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1 ISSUES IN TRAFFIC AND TRANSPORTATION PLANNING

1.1.1 What is Traffic study?

- Traffic studies or surveys are carried out to analyze the traffic characteristics.
- These studies help in deciding the geometric design feature and traffic control for safe and efficient traffic movements.
- The traffic surveys for collecting traffic data are also called traffic census.

1.2 What is Transportation Planning?

Transportation Studies means any study or other analytical undertaking that facilitates any mode of transportation within this state. The term includes, but is not limited to, the research of highway, transit, rail and aviation capital infrastructure, bicycle and pedestrian paths, bridges and ways, and other projects that facilitate the transportation of materials, animals or people.

1.3 What is Transportation Service?

Transportation Services means those activities designed to assist a person to travel from one place to another to obtain services or carry out life's activities.

1.4 What is Transportation Planning?

- Transportation planning is the process of looking at the current state of transportation in the region, designing for future transportation needs, and combining all of that with the elements of budgets, goals and policies. It helps shape how a community or city grows by evaluating everything from streets and highways to cargo ships to public transit and bike lanes. It can influence everything from business to recreation to quality of life.
- In short, Transportation Planning involves a series of activities undertaken to better understand our transportation system and decide what actions, if any



Traffic Studies and Analysis

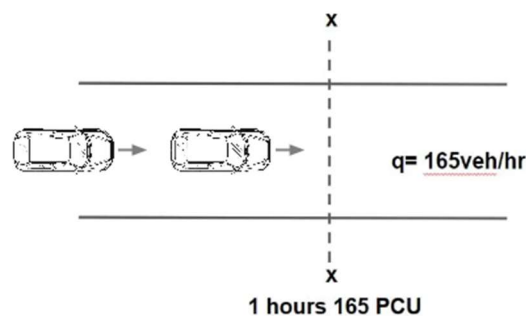
The various traffic studies generally carried out are:

1. Traffic Volume Study

2. Traffic Speed Studies
3. Traffic Flow Characteristics & Capacity Study
4. Origin and Destination (O & D) Study
5. Parking Study
6. Accident Studies

1) Traffic Volume Study

- Traffic Volume (q): Number of vehicles crossing the particular section of road is per unit time is called Traffic Volume.
- It is expressed in veh/day, veh/hr, veh/min.



1.5 PCU (Passenger Car Unit)

- Under mixed traffic condition, it is difficult to find traffic volume, traffic density etc., hence all class of vehicles are converted into a standard vehicle unit which is called as PCU.

$$PCU = \frac{\text{Speed Ratio}}{\text{Length Ratio}}$$

$$PCU = \frac{\frac{V_o}{V_i}}{\frac{L_o}{L_i}}$$

V_o and L_o = Speed and length of standard vehicle.

Class of Vehicle	PCU
Car, Tempo	1
Motar Cycle	0.5
Cycle Rickshaw	1.5
Bus, Truck	3
Horse Drawn Vehicle	4
Small Bullock Cart	6
Large Bullock Cart	8

1.6 Importance of Traffic Volume Study:

Traffic survey is very important to be performed because it can:

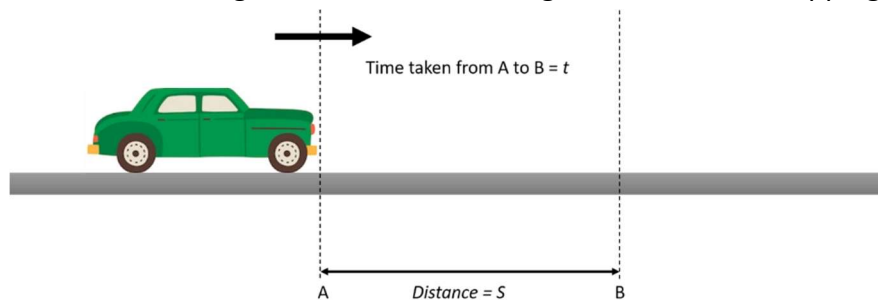
- i. Time Mean Speed
- ii. Space Mean Speed
- c. Journey Speed
- d. Running Speed

1.14.1.1 Spot Speed:

It is an instantaneous speed of vehicle at particular instant of time or section of road. It is measured by: Pressure Contact Tube, Loop Detector, Speed Gun.

Typical use:

- i. To establish speed trends
- ii. Traffic control planning - speed limits, safe speeds at curves, location for traffic signs, lengths of no-passing zones, intersection sight distance
- iii. Before-and-after studies
- iv. Accident analysis
- v. Geometric design – i.e. road alignments and stopping sight distance



Speed = Distance / Time

If $S \leq 100$ meters, then the speed measured is known as Spot Speed.

- It is an instantaneous speed of vehicle at particular instant of time or section of road. It is measured by: Pressure Contact Tube, Loop Detector, Speed Radar.

1.14.1.2 Average Speed:

- It is average speed of traffic calculate on the basic of spot speed of so many vehicle. It can be considered in two different ways.
 - Time Mean Speed
 - Space Mean Speed

1.14.1.3 Time Mean Speed:

- The time-mean speed is the arithmetic average speed of all vehicles (Spot speed of all vehicles) for a specified period of time.

$$V_t = \frac{v_1 + v_2 + \dots + v_n}{n}$$

1.14.1.4 Space Mean Speed:

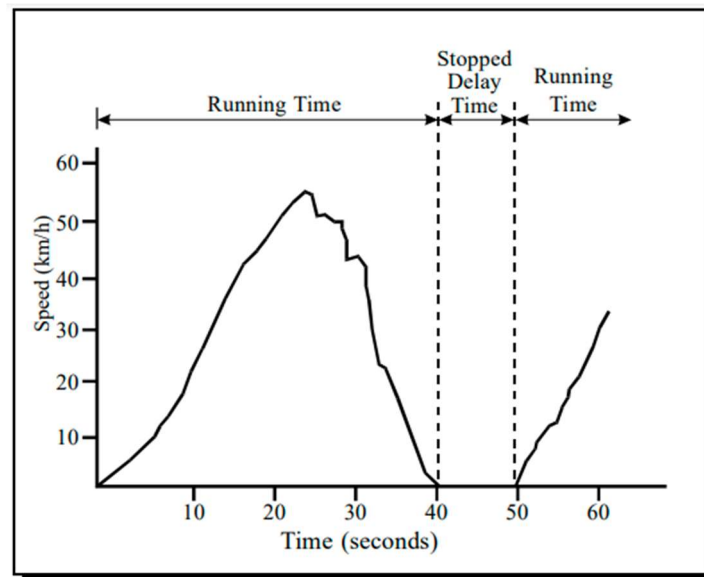
- The space-mean speed is the average speed of vehicles traveling a given segment of roadway during a specified period of time.

