity and digital), gainful livelihood options, and quality lifestyles to rural areas which in turn will entail following benefits:

- **Reduced Rural – Urban divide**, arrest migration and ease pressure on civic infrastructure in overcrowded urban areas. **For eg.** Expansion of educational, industrial and other facilities in the hinterland would reduce pressure on the facilities available in the city.
- **Better facilities encourage private investments in rural areas**, setting up of industries (esp, food processing) leading to economic diversification➔ Expands GDP.
- **Rising rural incomes,** along with expansion of banking services, will incentivise savings and result in increased availability of investible resources ➔ **Increased consumption demand** due to rising incomes will boost domestic market.
- **Alleviate psychological impacts associated with migration**, breaking away from families, and moving into new social/community set up.
- **Harnessing rural-urban interconnectedness** for efficient resource use**: For eg.** Waste water from the cities, after treatment, can be distributed to farmers for irrigation ➔ water conservation.
- **Innovative solutions:** Solid waste collected from cities & villages can be used to produce fertiliser and **organic crops** produced from this could be sold in international market for better returns.

===

7	SOCIAL PERSPECTIVE TO URBANISATION

7.1 POSITIVE SOCIAL IMPLICATIONS

- **Better social integration & tolerance:** People of varying social layers, races, castes and religions live and work together ➔ **facilitates social capital.**
- **Increase in social status:** Urbanization opens up a door of opportunities to people to raise their social standards irrespective of social status they were born with ➔ provides scope for intra & intergenerational social mobility.
- **Improved lifestyle and access to benefits:** Urbanisation provides better and easier life for people and higher quality of life due to better education, health, cultural activities, social services etc.
- **Melting pot of Innovation:** due to cultural exchanges of ideas, techniques, skills and modes of behaviour among people through interpersonal contacts or by mass transportation and communication.
- **Women empowerment:** providing them with better educational, skill enhancement, and employment opportunities.

7.2 NEGATIVE SOCIAL IMPLICATIONS

- **Change in family structure:** rise of nuclear families, premium placed on individualism ➔ weakening of extended family ties and breakdown of kinship and marriage.
- **Poverty and increased inequality:** Urbanization has widened the income gap between the rich and the poor ➔ Segregation on basis of income, residence (gated communities), occupation etc.
- **Stress, anxiety and psychological problems:** Urbanisation induced rapid social change resulting in maladjustment and absence of integration with society, leading to failure, frustration, inferiority complex, mental illness, isolation, conflicts & riots.
- **Depersonalisation & breakdown of community bonds:** Overcrowding leads to indifference & apathy as each fight for survival. As cities grow, individuals may experience a sense of alienation & disconnect from their neighbours, which can impact social cohesion and community bonds.
- **Increased crimes & social evils:** Relative deprivation, desire for quick money, pressure of sending back remittances along with urban anonymity weakens the traditional agencies of social control & law and order, leading to alcoholism, beggary, gambling, prostitution, organised crime, juvenile delinquency, rape etc.

==

8	**URBAN GOVERNANCE: KEY CONSTRAINTS & REMEDIES**

Q) 'India can no longer ignore the need for strengthening its urban governance structures'. Discuss the challenges confronting the urban governance in India and suggest suitable reforms to overcome them.

APPROACH (PART/SUB PARTS)

- Introduction – Definition based (what is urban governance), current affairs based, fact based, irony based
- Give reasons why India can no longer ignore the need for making the urban governance structures robust (need for urban governance).
- Highlight the challenges of urban governance. (Can use 3PI Template).
- Suggest reforms and way forward.

Answer

While **India transitions** from a mostly **rural to an urban society**, unleashing enormous opportunities of economic growth and global competitiveness, Indian cities continue to face many efficiency-and sustainability-related challenges due to **deficient urban governance.**

Need for Urban Governance

- **'Cities as engines of growth':** With 30% urban population, Indian cities contribute 60% to GDP ➔ central to achieving National targets of $5 Trillion economy, rapid formal job growth & attracting investments.
- **'Urban' Transition -** Nearly 50% of India's population is expected to reside in urban areas by 2050. Without robust urban governance human settlements could become a **silent crisis** in motion.
- **Cities as core of big ticket infra-initiatives –** Smart cities, NIP, Gati Shakti, Industrial corridors, multi modal logistics park etc.
- **Achieving India's Global Commitments:** Cities play a decisive role in achieving India's commitments to global agendas, such as SDG, UN-Habitat's New Urban Agenda, 2016 and Paris Agreement etc.
- **Rising Health Concerns:** E.g. a majority of the uncontrolled COVID-19 spread had occurred in urban areas and metropolitan cities, despite a better health infrastructure.
- **Rising pollution in cities - 39 out of 50 cities** in the list of most polluted cities are from India.
- **15th Finance Commission** recommendation for enhanced focus on Urban Local Bodies.

While the 74th Constitutional amendment Act places **Urban Local Bodies (ULBs)** at the heart of participatory urban governance, **several challenges remain.**

- **Undermining principle of Subsidiarity:** No state has devolved all functions mentioned in the Twelfth Schedule. Restrictive regulatory control of State governments over ULBs & exclusion in urban planning.
- **Stressed municipal finances:** Due to limited capacity of ULBs to raise own revenues, inadequate taxation powers, delayed & insufficient revenue devolution etc. which has led to dependence on state and central government and poor service delivery in cities.
- **Powers of elected municipal officials:** Charging Commissioners with executive power dilutes the role of the Mayors and violates the spirit of self-governance.
- **Poor accountability**
  - **Functional overlap with parastatals** that leads to ambiguity, wastage of resources, and shifting of accountability. **For eg.** in case of Delhi – MCD, NDMC, PWD, Jal board etc.

