Unit I Human settlement

Definition of Human settlement, Urban area, Town, City, Urbanisation, Suburbanisation, Urban sprawl, Peri - urban areas, Central Business District (CBD), Classification of urban areas – Trend of Urbanisation at International, National, Regional and State level.

1.1 Human settlement

Human Settlement is a form of human habitation which ranges from a single dowelling to large city. In other words, it is a process of opening up and settling of a previously uninhabited area by the people. People live in clusters of houses that might be a village, a town or a city.

The study of human settlements is basic to human geography because the form of settlement in any particular region reflects human relationship with the environment. A human settlement is defined as a place inhabited more or less permanently.

The houses may be designed or redesigned, buildings may be altered, functions may change but settlement continues in time and space. There may be some settlements which are temporary and are occupied for short periods, may be a season.

Rural Urban Settlement Dichotomy

The term settlement is accepted but when it comes to its existence that can be differentiated in terms of rural and urban, but there is no consensus on what exactly defines a village or a town.

Although population size is an important criterion, it is not a universal criterion since many villages in densely populated countries of India and China have population exceeding that of some towns of Western Europe and United States.

At one time, people living in villages pursued agriculture or other primary activities, but presently in developed countries, large sections of urban populations prefer to live in villages even though they work in the city.

The basic difference between towns and villages is that in towns the main occupation of the people is related to secondary and tertiary sectors, while in the villages most of the people are engaged in primary occupations such as agriculture, fishing, lumbering, mining, animal husbandry, etc.

Differentiations between rural and urban on the basis of functions are more meaningful even though there is no uniformity in the hierarchy of the functions provided by rural and urban settlements.

Petrol pumps are considered as a lower order function in the United States while it is an urban function in India.

Even within a country, rating of functions may vary according to the regional economy. Facilities available in the villages of developed countries may be considered rare in villages of developing and less developed countries.

1.1.1 Types and Patterns of Settlements

Settlements are classified on the basis of their shape, patterns types which are discussed below:

1.Compact or Nucleated settlements:
In these settlements large number of houses is built very close to each other. Such settlements develop along river valleys and in fertile plains. Communities are closely knit and share common occupations.
2.Dispersed Settlements:
In these settlements, houses are spaced far apart and often interspersed with fields. A cultural feature such as a place of worship or a market, binds the settlement together.

Rural Settlement Patterns

Patterns of rural settlements contemplate the way the houses are sited in relation to each other. The site of the village, the surrounding topography and terrain influence the shape and size of a village.

Rural settlements may be classified on the basis of a number of criteria:

(i) On the basis of setting: The main types are plain villages, plateau villages, coastal villages, forest villages and desert villages.

(ii) On the basis of functions: There may be farming villages, fishermen's villages, lumberjack villages, pastoral villages etc.

(iii) On the basis of forms or shapes of the settlements: These may be a number of geometrical forms and shapes such as Linear, rectangular, circular star like, T-shaped village, double village, cross-shaped village etc.

Linear pattern: In such settlements houses are located along a road, railway line, and river, canal edge of a valley or along a levee.

Rectangular pattern: Such patterns of rural settlements are found in plain areas or wide inter montane valleys. The roads are rectangular and cut each other at right angles.

Circular pattern: Circular villages develop around lakes, tanks and sometimes the village is planned in such a way that the central part remains open and is used for keeping the animals to protect them from wild animals.

Star like pattern: Where several roads converge, star shaped settlements develop by the houses built along the roads.

<u>T-shaped, Y-shaped, Cross-shaped or cruciform settlements:</u> T –shaped settlements develop at tri-junctions of the roads while –shaped settlements emerge as the places where two roads converge on the third one and houses are built along these roads. Cruciform settlements develop on the cross-roads and houses extend in all the four direction.

<u>Double village:</u> These settlements extend on both sides of a river where there is a bridge or a ferry.

1.2 Urban area

An urban area is an area where many people live and work close together. The population density is higher than in the surrounding area.

It is where buildings are close together. Urban is the opposite of rural, where farm lands and nature are. Urban areas are usually cities and towns.

Most of the work available in urban areas is factory and office work. agricultural work is rare because buildings are close together and there is no space for farm lands.