$$V_s = \frac{n}{\frac{1}{v_1} + \frac{1}{v_2} + \dots + \frac{1}{v_n}}$$

Note: $V_t > V_s$

Points to remember:

- Journey speed is the distance divided by total journey time.
 - Total journey time includes all delays due to traffic.
 - Journey speed = distance/total journey time
- Running speed is the distance divided by running time, i.e. total journey time minus delays. (Running time is the time that the vehicle is actually in motion.)
 - Running speed = distance/(total journey time – delays)
- Both speeds are usually as a result of travel time and delay study – used to evaluate road performance.



1.14.2 Spot Speed Study

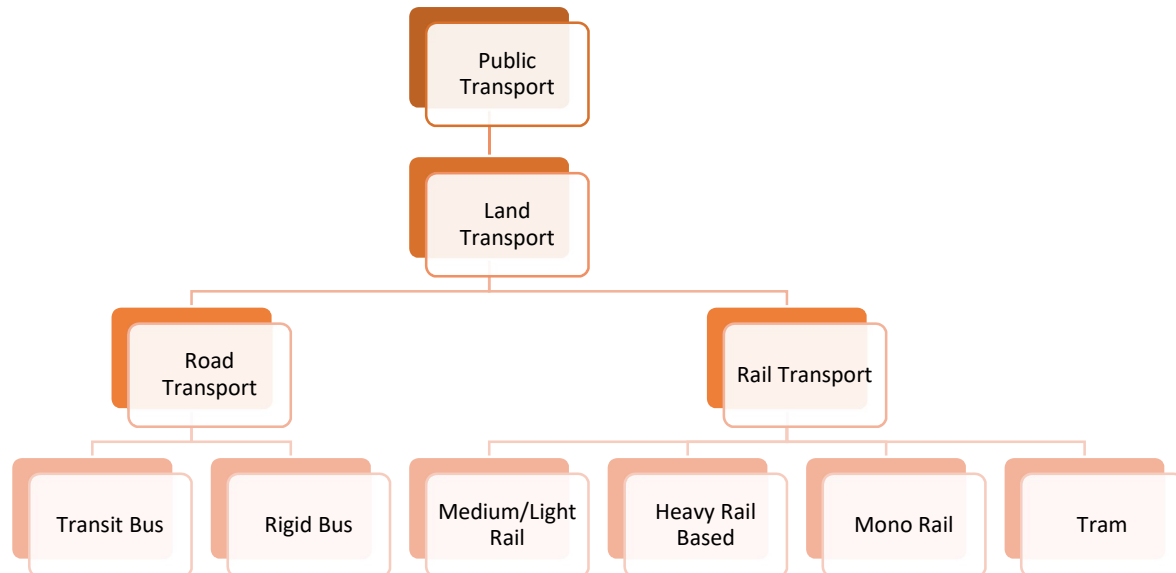
Spot speed studies cannot be used to find density because measurements are done at one point only. Spot speed studies are generally carried out for the following reasons:

- 1) In accident studies
- 2) To calculate the traffic capacity
- 3) Planning of traffic regulations
- 4) Decide the speed trends.

2 Public Transport

2.1 Definition

- **Public transportation** (service) means the operation of a vehicle that provides general or special service to the public on a regular and continuing basis.
- **Public transport** (also known as **public transportation**, **public transit**, **mass transit**, or simply **transit**) is a system of transport for passengers by group travel systems available for use by the general public unlike private transport, typically managed on a schedule, operated on established routes, and that charge a posted fee for each trip.
- **Public transport** modes (in urban area) include city buses, trolleybuses, trams (or light rail) and passenger trains, rapid transit (metro/subway/underground, etc.) and ferries.
- **Public transport** between cities is dominated by airlines, coaches, and intercity rail.
- (Most) public transport systems run along fixed routes with set embarkation/disembarkation points (stops/stations) to a prearranged timetable, with the most frequent services running to a headway (e.g.: "every 15 minutes" as opposed to being scheduled for any specific time of the day).
- However, most public transport trips include other modes of travel, such as passengers walking or catching bus services to access train stations.



2.2 Benefits of public transport

There are many benefits to using public transport. Here are some good reasons why you should ditch the car for public transport:

- you can enjoy a less stressful journey by letting someone else do the driving
- you don't have to worry about finding a parking space

- it reduces congestion in towns and cities
- using public transport is cheaper than owning and operating a car
- no more sitting in traffic jams in rush hour thanks to bus lanes and other bus priority measures
- it reduces your carbon footprint

2.2.1 Economic Benefits of Public Transportation:

Reduces Congestion

An 8 coach Metro train can generally carry about 2400 passengers. This comprises of approximately 50 seating passengers and 250 standing passengers per coach. So, you are getting rid of roughly 1000 vehicles from the roads

Enhances Productivity

Public transportation plays a significant role in enhancing opportunity and productivity by moving knowledge, labor, and skills between and within markets

Increases Land Value

Improved access to public transport has shown to increase land and property value. Planning that puts public transportation development on top of its agenda reaps huge benefits in the long run. Land that would have been used for parking and roads is put to profitable use, such as the generation

Financial Benefits of Communities

Approximately for every dollar invested in public transportation, economic returns generated are \$4, and for every \$1 billion in investments in the sector, 50,000 jobs are generated and supported.