- **Rampant corruption** – Impacting ease of living for the citizens and accelerating vices like rent seeking, illegal construction, land grabbing, vote bank politics etc.
- **Sub optimal infrastructure & basic amenities** due to lack of investment in physical, social & digital infra.
- **Poor urban planning capacity** – Lack of awareness about modern urban & land use planning and paucity of skilled urban planners ➔ leading to uncontrolled, unplanned growth of metro cities. **For eg.**
  - **3/4th of urban centres** (Statutory & census towns) lack master plans to guide their spatial growth.
  - **Census towns governed as villages** with no urban local bodies or master plans, despite rapid rise of population in these areas.
- **Lack of Inclusive approach to urban governance** – exclusion of vulnerable sections ie. SC/ST/OBC, women, children, migrants, elderly, physically challenged, etc
- **Underutilisation of Urban Land:** Paradoxically land parcels of high urban densities co-exist with those which are sub-optimally utilized due to fragmented and poorly recorded ownership of urban land.

WAY FORWARD
- **Re-engineering of urban governance:** bring in more institutional clarity & clear responsibility matrix, and multi-disciplinary expertise to ensure accountability & efficiency of ULBs.
- **Timely & adequate Devolution of all three Fs:** Funds, functions, & functionaries under 12th schedule.
- **Strengthening financial capacity of ULBs –** Assigning greater powers of taxation, and experimenting with innovative finance mechanism eg. Municipal bonds, REIT, INVIT, property tax etc
- **Executive appointments:** Commissioner should be recruited through a transparent search-cum-selection process led by the Mayor. Empower Mayors with longer tenure.
- **Local capacity building:** Short-term training programme for **city level elected officials** and **dedicated cadres** for city administration like IAS, lateral entry of private sector executives etc.
- **Sound pool of Skilled Planning professionals:** such as planners, urban designers, architects, engineers, data-science experts, geospatial technology experts
- **Boost to urban infra –** effective implementation of Urban public transportation systems, Smart cities, AMRUT, Housing for all, Rurbanisation mission etc.
- **Revision of Town Planning Acts:** to be reviewed and upgraded to the latest advancements in technology, urban and regional planning approaches and policies. **Land titling & record modernisation.**
- **Regional planning in addition to city planning** so that population is logically dispersed over an extended area and flourish as centre of economic growth. Enhancing the role of **private sector through PPP.**

A global city like Singapore was raised through firm political leadership, a professional approach, and intelligently created capacities. India must act swiftly to '**Reform-Perform-Transform'** its urban governance to secure its rightful place in the global growth story.

===

9 UTTAR PRADESH URBAN GOVERNANCE: KEY CONSTRAINTS

Slow urbanization

- **Dispersed urbanization with slow growth rate**, primarily attributed to natural increase of population. Migration from rural areas to UP cities is minimal, in the absence of planned economic activities in and around cities

- **Concentration of cities in the Western Region** with 110 out of 217 municipal councils/corps located in the Western UP Region

Lack of Master Plans

- **Only 221 cities of 757 ULBs under ambit of Development Areas** notified as per UP Urban Planning and Development Act, 1973, wherein DAs take up the responsibility of long-term planning

- Preparation of **Master Plans for NPPs/NPs is a discretionary functions** of ULBs as per Sec-8(aa) of the Uttar Pradesh Municipalities Act, 1916.

Lack of Economic Vision

- Master Plans **do not have City Economic Vision** to address Local Economic Development

- Master plans prepared have **limited focus on economic development projects** and greater emphasis is given to land use controls and regulatory aspects

Capacity constraints

- **Significant shortage of staff** working on specialized concepts relating to urban planning, urban design, urban economics, use of ICT based technologies, sustainability, and climate change

- **Capacity constraints in Tier-2 and Tier-3 Cities** resulting in poor operational efficiencies and administration of ULBs.

Poor infrastructure

- Investments are required to **refurbish the existing infrastructure** (WS, sewerage, SWM and SWD) and augmenting the above city level infrastructure to meet the future demand

- Most UP **Cities are faring low in MPI, EOI, Swachh Sarvekshan** and as a result they are unable to attract investments from global players

Unutilized land

- Large tracts of un-utilized govt. lands within municipal limits - lengthy procedures required by ULBs/ Development Authorities to put these lands to public use, eg. hospital & schools

- Land assembly for housing and infrastructure projects in the absence of a suitable Urban Land Policy is a big challenge.

Low revenue generation

- Own Source Revenues account for only **14% of Municipal Revenues** .

- ULBs need to digitize and update their municipal records time to time, introduce process improvements and leverage ICT based smart solutions (e.g. GIS) to enhance revenues and rationalize expenditures

---

Unlock the potential of Uttar Pradesh Cities and enable them as *engines of economic growth* to realize the state's vision of one trillion-dollar economy by 2027