There are different urban area definitions for each country. The definitions mostly depend on how populated the country is and if the definition shows a true percentage of how urbanized the country is.

For example, in Poland an urban area is any place that has the status of a town, whereas in China it is any district, city, or town with a population density higher than 1500 people per square kilometer. The urban population definition for Canadian and Scandinavian countries depends on density. If there is a house every 200 meters it is classified as urban.

A large urban area, with all connected areas (usually developed around some city) is called a Metropolitan area.

1.2.1 Town

A town is a place with many streets and buildings, where people live and work. Towns are larger than villages and smaller than cities. Many places that are called towns in Britain would be called cities in the United States.

A town is a human settlement. Towns are generally larger than villages but smaller than cities, though the criteria to distinguish them vary considerably between different parts of the world.

1.2.2 City

A city is a large human settlement. It can be defined as a permanent and densely settled place with administratively defined boundaries whose members work primarily on non-agricultural tasks.

Cities generally have extensive system for housing, transportation, sanitation, utilities, land use, and communication.

Their density facilitates interaction between people, government organisations and businesses, sometimes benefiting different parties in the process.

Historically, city-dwellers have been a small proportion of humanity overall, but following two centuries of unprecedented and rapid urbanisation, roughly half of the world population now lives in cities, which has had profound consequences for global sustainability.

Present-day cities usually form the core of larger metropolitan areas and urban areas—creating numerous commuters traveling towards city centres for employment, entertainment, and edification. However, in a world of intensifying globalisation, all cities are in different degree also connected globally beyond these regions.

The most populated city proper is Chongqing while the most populous metropolitan areas are the Greater Tokyo Area, the Shanghai area, and the Jakarta metropolitan area.

The cities of Faiyum, Damascus, and Varanasi are among those laying claim to the longest continual inhabitation.

1.2.3 Types of City

Under the recommendation of the Sixth Central Pay Commission,

The earlier HRA (House Rent Allowance) classification of cities was changed from *A-1* to X; *A*, *B-1*, and *B-2* to Y; and *C* and unclassified cities to Z. X, Y, and Z are more commonly known as Tier-1, Tier-2, and Tier-3 cities, respectively.

HRA classification	City
X	Bangalore, Chennai, Delhi, Hyderabad, Kolkata, Mumbai, Ahmedabad, Pune
Y	Agra, Ajmer, Aligarh, Amravati, Amritsar, Asansol, Aurangabad, Bareilly, Belgaum, Bhavnagar, Bhiwandi, Bhopal, Bhubaneswar, Bikaner, Bilaspur, Bokaro Steel City, Chandigarh, Coimbatore Nagpur, Cuttack, Dehradun, Dhanbad, Bhilai, Durgapur, Erode, Faridabad, Firozabad, Ghaziabad, Gorakhpur, Gulbarga, Guntur, Gwalior, Gurgaon, Guwahati, Hamirpur Hubli - Dharwad, Indore, Jabalpur, Jaipur, Jalandhar, Jammu, Jamnagar, Jamshedpur, Jhansi, Jodhpur, Kakinada, Kannur, Kanpur, Kochi, Kottayam, Kolhapur, Kollam, Kozhikode, Kurnool, Ludhiana, Lucknow, Madurai, Malappuram, Mathura, Goa, Mangalore, Meerut, Moradabad, Mysore, Nanded, Nashik, Nellore, Noida, Palakkad, Patna, Perinthalmanna, Pondicherry, Puruli

	a Prayagraj, Raipur, Rajkot, Rajahmundry, Ranchi, Rourkela, Salem, Sangli, Shimla, Siliguri, Solapur, Srinagar, Thiruvananthapuram, Thrissur, Tiruchirappalli, Tirur, Tirupati, Tirunelveli, Tiruppur, Tiruvannamalai, Ujjain, Bijapur, Vadodara, Varanasi, Vasai-Virar City, Vijayawada, Vellore, Warangal, Surat and Visakhapatnam
Z	All other cities

Population-based classification

The Reserve Bank of India (RBI) classifies centres into six tiers based on population. The tables below show the classification.