According to APTA, an investment of \$10 million in public transportation generates about \$30 million in increased business sales, and residential property values for homes located near public transit with high-frequency service “performed 42% better than other areas.”

Saves Money

Taking public transportation instead of owning a second vehicle can save individuals a significant amount of money each month in avoided gas, maintenance, parking, and other expenses. Household Expenses also reduced by using public transit as the family gets rid of buying one car and maintaining and operating the car.

2.2.2 Environmental Benefits of Public Transportation:

Ensures a Cleaner Ecosystem

Public transportation significantly reduces the number of cars on the road. This means less

3 MODERN TOWNS IN INDIA

- India has undergone rapid urbanization in recent years,
- As a result, modern towns and cities have been developed across the country.
- The planning and development of these towns are usually the responsibility of government bodies such as the Urban Development Ministry or State Government.

3.1 Planned cities

3.1.1 Navi Mumbai

- Navi Mumbai is a planned township located on the outskirts of Mumbai.
- It was developed by the City and Industrial Development Corporation (CIDCO) in the 1970s to address the growing population and congestion in Mumbai.
- The town has well-planned infrastructure, including roads, water supply, and electricity, and is home to many industries and IT companies.
- Envisioned as a satellite city to ease the congestion in Mumbai and provide better living conditions for its residents.

3.1.2 Chandigarh:

- Chandigarh is a planned city and capital of the states of Punjab and Haryana.
- It was designed by the famous French architect Le Corbusier and is known for its modernist architecture and urban planning.
- The city is divided into sectors, each with its own commercial, residential, and recreational areas.

3.1.3 Bhubaneswar

- Bhubaneswar is the capital city of the state of Odisha
- It was designed in the 1940s by German architect Otto Königsberger.
- The city is known for its planned layout and modernist architecture, with several government buildings and monuments that reflect the state's rich cultural heritage.

3.1.4 Gandhinagar

- Gandhinagar is the capital **city of the state of Gujarat**
- The town planning of Gandhinagar was **carried out by H.K. Mewada**, a well-known town planner and architect from Gujarat. The town was planned and developed in the 1960s as a new capital for the state of Gujarat
- The town was divided into **30 sectors, each** with its own commercial, residential, and institutional areas, and was designed to accommodate a population of around **125,000 people**.

- The town is known for its well-planned layout and infrastructure, with several government buildings and institutions located within the city.
- Mewada designed Gandhinagar with a **grid-like layout, with** wide roads and open spaces to facilitate movement and provide a pleasant environment for the residents

3.1.5 Auroville

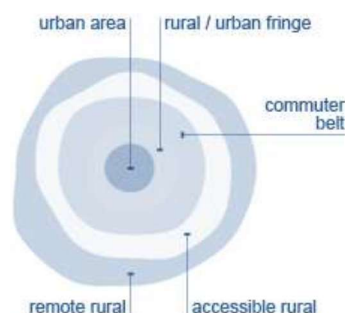
- Auroville is an experimental planned city located near Pondicherry in Tamil Nadu.
- It was established in 1968 by the spiritual leader Sri Aurobindo
- It is designed to be a utopian society where people from all over the world can live together in peace and harmony.
- The city is known for its unique architecture and sustainable practices, with a focus on eco-friendly living.

3.1.6 Broadacre City

- Broadacre City was a concept developed by the American architect and planner Frank Lloyd Wright in the early 20th century.
- Broadacre City as a decentralized and low-density urban area that would cover vast expanses of land, with each family owning a large plot of land on which they could build their own home and farm.
- Wright believed that Broadacre City would allow people to live in harmony with nature and enjoy a high quality of life.
- Wright's proposal was that each family would receive, at a minimum, an acre to call its own

3.2 Urban fringe

- The urban fringe refers to the area on the outskirts of an urban area where the built-up environment meets the rural environment.
- It is often characterized by a mix of residential, commercial, and industrial land uses, as well as natural areas such as parks and farmland.



- The development is often clustered around existing villages and small towns.

5 Urban and Regional Governance

1.41 Good Governance: Characteristics and Concept

With the New Economic Policy, the role of the Government of India has shifted from being a provider to a facilitator. This transition, alongside the participation of the private sector in service delivery and a strengthening economy, has led to increasing public demands for higher service standards and greater accountability in governance.

This context has brought the focus to the evolving concept of Good Governance, which promotes best practices in decision-making and resource management.

5.1.1 Definition of Good Governance

Good governance refers to the processes and structures that guide public affairs and the management of public resources in a manner that is:

- Responsible
- Responsive

5.1.2 Key Characteristics of Good Governance:

1. Accountability
 - Government institutions and officials must be answerable to the public and institutional stakeholders.
2. Transparency
 - Decisions and processes should be open and easily understood by those affected by them.
3. Responsiveness
 - Institutions must serve all stakeholders within a reasonable timeframe.
4. Equity and Inclusiveness
 - All individuals, regardless of background, should have opportunities to improve or maintain their well-being.
5. Effectiveness and Efficiency
 - Processes and institutions should produce results that meet the needs of society while making the best use of resources.
6. Rule of Law
 - Legal frameworks should be fair and enforced impartially.
7. Participation
 - Citizens should have a voice in decision-making, either directly or through legitimate institutions representing their interests.
8. Consensus-Oriented

- Good governance mediates differing interests to reach a broad consensus on what is in the best interest of the community.

5.2 Good Governance: Key Characteristics

5.2.1 1. Public Accountability

- A core requirement for good governance.
- Officials and institutions must be answerable to the public and stakeholders.
- Accountability must be supported by transparency and the rule of law.
- Involves not just government but also civil society and private actors.

5.2.2 2. Transparency

- Ensures that information is freely available and accessible.
- Citizens must understand how public decisions are made.
- Helps prevent corruption and builds trust.
- United Nations conventions and civil society activism reinforce transparency.

5.2.3 3. Citizens' Charter and Grievance Redressal

- Citizens' Charter: Public commitment to standards, timelines, and grievance redress mechanisms.
- Builds trust between service providers and users.
- Grievances: Defined as dissatisfaction that needs redress to improve services.
- The 2011 Bill empowers citizens for time-bound service delivery and grievance redress.
- Citizen Report Cards (CRCs): Tools for collecting user feedback on public services.