Urban goals to enable and support UP's One Trillion Dollar economy target

1. Increase in urbanization rate to **35-45%** at par with leading states in India

2. Revitalize existing 13-17 large urban centers

3. Develop new city-regions/townships

4. Transform 8-10 cities as global destinations

5. Cities to generate high-paying jobs

6. Foster innovation; diversify city economies, create new jobs

7. Cities to be competitive for private sector

8. Cities to attract best-in-class global talent (cities in top 10 of MPI/EoL)

9. Cities to lead the way for balanced regional development and bridge inequality gaps

===

10	SMART CITIES MISSION (SCM): AN ASSESSMENT (INDIA + UP SPECIFIC)

10.1 ABOUT SMART CITIES MISSION

- **A centrally sponsored scheme**, launched in 2015 by Ministry of Housing and Urban Affairs.
- **Objective:** To promote sustainable & inclusive cities that provide **core infrastructure** and give a decent quality of life to its citizens, a clean & sustainable environment through application of **'Smart' Solutions**.
  - It aims to drive **economic growth** and improve quality of life through comprehensive work on social, economic, physical and institutional pillars of the city.
- **Core infrastructure component includes**: adequate electricity supply; water and sanitation, efficient urban mobility; affordable housing; robust IT connectivity; good governance; sustainable environment; safety and security of citizens, particularly women, children and the elderly; and health and education.
- The **strategic components**
  - City improvement (**retrofitting**)
  - City renewal (**redevelopment**)   Including slums
  - City extension (**greenfield development)**
- **Coverage** - about **100 cities.** These replicable models will act as **lighthouses** to other aspiring cities.
- **Implementation of the Mission**: by Special Purpose Vehicle (SPV) created for the purpose
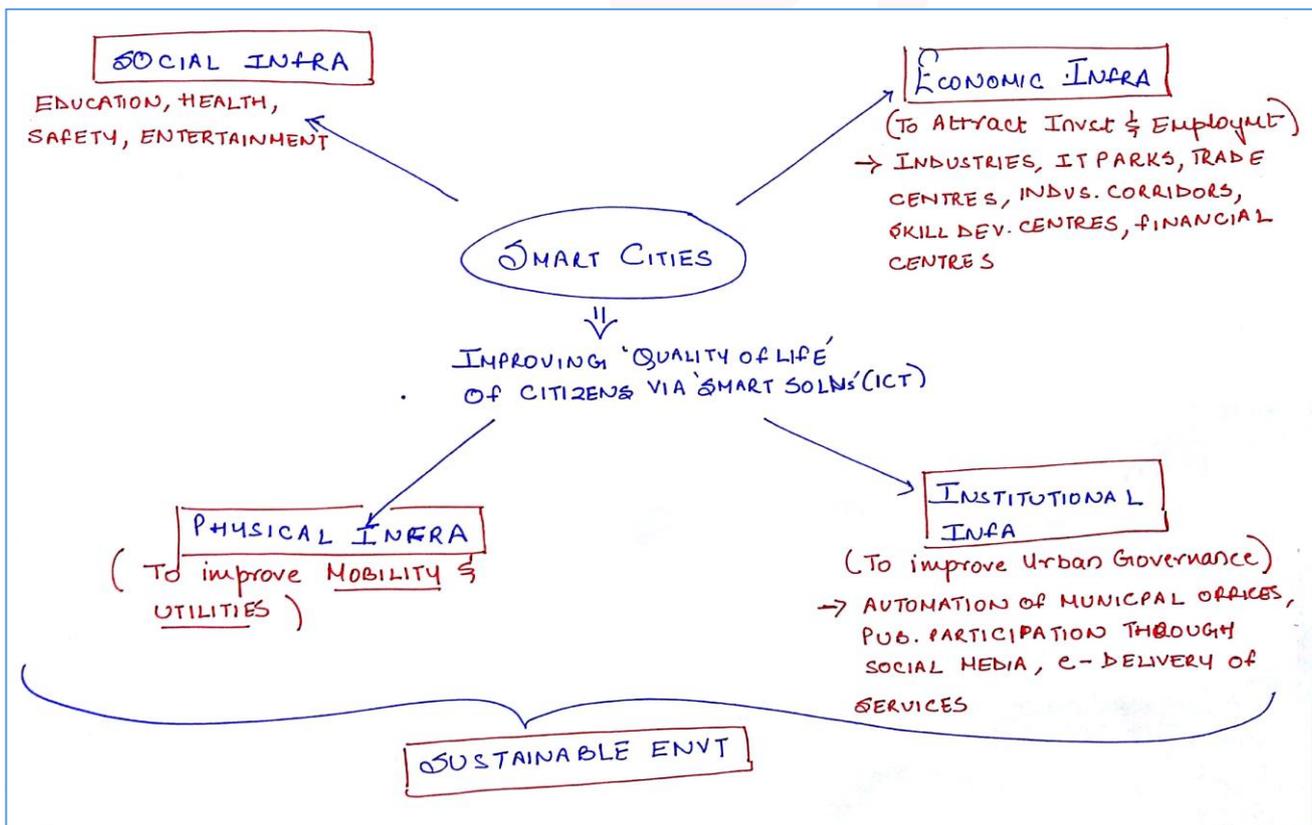
10.2 KEY BENEFITS/ACHIEVEMENT OF SMART CITIES MISSION

- **Sustained Progress in Project completion:** More than **85% of funds** have been utilised and **70% of projects** completed under Smart Cities Mission.

- **Community at the Core**: The mission places 'communities at the heart' of all planning & implementation with a key focus on improving the **quality of life**. Technology is seen only as a means, not as a goal.
- **Data-driven governance:** <u>For eg</u>. establishment of **Integrated Command and Control Centres** (ICCC) to monitor the environment/traffic/water logging/law-and-order situation, which facilitates decision-making and daily operations.
- **Focuses on Transit-oriented development (TOD)**: Ensuring travel distances are minimized and access to livelihoods, education, and other social needs, especially for the marginal segments is improved.
- **Strengthens Cooperative & Competitive federalism:** Cities are selected through competition and the states are accorded flexibility to implement project as per their localised requirements.
- **Robust monitoring mechanism:**
  - **At centre**: Apex committee approves proposals reviews activities, recommends mid-course corrections, and releases funds.
  - **In states**, a high-powered steering committee provides guidance & platform for exchange of ideas.
  - **In the cities**, in addition to the SPV, smart city advisory forums have been established to advise and enable collaboration among stakeholders.
- **Government initiatives to support the mission:** <u>For e.</u>g. National Urban Digital Mission (NUDM), National Urban Learning Platform (NULP) for capacity building, Ease of Living & Municipal Performance Index, Urban Learning Internship Programme (TULIP), ClimateSMART Cities Assessment Framework to incentivize climate responsive development, CITIIS Challenge for Innovative projects etc.