Classification of centers (tier-wise)	
Population classification	**Population (2001 Census)**
Tier-1	100,000 and above
Tier-2	50,000 to 99,999
Tier-3	20,000 to 49,999
Tier-4	10,000 to 19,999
Tier-5	5,000 to 9,999
Tier-6	less than 5000

Historical classification

The cities were classified as follows before the Sixth Central Pay Commission's recommendations were followed in 2008.

This classification was initially based on the recommendations of the Fifth Central Pay Commission of India in 1997. Chennai, New Delhi, Kolkata and Mumbai were classified as A-1 cities. City statuses were later revised based on the results of the 2001 Census of India.

Hyderabad was accorded the A1 status on 31 August 2007, and Bangalore on 21 September 2007. CCA classification was abolished in 2008.

CCA classification	HRA classification	City
A-1	A-1	Mumbai
A-1	A-1	Delhi
A-1	A-1	Kolkata
A-1	A-1	Chennai
A-1	A-1[8]	Bangalore
A-1	A-1[9]	Hyderabad
A	A	Ahmedabad
A	A	Surat
A	A	Pune
A	A	Kanpur
A	A	Indore
A	A	Jaipur
A	A	Vadodara
A	A	Nagpur
A	A	Lucknow
A	A	Patna
A	A	Vishakapatnam
A	A	Bhopal
A	A	Gwalior
A	A	Jabalpur
A	A	Aurangabad
A	A	Gandhinagar
B-1	B-1	Madurai[7]

B-1	B-1	Aligarh
B-1	B-1	Kochi
B-1	B-1	Coimbatore[7]
B-1	B-1	Vijayawada
B-1	B-1	Tiruchirapalli
B-1	B-1	Nashik
B-1	B-1	Rajkot
B-1	B-1	Solapur
B-1	B-1	Anand
B-1	B-1	Ludhiana
B-1	B-1	Agra
B-1	B-1	Meerut
B-1	B-2	Thiruvananthapuram
B-1	B-2	Kozhikode
B-1	B-2	Faridabad
B-1	B-2	Varanasi
B-1	B-2	Jamshedpur
B-1	B-2	Allahabad
B-1	B-2	Amritsar
B-1	C	Dhanbad
B-2	B-2	Gorakhpur
B-2	B-2	Hubli-Dharwad
B-2	B-2	Bhavnagar
B-2	B-2	Raipur
B-2	B-2	Mysore

B-2	B-2	Thrissur	B-2	B-2	Jodhpur
B-2	B-2	Mangalore	B-2	B-2	Pondicherry
B-2	B-2	Guntur	B-2	B-2	Salem
B-2	B-2	Bhubaneswar	B-2	C	Dehradun
B-2	B-2	Amravati	B-2	C	Hajipur
B-2	B-2	Srinagar	B-2	C	Kollam
B-2	B-2	Bhilai	B-2	C	Sangli
B-2	B-2	Warangal	B-2	C	Jamnagar
B-2	B-2	Tirunelveli	B-2	C	Jammu
B-2	B-2	Nellore	B-2	C	Kurnool
B-2	B-2	Ranchi	B-2	C	Roorkee
B-2	B-2	Guwahati	B-2	C	Vellore
B-2	B-2	Aurangabad	B-2	C	Kannur
B-2	B-2	Chandigarh	B-2	C	Tiruvannamalai
B-2	B-2	Patiala	B-2	C	Etawah

1.3 Urbanisation

Urbanisation is the increase in the proportion of people living in towns and cities.

1.3.1 Causes Of Urbanisation

Urbanisation occurs because people move from rural areas (countryside) to urban areas (towns and cities). This usually occurs when a country is still developing.

1. Rural to urban migration is happening on a massive scale due to population pressure and lack of resources in rural areas. This are 'push' factors.

2. People living in rural areas are 'pulled' to the city. Often they believe that the standard of living in urban areas will be much better than in rural areas. They are usually wrong. People also hope for well paid jobs, the greater opportunities to find casual or 'informal' work, better health care and education.

3. Natural increase caused by a decrease in death rates while birth rates remain high.

The UN predicts that by 2030 60% of the world's population will live in urban environments.