5.2.4 4. Inclusive Development

- Ensures all groups, especially vulnerable sections (women, poor, informal sector), are included in the development process.
- Everyone must have equal opportunity to contribute to and benefit from development.
- Featured prominently in India's Five-Year Plans.

5.2.5 5. Rule of Law

- Legal frameworks must be fair, impartial, and enforce human rights.
- Requires:
 - Independent judiciary
 - Unbiased police system

6 Urban Planning Approach

Though urban development increasingly accounts for a large share in the National economy, huge gap between the need of infrastructure services and available resource still remains unbridged as a major concern. It adversely effects provision of employment, mobility and lifestyle of large sections of city's population. Challenges like environmental sustainability, changing but stressed lifestyle put pressure on mobility and health. In order to reduce pressure on land and response to climate change impact, alternative approaches of city planning and building is the need of the hour.

The following sections cover the key benefits of compact city, green city and smart city approaches and its aspects in planning.

6.1 Green City

Green cities are those where economic growth and development is fostering, that reduce negative environmental externalities, the impact on natural resources and the pressure on ecosystem services. These cities have significant synergies between environmental and economic objectives. A clean or effective production and consumption of facilities related to movement of people and goods, waste management and recycling, pollution prevention, treatment, energy, abatement, design, construction, maintenance, resource extraction, agriculture, natural resource management and other environmental services, are the prime component of a green city.

6.1.1 Key Benefits of Green city

- **Effective Land Use:** Green cities promote effective land use and get rid of urban sprawl by encouraging compact mixed-use developments. Higher urban densities are promoted without affecting the quality of life.
- **Habitat Prevention and Restoration:** These cities aim to prevent damage to the natural landscape, productivity of agricultural land, biodiversity and natural habitat. Such green spaces improve the quality of air and canopy covers reduces noise level.
- **Efficient Transportation Management:** Green city increases opportunities for non-motorised movement, bicycling, pedestrian friendly network, reduction in the number of automobile trips, promoting public transportation and use of vehicles with alternative fuels.
- **Effective Use of Resources:** Limits the usage of resources by incorporating efficient systems, like:

Water Efficiency: Green city includes "R3" (reduce-recycle-reuse) strategies and can save potable water to an extent of 30-40% including water harvesting.

Energy Efficiency: On-site power generation using various renewable energy technologies and other clean fuels can significantly reduce the load on grid power supply. There can be energy saving to the tune of 20-30%.

Waste Management: Waste management in Green Cities are well planned which takes into account waste reduction initiatives by planning and implementation of efficient and effective systems for collection, transportation, treatment, recycling and reuse or

disposal of municipal solid waste. Also, Waste-to-energy is a key component of green city.

- **Other Benefits:** Reduced maintenance costs, resource consumption, waste generation along with higher marketability and speedy environmental clearance approvals.

6.1.2 Green city Planning Components

Site Selection and Planning

Green city development in India is a new effort. West Bengal Government and Maharashtra Government have recently taken initiatives. Green city initiatives should on publically owned land with minimum site disturbance should be preferred during site selection in case of a Greenfield township. Priority should be given to the already developed land in order to achieve green redevelopment.

Land Use & Transportation Planning guidelines for green cities

1. Urban sprawl is controlled by practicing higher density development
2. Green cities should majorly use public transportation to reduce fossil fuel consumption & vehicular emissions. The proximities of basic transportation mode should be in walk-able distance.
 - a) Eco- friendly transportation services should be preferred which runs on CNG, bio-fuels, solar battery etc. Thus, Non-Motorised Transport (NMT) and Intelligent Transport System (ITS) should be encouraged.
 - b) Requirements:
 - i. **Rail Station Proximity:** Locate a city project within 1/2-mile (800-meter) walking distance as far as possible (measured from a station building entrance) of an existing or planned commuter rail, light rail or subway station.
 - ii. **Bus Stop Proximity:** Locate a city project within 1/4-mile (400-meter) walking distance as far as possible (measured from a main building entrance) of 1 or more stops for 2 or more public, campus, or private bus lines usable by building occupants.
 - iii. **Public Transportation Proximity:** Locate the project within ¼-mile (400-meter) walking distance as far as possible from the bus stop. Rideshare options should be promoted which include passenger ferry terminals, vans and IPT, such as rickshaws, that are authorized by the local transit authority and that meet the definition of public transportation.
3. About 25-35 % of total area should be earmarked as recreational and open spaces within the Green City in addition to environmental sensitive areas, which must be protected.
4. Locate basic amenities within walk-able distances to reduce dependency on automobiles
 - a) Basic amenities like ATM, Parking, Convenience shopping, religious facilities, crèche etc. should be within 600-800 meters.

7 GOVERNMENT SCHEMES AND MISSIONS

7.1 Smart City

Definition of Smart City:

- There is no universally accepted definition of "Smart City."
- The concept of Smart City therefore varies from city to city and country to country, depending upon the level of development.
- The scheme was launched in 2015 by Hon'ble Prime Minister Narendra Modi.
- Nodal Agency – Ministry of Housing and Urban Affairs (Govt. Of India)
- Duration - 5 years (Financial years 2015 - 2016 to 2019 - 2020)
- Coverage - 100 cities.

Objectives of Mission:

- To provide cities core infrastructure and give decent quality of life to the citizens.
- To provide a clean and sustainable environment and application of "**Smart Solutions**".
- To create a replicable model which will act like a "**Light House**" to the other cities.