10.3 OUTSTANDING CHALLENGES

- **Lag in project implementation:** Time & Cost overruns on several projects due to poor functioning of SPVs and inadequate managerial, technical, and financial capabilities of cities.
  - **For e.g.** Only **17 of 100 cities** have been able to finish all projects commissioned under the mission.
  - While 75% of projects have been completed in 75 smart cities, 34 cities have completed more than 90% of the projects.
- **Financing:** The Centre, as well as most state and local governments, are finding it difficult to mobilise funds, transfer them to SPVs, and use them efficiently. Most ULBs are not financially self-sustainable.
- **Deficiencies observed in data handling**: Inadequate understanding of data, and how to analyse it to provide effective solutions by city data officers.
- **Laxed Cyber security:** Smart cities rely on sensors and network-connected devices and systems that generate large volumes of data, which are vulnerable to hacking by cyber criminals.
- **Missing master plans or city development plan:** 60-70% cities don't have master plans or a city development plan, which is the key to smart city planning and implementation.
- **Other challenges:** land acquisition & environment clearance challenges, inadequate Centre-State Co-ordination, lack of citizen participation etc.

10.4 WAY FORWARD

- **Reasonable project timelines:** Indian cities are at a low level of development and any transformation will take a long time. Thus, the SCM should be a long-term programme, not restricted to five or six years as currently envisioned.
- **Mobilisation of funds:** More revenue needs to be generated through efficient taxation, and alternate sources of financing found such as **municipal lending. For eg.** Ameris Bank offers financial support to many US cities, towns, and counties.
  - Process of fund transfer from the Centre to state govts/urban bodies to SPVs should be made easier.

- **Training programmes** should be organised to build managerial and financial capacities of the staff employed by the SPVs and urban local bodies.
- **Strengthening Cyber security of Smart cities** by ensuring data security and encryption.
- **Dovetailing with Rurbanisation mission**: Urban development without corresponding rural development will exacerbate distress migration and increase stress on city infrastructure, taking away its Smart character ➔ **need for 'Smart villages for Smart Cities'.**

SMART CITY PROJECT IN UTTAR PRADESH

- **Applicability in Uttar Pradesh**: Ten Smart Cities of Uttar Pradesh namely **Agra, Aligarh, Bareilly, Jhansi, Kanpur, Lucknow, Moradabad, Prayagraj, Saharanpur and Varanasi,** were selected in 5 rounds.
- The extension of Smart City Mission to the remaining **Seven Nagar Nigams** viz. Ayodhya, Firozabad, Ghaziabad, Gorakhpur, Meerut, Mathura-Vrindavan, Shahjahanpur was announced in 2019-20.
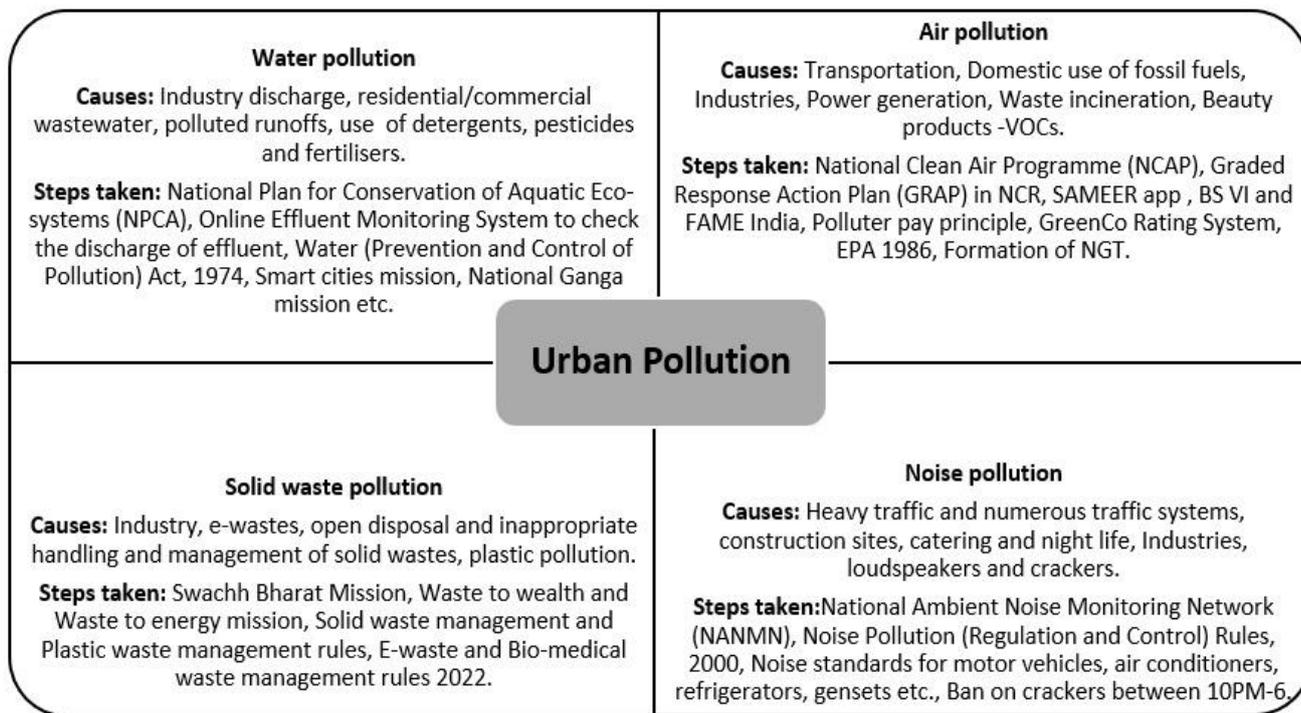
ACHIEVEMENTS

- **Self reliance:** UP is the **First state to launch State Smart city scheme** using its own funding scheme.
- **Rapid progress:** 10 Smart Cities developed under Smart Cities Mission + 7 Smart cities under state mission
- **Establishment of industrial smart cities:** Out of 12 industrial corridors approved by the Union cabinet, two -**Agra and Prayagraj** are from Uttar Pradesh.
- **Top Performer on (Smart Cities Scheme) ➔ India Smart City Awards Contest (ISAC), 2023:**
  - UP bagged the **third prize** in the "best state category".
  - **Agra got the third position** in the 'National Smart City Award' category.
  - **Varanasi secured first position** in the 'City Awards' category among smart cities with a population of over 10 lakhs in the North Zone.
- **Top ranking in completion of affordable houses** (13.3 L houses completed) under PMAY-Urban scheme
- **Effective Monitoring:** Smart City Central Digital Monitoring Center established for monitoring of 17 Smart Cities.
- **Strengthened Transport infrastructure:** Operational **metro projects** in Lucknow, Kanpur, Agra, and underway in 5+ urban centers; **electric buses** started Iin cities like Lucknow, Prayagraj, Agra, Varanasi etc,

==

11 ENVIRONMENTAL PERSPECTIVE TO URBANISATION

11.1 POLLUTION IN CITIES

Water pollution

Causes: Industry discharge, residential/commercial wastewater, polluted runoffs, use of detergents, pesticides and fertilisers.

Steps taken: National Plan for Conservation of Aquatic Eco-systems (NPCA), Online Effluent Monitoring System to check the discharge of effluent, Water (Prevention and Control of Pollution) Act, 1974, Smart cities mission, National Ganga mission etc.

Air pollution

Causes: Transportation, Domestic use of fossil fuels, Industries, Power generation, Waste incineration, Beauty products -VOCs.

Steps taken: National Clean Air Programme (NCAP), Graded Response Action Plan (GRAP) in NCR, SAMEER app , BS VI and FAME India, Polluter pay principle, GreenCo Rating System, EPA 1986, Formation of NGT.

Urban Pollution

Solid waste pollution

Causes: Industry, e-wastes, open disposal and inappropriate handling and management of solid wastes, plastic pollution.

Steps taken: Swachh Bharat Mission, Waste to wealth and Waste to energy mission, Solid waste management and Plastic waste management rules, E-waste and Bio-medical waste management rules 2022.

Noise pollution

Causes: Heavy traffic and numerous traffic systems, construction sites, catering and night life, Industries, loudspeakers and crackers.

Steps taken: National Ambient Noise Monitoring Network (NANMN), Noise Pollution (Regulation and Control) Rules, 2000, Noise standards for motor vehicles, air conditioners, refrigerators, gensets etc., Ban on crackers between 10PM-6.

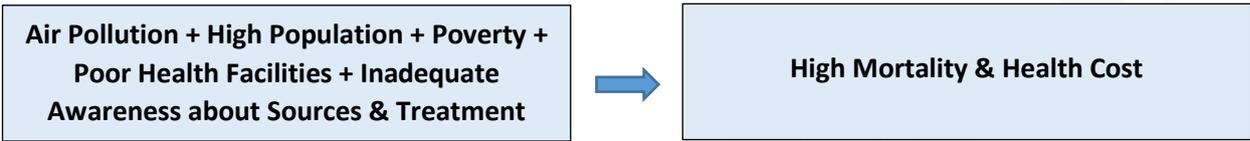**STATE OF AIR POLLUTION IN INDIA (World Air Quality Report, IQAir, 2023)**
- India is the **3rd most polluted country** in the world (8th last year).
- **9 out of the top 10** most polluted cities in the world are from India.
- **New Delhi** is the world's most polluted capital for the fifth consecutive year.
- >95% of the Indian population experience PM2.5 levels more than 7 times the WHO guidelines.
- **UP cities in the top 50 most polluted cities of the world:** Greater Noida (11), Muzzafarnagar (16), Dadri (19), Noida (26), Meerut (28), Ghaziabad (35)

MAJOR CAUSES OF AIR POLLUTION IN INDIAN CITIES
- **Agriculture Practices -** Stubble burning for eg. in Punjab, Haryana, Western UP, bringing toxic and unburned carbon particles into Delhi/NCR – a major source of smoke, smog & particulate pollution.
- **Vehicular emissions & traffic congestion -** in metropolitan cities like Delhi, Mumbai and Kolkata, in spite of the metro railways. Rising number of diesel vehicles.
- **Increasing population pressures -** leading to unplanned urbanization, increased energy demands, inefficient energy usage, and excessive reliance on coal fired plants.
- **Unsustainable urbanization -** Dust from construction sites, roads and rapid deforestation and change in land use pattern. **Fuel wood and biomass burning –** especially in slum areas by urban poor.
- **Exhaust from factories and industries -** highly haphazard and unplanned development of industries and factories, mostly located in in residential and commercial areas.
- **Unsophisticated waste disposal methods -** Burning of garbage in open landfills.
- **Climatic conditions & Topography: For example,** Winters in North India & a drop in wind speeds facilitate concentration of pollutants in atmosphere.

CONSEQUENCES OF RISING AIR POLLUTION

- **Serious Health disorders:** Low birth-weight, heart disease, lung cancer, loss of vision etc.
  - As per WHO, air pollution causes an estimated **one in every nine deaths** worldwide
- **Premature Deaths:** Air pollution is the **3rd highest cause of death** among all health risks in India with number of deaths higher for **children** and **older people**.
- **Welfare losses & cost of lost labour -** amounted to 8.5% of India's GDP (World Bank).
- **Financial cost**: About **1.5% of the GDP** of middle-income countries like India (Lancet).
- **Other impacts –** green-house effect, heat waves, monsoon uncertainty, acid rain, ocean warming, rise of infectious diseases (malaria, dengue), crop failure, impact on food & nutrition security etc.