Core Infrastructure Elements in Smart City:

- Adequate water supply
- Assured electricity supply
- Sanitation including solid waste management
- Efficient urban mobility and public transport
- Affordable housing especially for poor
- Robust I. T. connectivity & digitalization
- Good governance, especially e-Governance and citizen participation
- Sustainable environment
- Safety & security of citizens particularly women, children and elderly
- Health and education

Some Smart Solutions:

E-Governance & Citizen Services

- Public information; Grievances Redressal
- Electronic service delivery
- Citizen engagement
- Video monitoring of Crime

Waste Management

- Waste to energy level
- Waste to compost
- Waste water to be treated
- Recycling & reduction of waste

Water Management

- Smart meters & management

- Leakage identification, preventive measures
- Water quality monitoring

Energy Management

- Smart meters & management
- Renewable source of energy
- Energy efficient & green building

Urban Mobility

- Smart Parking
- Intelligent traffic management
- Integrated multi modal transport

Others

- Incubation center
- Skill development center

The above list is illustrative, cities can add more applications.

Features of Smart City:-

- **Housing and inclusiveness** - Expand housing opportunities for all.
- **Create walkable localities** - The road network is to be developed not only for vehicles and public transport but also for pedestrians and cyclists, and necessary administrative services are offered within walking or cycling distance.
- **Preserving and developing open space** - To develop parks, play grounds and recreational spaces in order to enhance quality of life of citizens and reduce the urban heat effects.
- **Promote verity of transport options** – Promoting Transit oriented development (TOD); Enhancement of Public transport and last mile transport connectivity.
- **Making Governance Citizen friendly and cost effective** -

To provide online services to bring about accountability and transparency, especially using mobiles to reduce cost of services. Providing services without having to go to Municipal offices.

Giving identity to city –

- Promote local art & craft, culture, sports goods, furniture, dairy, textiles etc.
- Applying smart solutions to infrastructure and services

Strategy:-

The strategic components of area based development in smart city mission are;

- City improvement (Retrofitting)
- City Renewal (Redevelopment)
- City Extension (Green field redevelopment)
- Pan City (Provide smart solutions covering larger part of city)

City Improvement (Retrofitting):-

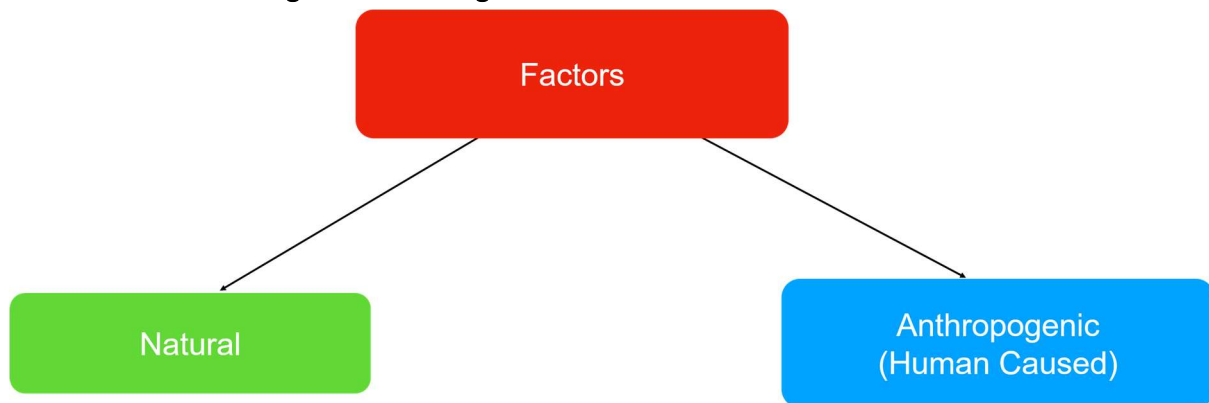
8 CLIMATE CHANGE & IT'S RISK TO HUMAN EXISTENCE

8.1 Introduction

- **Definition of Climate Change:** Climate change refers to the long-term alteration in Earth's climate system, including its temperature, precipitation, and wind patterns, caused by human activities, such as the burning of fossil fuels, deforestation, and industrial processes.
- **Historical context and timeline of climate change:**
 - The scientific community has been studying climate change for decades, and evidence suggests that human activities have been accelerating the process since the mid-20th century.

The Intergovernmental Panel on Climate Change (IPCC) was established in 1988 to provide policymakers with scientific information on the issue

8.2 Factors Affecting Climate Change



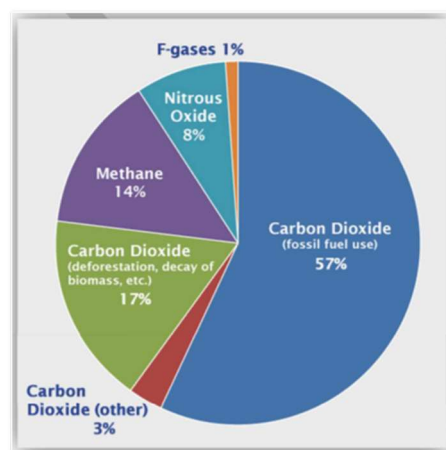
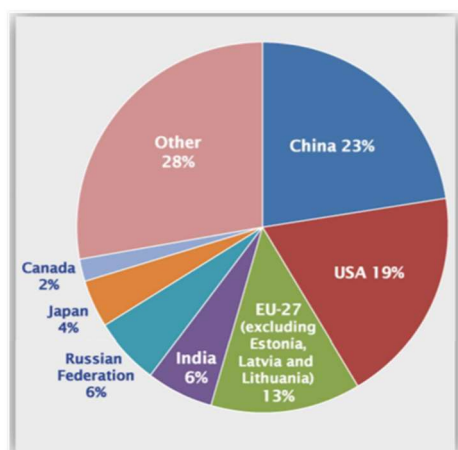
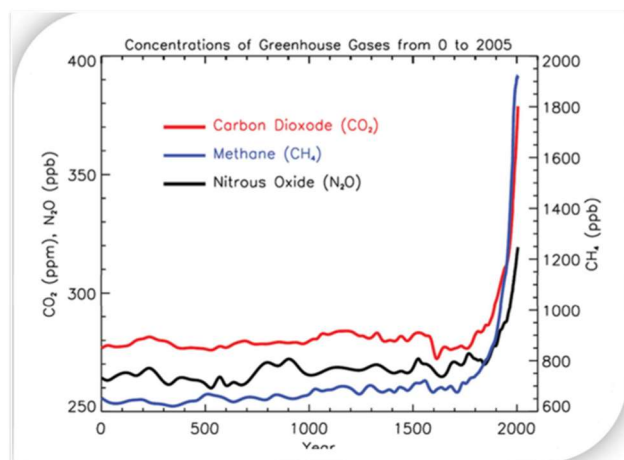
8.2.1 Natural Factors