Air Pollution + High Population + Poverty + Poor Health Facilities + Inadequate Awareness about Sources & Treatment	→	High Mortality & Health Cost

MAJOR INTERVENTIONS TO COMBAT AIR POLLUTION

- **Legislations:** Air (Prevention and Control of Pollution) Act 1981 to restore air quality.
  - **Comprehensive amendments** to various Waste Management Rules including Municipal Solid Waste, Plastic Waste, Hazardous Waste, Bio-medical Waste and Electronic Waste notified.
- **Monitoring Air Quality**: **NAMP** (National Air Quality Monitoring Programme), **NAAQs** (National Ambient Air Quality Standards, National Air Quality index, SAFAR etc.
- **National Clean Air Programme (NCAP):** Achieve a national-level target of **40% reduction** of PM2.5/PM10 concentration by **2026**
- **Graded Response Action Plan (GRAP)** to deal with different levels of pollution.
- **Air pollution Mitigation - WAYU** (Wind Augmentation PurifYing Unit), **Anti-smog guns** (at large construction sites), **'Oxygen Parlour'** (at Nashik railway station), ban on pet coke & furnace oil etc.
- **Regional project** on 'Climate Resilience Building among Farmers through Crop Residue Management', focussing on tackling issue of **stubble burning** in Punjab, Haryana, UP and Rajasthan.

> **SPECIFIC MEASURES AGAINST VEHICULAR POLLUTION**
> - **Odd-even policy** - in Delhi
> - Introduction of **cleaner/alternate fuels** like gaseous fuel (CNG, LPG etc.), Bio-ethanol, Bio-Diesel, etc
> - **Taxing polluting vehicles** (for eg. Diesel Vehicles) and incentivizing hybrid and electric vehicles.
> - NGT's direction of **banning entry of diesel vehicles** older than 10 years.
> - **Promotion of public transport network** of metro, buses, e-rickshaws and promotion of carpooling.
> - Decision taken to **leapfrog directly from BS-IV to BS-VI** fuel standards.

WHAT ARE THE OUTSTANDING CHALLENGES?

- **Absence of Targeted deadline** for India to meet its national air quality standards.
- **Lack of inter-state coordination** to tackle the air pollution with a comprehensive regional planning.
- **Lack of awareness and civic sense** among general public ➔ **Culture of Non compliance** with rules.
- **Regulatory agencies lack will**, **expertise, & resources** to design, implement, enforce and evaluate effective air pollution policies and programs.
- **Inadequate financing and incentives** for adopting clean technologies and practices that can reduce emissions from various sectors.
- **Lack of research and innovation** that can generate evidence-based solutions and technologies for air pollution mitigation and adaptation.

FURTHER SUGGESTIONS TO TACKLE RISING POLLUTION

- **Focussed approach –** identifying all major sources of pollution, setting up network of monitoring stations, setting clear deadlines for meeting national air quality standards, establishing 'responsibility matrix' for each task, etc.
- **Inter-state coordination & regional level plan** to holistically counter air pollution.

- **Improving Public Transportation system** - by making it faster, affordable & more comfortable **eg,** Metro, BRT, Electric vehicles etc.
- **Alternatives to stubble burning** – For e.g. Diverting crop residue to create straw-panel boards for the construction and furniture industry. Governments can procure agro-wastes for bio-gas production.
- **Encourage cycling and walking** - Dedicated lanes for cycling, cemented walkways, more pedestrian crossings and no-vehicle zones in marketplaces.
- **Infrastructure improvements** such as city bypass, to divert unnecessary traffic.
  - **Creating urban green spaces** such as parks, gardens and rooftops that can improve air quality, reduce heat island effect and provide recreational benefits.
- **Reform in legal & regulatory framework:** stricter penalties and reform in the working of agencies such as the CPCB, SPCB, etc.
- **Use of Technology** – For e.g. advanced **LiDAR** (Light Detection and Ranging) to **vertically** monitor the quality of air. **Supporting** social enterprises **or** start-ups that can provide innovative solutions for air pollution, such as Graviky Labs, Chakr Innovation, HelpUsGreen, etc.
- **Other measures:** Awareness campaigns**,** more funds for research on clean energy & waste management, increase in parking fee, congestion charges, registration capping, work-from-home options etc.

> **Lessons from other countries**
> - Create moss walls like Germany. Delhi Metro pillars can host moss.
> - Installing Smog Free Towers like China.
> - Tapping renewable energy like Iceland.
> - Learning to effectively use public transport from Curitiba (Brazil).

11.2 URBAN FLOODS

URBAN FLOODING

- Urban flooding is the accumulation of floodwaters that result when the inflow of rainwater exceeds the capacity of a drainage system to infiltrate water into the soil or to carry it away.
- **Different from rural flooding:** As per NDMA, urbanization leads to developed catchments, which increases the flood peaks from 1.8 to 8 times and flood volumes by up to 6 times.

FACTORS CAUSING URBAN FLOODS IN INDIA

I. Meteorological Factors - Unprecedented Rainfall**,** cyclones and hurricanes**,** heavy thunderstorms**,** global warming (snowmelt and sea level rise)**,** etc

II. Hydrological Factors - Change in course of rivers, Poor soil and water retention capacity, reduced infiltration rate etc.

III. Anthropogenic Factors
- **Unplanned urbanisation** – which has led to **Demographic densification** beyond the city's infrastructural capacity, causing reduced water seepage due to deforestation & 'concretisation' of built up urban areas.
  - **For eg.** > **35% of Mumbai's population** lives within 250 metres of known chronic flooding hotspots.
- **Unregulated construction & Encroachment:** construction on reclaimed wetlands, lakes, flood plains and low lands of the city has decreased the capacity of the natural drains & waterbodies.
  - **For eg. In Bengaluru**, the recent floods (2022) were a direct result of filling up of lakes, encroachment & disruption of interconnectivity between water bodies.
  - **In Uttar Pradesh,** Lucknow floods (2021) were a result of incessant rains + Encroachment & clogging of drains ➔ overflowing of Gomti river.
- **Improper disposal of waste:** Dumping of domestic, commercial & industrial waste and construction debris into the drains, leading to choking of drains.
- **Poorly designed & maintained storm water drainage:** outdated drainage system overwhelmed by heavy rains.

- **Urban heat island effect** resulting in an increase in rainfall over urban areas.
- **Unplanned tourism activities**: Water plants are being removed from rivers & lakes for tourism development. These are otherwise necessary for reducing the runoff speed of water.
- **Unplanned release of water from dams:** leading to floods in an urban area. **For E.g.** Floods in Bihar, Maharashtra (release from Krishna Lake), Chennai floods (release from Chembarambakkam Lake), etc.
- **Poor urban governance structures -** Absence of administrative framework, fractured governance system, lack of preparedness or community participation.
  - **For eg.** In Bengaluru & Delhi, Multiple parastatals have been created to manage separate services, with little coordination amongst them, especially during a crises.

IMPACT OF URBAN FLOODING
I. Economic impact
- **Loss of Property -** Structural damage to buildings & infrastructure, electricity and water supply disruption etc. ➜ Reversal of developmental gains.
- **Disruption of Economic activities –** Disruption of industries (including Tourism), breaking down of supply chains, scarcity of essential commodities & rise in inflation.
- **Fiscal burden -** Post-disaster rescue and rehabilitation adds to the financial burden of the government.
II. Social Impact
- **Loss of life:** in densely populated urban areas.
- **Compromising hygiene:** Sewage and solid waste being washed into houses may led to disease outbreak.
- **Public unrest -** Increased stress; psychological trauma etc.
III. Ecological losses: including trees and plants being washed away during an extreme flood event.

WAY FORWARD FOR MITIGATING URBAN FLOODS IN INDIAN CITIES
- **Vulnerability analysis and risk assessments** should form part and parcel of city master plans & **Early warning system** for timely warning for the impending rainfall.
- **Better urban design & planning** taking into consideration the topography, types of surfaces, natural drainage etc & **strong land use controls** to ensure fragile wetlands and floodplains are not concretised.
- **Structural measures**: Floods can be diverted through measures like the construction of embankments, levees and dams etc.
- **Improvement in the drainage system**: De-silting of stormwater drains before monsoon and expansion of the over-burdened infrastructure.
- **Rainwater harvesting:** should be made an integral component of the building utility. **For eg. "Rain Gardens"** that collect rainwater from a roof, driveway or street and allows it to soak into the ground.
- **Initiating Sponge Cities Mission:** Making cities permeable by launching a Sponge Cities Mission via existing urban missions of National Heritage City Development & Augmentation Yojana **(HRIDAY),** Atal Mission for Rejuvenation & Urban Transformation **(AMRUT),** and **Smart Cities Mission**.
- **Awareness & Training** of administrative functionaries, local communities & last mile worker for better response.

KEY INITIATIVES TO TACKLE URBAN FLOODING
- **Standard Operating Procedure (SOP)** for mitigating & managing Urban Flooding (Ministry of Urban Development).
- **National Guidelines on Management on Urban Flooding** by the NDMA.
- **Jal Jeevan Mission (Urban)** - Rejuvenation of water bodies and creating green spaces and **'sponge cities'.**
- **Flood Warning System**: for eg. IFLOWS-Mumbai
- **National Plan for Conservation of Aquatic Ecosystems (NPCA) -** single conservation programme for both wetlands and lakes.
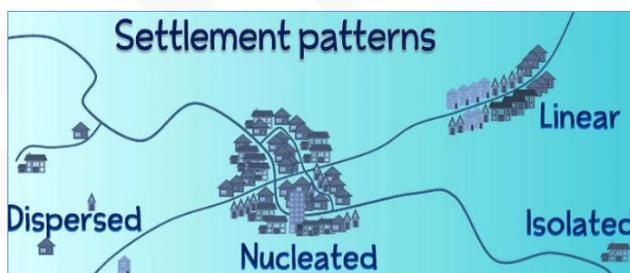
12 RURAL SETTLEMENT IN UTTAR PRADESH

12.1 INTRODUCTION:

- Nearly 78% of UP's population resides in **rural areas**.
- **Rural settlements exhibit distinct patterns:** compact villages in the western region, groupings of hamlets in the eastern region, and a mix of both in the central region. These settlements are primarily based on **agricultural activities** and feature a scattered population distribution.
- The diversity in rural settlements is influenced by **geographical, cultural, and economic factors**, making them a crucial focus for development.

12.2 TYPES OF RURAL SETTLEMENTS IN THE GANGETIC BELT:

In the Gangetic belt of UP, rural settlements exhibit diverse patterns influenced by factors such as topography, water availability, and cultural practices. The primary types of rural settlements in this region include:

- **Clustered (Nucleated) Settlements**: A settlement situated close together, usually clustering around a central area such as a river crossing or road junction.
  - The villages in districts like **Kanpur, Allahabad (Prayagraj), and Varanasi** exhibit this pattern due to high agricultural activity.
- **Semi-Clustered (Semi-Nucleated) Settlements**: It is common in regions transitioning between fertile plains and less arable lands, such as in parts of **Raebareli and Sultanpur districts.**

- **Hamleted Settlements**: A rural settlement pattern where several hamlets are spread out over a large area, separated by fields.
  - It is prominent in **eastern Uttar Pradesh**, such as in districts like **Gorakhpur and Azamgarh.**
- **Compact settlements:** It consist of tightly-packed buildings in a concentrated area of land. Ex – Shamli, Kathwara, Avagarh, Kasganj etc.
  - These settlements can be rural or urban settlements.
- **Dispersed (Scattered) Settlements**: This type of settlement common in **Sonbhadra** and **Mirzapur districts**, where terrain and dense forests affect settlement patterns.