- Earth's temperature is influenced by energy entering and leaving the planet's system
- Natural and anthropogenic factors can cause changes in Earth's energy balance
- Natural factors include continental drift, variation in Earth's orbit, plate tectonics, volcanic activity, and ocean currents
- Continental drift affects the physical features of landmasses, their position, and water bodies, which affects climate
- Variation in Earth's orbit leads to variation in seasonal distribution of sunlight reaching Earth's surface
- Plate tectonics affect global and local patterns of climate and atmosphere, and the position of continents influences patterns of ocean circulation
- Volcanic activity can partially block incoming rays of the sun and cool the weather

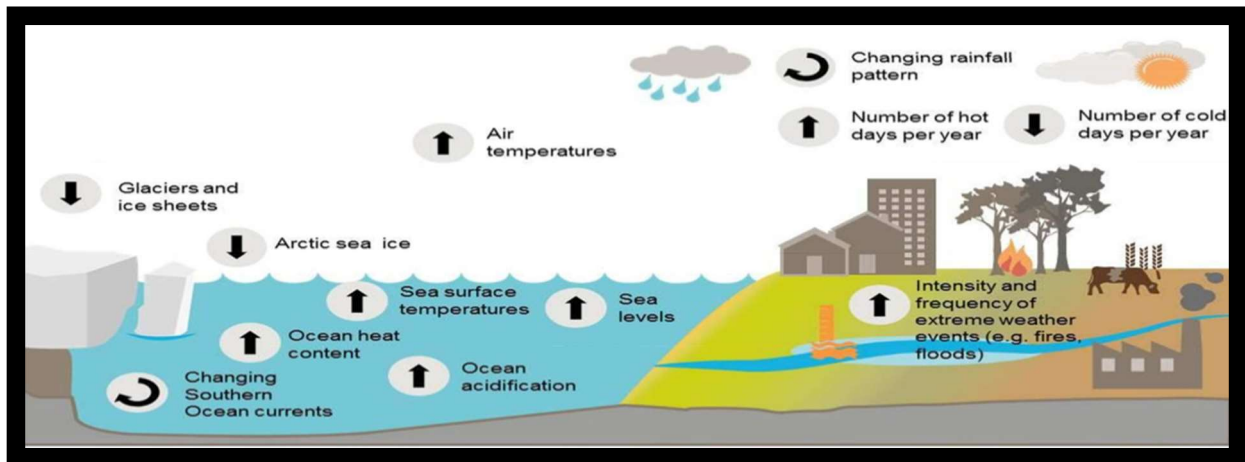
- Ocean currents are driven by horizontal wind forces and play a key role in redistributing heat, and alterations to ocean processes such as thermohaline circulation affect climate
- Water vapour is the most abundant greenhouse gas on Earth and contributes to cloud formation, which has a net cooling effect.

8.2.2 Anthropogenic (Human Caused) Factors

- Anthropogenic or manmade factors result in short term climatic changes
- Greenhouse gases play a significant role in causing climate change
- Atmospheric aerosols can influence climate by absorbing or reflecting incoming solar radiation and modifying cloud formation or cloud properties
- There are two types of aerosols: natural and anthropogenic
- Land use change, such as deforestation for agriculture, can impact the amount of sunlight reflected from the ground back into space and change evapotranspiration rates
- Forest clearing for agriculture and irrigated farming in arid and semi-arid lands are two major sources of climatically important land cover changes.



8.3 Evidences of Change in Climate System



8.4 Impacts of Climate Change

8.4.1 Higher Temperature

- Greenhouse gases released from various sources are heating up the planet, leading to higher temperatures.
- The hottest years on record have all occurred since 1990, and increased temperatures are causing heat-related deaths, rising seas, and more intense storms.
- The Earth's average temperature has increased by one degree Fahrenheit in the past century, believed to be the fastest rise in a thousand years.
- If carbon emissions are not reduced, average surface temperatures could increase by 3 to 10 degrees Fahrenheit by the end of the century, according to research.

8.4.2 Changing Landscapes

- Increasing temperatures and changing precipitation patterns have caused trees and plants to shift toward Polar Regions and up mountain slopes.
- These shifts will affect conservation efforts and potentially change the face of Conservancy preserves, local land trusts, and national parks.
- Animal species dependent on the shifting plant communities will also be forced to move to survive.
- Some species, such as polar bears and alpine meadows, may lose their viable habitats, putting treasured wildlife at risk.

8.4.3 Wild Life / Eco system

- Climate change is causing changes in weather and vegetation patterns.
- Animal species are migrating to new, cooler areas to survive.

10 Town Planning Scheme Preparation Process – Under The Gujarat Town Planning & Urban Development Act, 1976

10.1 Content of T.P. Schemes

- Reconstitution of land holdings, laying out or relaying out of land
- Every land parcel with proper access
- Neighborhood level road network, new streets or roads, bridges and underpass
- Land for public purpose, Reservation of land for roads, open spaces, gardens, recreation grounds, schools, markets, green-belts, dairies, transport facilities, public purposes of all kinds
- Neighborhood level social and physical infrastructure
- Preservation of historical or national interest or natural beauty, and of buildings actually used for religious purposes
- Financing for neighborhood level infrastructure

10.2 Objectives of T P Scheme

- To create habitable environment & sustainable development.
- Develop the area according the development plan land use by sectorial planning
- Utilisation of natural topography for the development
- Each plot to be provided with proper access and having regular shape and size.
- Provide road network
- To create uniform street pattern with hierarchy
- To preserve and develop natural water bodies.
- To provide space for physical and social infrastructures like Garden and open space, School and play ground, Civic centre and parking