12.3 FACTORS AFFECTING RURAL SETTLEMENTS:

Based on the **Census Report of 2011**, the key factors affecting rural settlements in Uttar Pradesh are:

- **Physical Factors:** The flat and fertile plains in districts like **Allahabad (Prayagraj), Varanasi, and Gorakhpur** favor **clustered settlements** for agriculture. In contrast, hilly regions like **Sonbhadra and Mirzapur** see **dispersed settlements.**
  - Regions with rich **alluvial soil** (e.g., Kanpur and Etawah) support dense settlements due to extensive agricultural practices.
  - Areas near rivers like the **Ganga, Yamuna, and Ghaghra** have **nucleated settlements** due to ease of irrigation and domestic water supply. In contrast, water-scarce areas like **Bundelkhand** prefer **scattered settlements.**
- **Economic Factors:** The fertile lands in the **Gangetic plains** (e.g., districts like Lucknow and Sitapur) encourage dense settlements, as agriculture is the primary livelihood.
  - Regions with **industrial development** (e.g., Kanpur and Noida) witness nucleated settlements due to proximity to job opportunities.

- Villages near towns and cities (e.g., villages around **Lucknow**) tend to have **compact settlements** for better access to markets and services.
- **Social Factors:** Social stratification influences settlement types. For instance, **hamleted settlements** in **Azamgarh and Jaunpur** are fragmented based on caste. Historically, **clustered settlements** were common in regions prone to invasions or conflicts, such as areas near **Agra.**
- **Cultural Factors:** Religious sites influence settlement patterns, such as **Ayodhya** and **Varanasi**, where settlements are compact around temples and religious centers.
  - The cultural practices in regions like **Eastern Uttar Pradesh** encourage fragmented settlements with multiple **puras** (hamlets).
- **Historical and Political Factors**: The areas developed during British rule, such as parts of **Lucknow**, have organized settlement patterns with proximity to roads and railways.
  - Post-independence land redistribution policies influenced rural settlements in **Chitrakoot** and **Bundelkhand.**

12.4 ISSUES AND CHALLENGES:

- **Population Pressure:** Districts like **Allahabad (Prayagraj)** and **Jaunpur** experience overcrowded settlements, making it difficult to maintain hygiene and basic amenities.
- **Poor Infrastructure:** Villages in **Sonbhadra** and **Chitrakoot** lack connectivity due to hilly terrain, restricting access to markets and healthcare facilities.
- **Water Scarcity and Sanitation: Bundelkhand region** suffers from seasonal droughts, and open defecation remains prevalent despite efforts like the **Swachh Bharat Abhiyan**.
- **Lack of Livelihood Opportunities:** Villages in **eastern Uttar Pradesh** (e.g., **Ballia, Deoria**) see large-scale migration due to lack of non-farm employment opportunities.
- **Vulnerability to Natural Disasters:** Annual floods in districts like **Gorakhpur** and **Bahraich** damage homes and crops, disrupting livelihoods.
- **Social Inequality and Discrimination:** In villages of **Azamgarh** and **Mirzapur**, Dalit communities often live in segregated hamlets with fewer amenities.
- **Environmental Degradation:** The **Terai region** faces deforestation due to expanding settlements and agricultural land.
- **Challenges in Education and Healthcare:** Villages in **Shrawasti** and **Balrampur** have low literacy rates and high infant mortality due to limited access to basic services.

12.5 GOVERNMENT INITIATIVES

- **Pradhan Mantri Gram Sadak Yojana (PMGSY)**: By 2022, over **30,000 km of rural roads** were constructed or upgraded in Uttar Pradesh, villages in **Bundelkhand** and **eastern Uttar Pradesh** benefited from better transportation links, enhancing trade and mobility.
- **Pradhan Mantri Awas Yojana-Gramin (PMAY-G)**: As of 2023, **more than 26 lakh houses** were constructed for eligible families in Uttar Pradesh.
  - Districts like **Gonda** and **Bahraich** saw improved housing conditions, reducing overcrowding in hamleted settlements.
- **Jal Jeevan Mission (JJM)**: By mid-2023, over **45% of rural households in Uttar Pradesh** had access to piped drinking water.
- **Saubhagya Scheme:** By 2021, Uttar Pradesh achieved **100% village electrification**, significantly improving living standards.
- **Pradhan Mantri Krishi Sinchai Yojana (PMKSY)**: Increased **micro-irrigation coverage** in water-scarce regions like **Bundelkhand**.
- **Swachh Bharat Mission-Gramin (SBM-G)**: By 2019, Uttar Pradesh was declared **Open Defecation Free (ODF)** under this mission.

- **Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY)**: Over **1 lakh youth trained** in Uttar Pradesh for various sectors, reducing migration to urban areas.
- **Digital India Mission** Installation of **Common Service Centres (CSCs)** in villages.
- **Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana (AB-PMJAY)**: Over **1 crore families** in Uttar Pradesh benefited, enhancing access to quality healthcare.
- **Khadi Development Scheme**: Implemented by the Uttar Pradesh Khadi & Village Industries Board (UPKVIB), aims to increase the income of rural artisans and laborers by providing assistance to registered institutions, societies, and individual entrepreneurs.

===