10.3 Town Planning Scheme may be prepared for any land which is

- In the course of development
- Likely to be used for residential or commercial or industrial or for building purposes
- Already built upon

10.4 Provision to be kept up to the extent of

- 10 % for Socially and Economically Weaker Section
- 15 % for Roads
- 5 % for parks, playgrounds, garden and open space.
- 5 % for social infrastructure such as schools, dispensary, fire brigade, public utility place
- 15 % for sale by appropriate Authority for residential, commercial or industrial use

10.5 Town Planning Scheme – Stages

- Draft Town Planning Scheme
 - Two times Public Participation
 - Submission of Draft Town Planning Scheme
- Sanction of Draft Town Planning Scheme by State Govt.
 - Appointment of Town Planning Officer
 - Split the Scheme into Preliminary and Final Scheme
- Preliminary Scheme (Contains Physical Planning)

- • Personal Hearing to every individual land owners / affected persons
- • Final Decisions by the Town Planning Officers in terms of Physical Planning
- • Submission of the Preliminary Scheme to the State Govt.
- Final Scheme (Contains Fiscal Planning)
- • Personal Hearing to every individual land owners / affected persons
- • Final Decisions by the Town Planning Officers in terms of Fiscal Planning
- • Submission of the Preliminary Scheme to the State Govt.
- Subject to the provision of this Act or any other law for the time being in force, the Appropriate Authority may make one or more Town Planning Schemes for the development area or any part thereof, regard being had to the proposals in the final development plan, if any.
- A Town Planning Scheme may be in accordance with the provisions of this Act in respect of any land which is
 - (i) In the course of development
 - (ii) Likely to be used for residential or commercial or industrial or for building purposes; or
 - (iii) Already built upon.
- “Land likely to be used for building purposes” shall include any land likely to be used as, or for the purpose of providing, open spaces, roads, streets, parks, pleasure or recreation grounds, parking spaces or for the purpose of executing any work upon or under the land incidental to a Town Planning Scheme, whether in the nature of a building work or not. (As per the sections 40 to 65 prescribed below)

Sec.40 (1)(2)(3) –

Making and contents of a town planning scheme.

Sec.41 (1) –

Power of appropriate authority in consultation with the Chief Town Planner may, by resolution, on declaration of intention to make scheme.

Sec.41 (2) –

Within twenty-one days from the date of such declaration the Appropriate Authority shall publish it in the prescribed manner and shall dispatch a copy thereof along with a plan showing the area which it proposes to include in the town planning scheme to the State Government.

Sec.41 (3) –

A copy of the plan shall be open to the inspection of the public during office hours at the office of the appropriate authority.

Sec.42 (1) –

Within nine months from the date of the declaration of intention to make a scheme under section 41, the appropriate authority shall make a draft scheme of the area in respect of which the said declaration has been made and publish the same in the Official Gazette, along with the draft regulations for carrying out the provisions of the scheme.

Sec.47 –

If within one month from the date of publication of a draft scheme, any person affected by such scheme communicates in writing to the appropriate authority, any objections relating to such scheme, the appropriate authority shall consider such objections and may at any time before submitting the draft scheme to the State Government modify such scheme as it thinks fit.

Sec.48 (1)

– The appropriate authority shall, within three months from the date of the publication of the draft scheme in the Official Gazette, submit the draft scheme with any modifications that may have been made therein under section 47 together with the objections which may have been communicated to it, to the State Government for sanction.

Sec.48 (2) –

If the State Government sanctions such scheme, it shall in such may thinks fit, the State Government may, within three months from the date of its receipt, by notification, sanction such scheme with or without modifications or subject to such conditions as it may think fit to impose or refuse to sanction it.

Sec.50 (1) –

Within one month from the date on which the sanction of the State Government to a draft scheme is notified in the Official Gazette, the State Government shall appoint a Town Planning Officer possessing such qualification as may be prescribed, for the purpose of such scheme and provide him with such number of officers and staff as may be considered necessary and his duties shall be as hereinafter provided.

Sec.51 –

Within a period of twelve months from the date of his appointment, the Town Planning Officer shall, after following the prescribed procedure, subdivide the town planning scheme into a preliminary scheme and a final scheme.

Sec.52 (2) –

The Town Planning Officer shall submit the preliminary scheme so prepared to the State Government for sanction and shall thereafter prepare and submit to the State Government the final scheme in accordance with the provisions of sub-section (3).

Sec.64 –

The Town Planning Officer shall submit to the State Government for Sanction the preliminary scheme also before the final scheme is submitted to the State Government under sub-section (2) of section 52, together with a copy of his decision under section 53.

Sec.65 –

On receipt of the preliminary scheme the State Government may in the case of preliminary scheme, within a period of two months from the date of its receipt.

Sec.52 (3) –

The Town Planning Officer may make variation from the draft scheme- preliminary scheme, but no such variation, if it is of a substantial nature, shall be made except with the previous sanction of the State Govt., and except after hearing the appropriate authority and any owners who may raise objections.

Sec.54 –

Any decision of the Town Planning Officer under clauses (iii), (iv), Appeal.(vi), (vii), (viii) and (x) of sub-section (3) of section 52 shall forthwith be communicated to the party concerned in the prescribed form and any party aggrieved by such decision may within one month from the date of communication of decision, present an appeal to the Board of Appeal constituted under section 55.

Sec.55 –

The State Government shall, from time to time by an order published in the Official Gazette, constitute a Board of Appeal for hearing and deciding appeals under section 54.

Sec.62 (1)(2) –

- (1) Where no appeal has been presented under section 54, in respect of a matter arising out of clause (iii). clause (iv). clause (vi). clause (vii).clause (viii) or clause (x) of sub-section (3) of section 52, the decision of the Town Planning Officer shall be final and binding on the parties.
- (2) The Board of Appeal shall send a copy of its decision in appeal to the Town Planning Officer who shall, if necessary, make any variation in the scheme in accordance with such decision and shall forward the final scheme together with a copy of his decision under section 53 and a copy of the decision of the Board of Appeal in appeal the State Government for the sanction of the final scheme.

Sec.65 –

On receipt of the final scheme, the State Government may in the case of a final scheme, within a period of three months from the date of its receipt.

10.6 Real Estate (Regulation & Development) Act, 2016 — Summary

10.6.1 Introduction

The RERA Act, passed in 2016, came into force fully by May 1, 2017, with 61 sections initially notified on May 1, 2016. Aims to protect homebuyers and boost investments by bringing transparency, efficiency, and accountability in real estate transactions.

10.6.2 Need for RERA

The real estate sector historically suffered from lack of standardization, delays, quality issues, developer misrepresentation, unregulated practices, and prevalence of black money.

10.6.3 Objectives

- Enhance transparency and accountability.
- Attract domestic and foreign investment.
- Provide uniform regulatory environment and faster dispute resolution.
- Promote orderly growth through standardized development.
- Single-window clearance system for projects.
- Empower and protect homebuyers.

10.6.4 Key Provisions

1. State-level Real Estate Regulatory Authorities (RERAs) – oversee project registrations, promote affordable housing, and maintain databases.
2. Appellate Tribunals – handle appeals against RERA orders.
3. Mandatory Registration – projects over 500 sq m or with more than 8 apartments must register.
4. Escrow Account – 70% of funds collected must be deposited and used only for that project.
5. Developer Liability – must fix structural defects up to five years.
6. Penal Interest for Default – equal interest liability on promoter and buyer upon default.
7. Cap on Advance Payments – no more than 10% advance before entering sale agreement.
8. Carpet Area Definition – pricing must be based on carpet area, not super built-up area.
9. Penalties – up to 3 years imprisonment for promoters, and 1 year for agents/buyers for violations of tribunal or regulator orders.

10.6.5 Benefits

- Ensures timely delivery or refund with interest.
- Accurate specification of project details; prohibits deceptive advertising.
- Guarantees pricing transparency based on carpet area.
- Ensures necessary approvals are in place before launch.
- Requires maintained separate bank account per project to avoid fund diversion.
- Provides after-sales support for defects found within five years.

10.6.6 Concerns

- Excludes past, completed or stuck projects.
- Subject to delays by government approvals.
- Smaller projects (< 500 sq m) are exempt, weakening coverage.
- New launches may face delays due to stricter clearance norms.
- Doesn't address force majeure or lack of centralized land title repository.
- Federal-state tussles due to concurrent list placement and previous state-level regulation.

11 Problem of Housing & Its Significance in Economic and Social Development

11.1 Basic Terms:

Housing refers to a dwelling or group of dwellings that provide shelter, privacy, and a space for daily domestic life. It exists within a broader **habitat**, which includes community infrastructure like open spaces, amenities, and essential services. **Affordable housing** is that which is financially accessible to households without affecting their ability to meet other basic needs.

11.1.1 Problems in Housing:

India faces a considerable housing shortage, particularly for the Economically Weaker Sections (EWS) and Low-Income Groups (LIG). This deficit forces many into informal settlements and slums. Additionally, inadequate infrastructure—such as water, sanitation, electricity, and healthcare—often accompanies such housing, impacting quality of life. Rapid and unplanned urban growth without proper spatial planning further aggravates issues, causing congestion, poor land use, and environmental stress.

11.1.2 Economic Significance:

Housing plays a vital role in economic development. Its construction creates jobs across various sectors including construction, building materials, and related services. Moreover, planned housing stimulates infrastructure development—like transport and utilities—which in turn supports trade, mobility, and urban expansion.

11.1.3 Social Significance:

Adequate housing improves hygiene and public health by minimizing disease spread and promoting mental well-being. When complemented with community facilities, it enhances social interaction and fosters inclusive, culturally vibrant neighborhoods. Importantly, secure housing provides residents with a sense of stability and psychological security, encouraging long-term socio-economic investment.

11.2 Planning Framework & Integration

11.2.1 Integrated Habitat and Infrastructure Planning:

As per URDPFI guidelines, housing must be part of a broader spatial framework that includes infrastructure, transport, environment, and services. It cannot be planned in isolation. Integration with physical (roads, sewerage), social (health, education), and economic (markets, employment hubs) infrastructure is essential to ensure livability and sustainability.

11.2.2 Sustainable Habitat Guidance:

The planning framework emphasizes environmentally sustainable development. This includes balanced land use, adequate open spaces, proper landscape and setback provisions, good ventilation, disaster-resilient design, use of renewable energy like solar power, and efficient service layouts.

11.2.3 Norms and Standards

URDPFI provides specific norms for housing layout and design—covering aspects like minimum living space, ventilation, safety, health services, and accessibility to recreation and commercial areas—to ensure quality living environments.

11.2.4 Financial and Institutional Planning

A sound financial and institutional framework is vital. This involves identifying diverse funding sources such as public investment, private sector participation, and Public-Private Partnerships (PPP). Fiscal tools like Transferable Development Rights (TDR) and municipal bonds support financing. Institutions like Town & Country Planning Organisations and Urban Local Bodies (ULBs) are key to implementation.

11.2.5 Continuous & Inclusive Planning

Planning is seen as a continuous, adaptive process involving stages like visioning, formulation, implementation, monitoring, and review. Active public participation and built-in flexibility help adapt plans to evolving urban needs and ensure inclusivity.

11.3 Basic Terms in housing

1. Housing

- **Definition:** A dwelling unit or shelter meant for habitation by individuals or families, providing protection, privacy, and basic living needs.

2. Habitat

- **Definition:** The total built and natural environment in which people live, including housing, infrastructure, social amenities, and open spaces.

3. Dwelling Unit

- **Definition:** A self-contained unit with facilities for living, cooking, and sanitation used or intended for residence.

4. Plot/Dwelling Density

- **Plot Density:** Number of plots per hectare.
- **Dwelling Unit Density:** Number of dwelling units per hectare.

5. Built-up Area / Floor Area

- **Built-up Area:** Total covered area on all floors, including walls and balconies.