1.3.2 Effects of Urbanisation

As cities develop, effects can include a dramatic increase and change in costs, often pricing the local working class out of the market, including such functionaries as employees of the local municipalities.

For example, Eric Hobsbawm's book *The age of revolution: 1789–1848* (published 1962 and 2005) chapter 11, stated "Urban development in our period [1789–1848] was a gigantic process of class segregation, which pushed the new labouring poor into great morasses of misery outside the centres of government, business, and the newly specialized residential areas of the bourgeoisie.

The almost universal European division into a 'good' west end and a 'poor' east end of large cities developed in this period." This is likely due to the prevailing south-west wind which carries coal smoke and other airborne pollutants downwind, making the western edges of towns preferable to the eastern ones.

Similar problems now affect the developing world, rising inequality resulting from rapid urbanization trends. The drive for rapid urban growth and often efficiency can lead to less equitable urban development.

Think tanks such as the Overseas Development Institute have proposed policies that encourage labor-intensive growth as a means of absorbing the influx of low-skilled and unskilled labor.

One problem these migrant workers are involved with is the growth of slums. In many cases, the rural-urban low skilled or unskilled migrant workers, attracted by economic opportunities in urban areas, cannot find a job and afford housing in cities and have to dwell in slums.

Urban problems, along with infrastructure developments, are also fueling suburbanization trends in developing nations, though the trend for core cities in said nations tends to continue to become ever denser.

Urbanization is often viewed as a negative trend, but there are positives in the reduction of expenses in commuting and transportation while improving opportunities for jobs, education, housing, and transportation.

Living in cities permits individuals and families to take advantage of the opportunities of proximity and diversity.

While cities have a greater variety of markets and goods than rural areas, infrastructure congestion, monopolization, high overhead costs, and the inconvenience of cross-town trips frequently combine to make marketplace competition harsher in cities than in rural areas.

In many developing countries where economies are growing, the growth is often erratic and based on a small number of industries.

For young people in these countries, barriers exist such as lack of access to financial services and business advisory services, difficulty in obtaining credit to start a business, and lack of entrepreneurial skills, in order for them to access opportunities in these industries.

Investment in human capital so that young people have access to quality education and infrastructure to enable access to educational facilities is imperative to overcoming economic barriers.

1.3.2.1 Environmental effects

The existence of urban heat islands has become a growing concern over the years. An urban heat island is formed when industrial and urban areas produce and retain heat.

Much of the solar energy that reaches rural areas is consumed by evaporation of water from vegetation and soil.

In cities, where there are less vegetation and exposed soil, most of the sun's energy is instead absorbed by buildings and asphalt; leading to higher surface temperatures. Vehicles, factories, and industrial and domestic heating and cooling units release even more heat.

As a result, cities are often 1 to 3 °C (1.8 to 5.4 °F) warmer than surrounding landscapes. Impacts also include reducing soil moisture and a reduction in reabsorption of carbon dioxide emissions.

In his book *Whole Earth Discipline*, Stewart Brand argues that the effects of urbanization are primarily positive for the environment.

First, the birth rate of new urban dwellers falls immediately to replacement rate and keeps falling, reducing environmental stresses caused by population growth.Secondly, emigration from rural areas reduces destructive subsistence farming techniques, such as improperly implemented slash and burn agriculture.

Urbanization may improve environmental quality as a result of numerous reasons. For instance, urbanization upsurges income levels which instigates the eco-friendly services sector and increases demand for green and environmentally compliant products.

Furthermore, urbanization improves environmental eminence through superior facilities and better-quality living standards in urban areas as compared to rural areas. Lastly, urbanization curbs pollution emissions by increasing R&D and innovations.

In the book "Carbon Zero: Imagining Cities that can save the planet", Alex Steffen also speaks of the environmental benefits of increasing the urbanization level.

In July 2013 a report issued by the United Nations Department of Economic and Social Affairs warned that with 2.4 billion more people by 2050, the amount of food produced will have to increase by 70%, straining food resources, especially in countries already facing food insecurity due to changing environmental conditions.

The mix of changing environmental conditions and the growing population of urban regions, according to UN experts, will strain basic sanitation systems and health care, and potentially cause a humanitarian and environmental disaster.

Water quality

The occurrence of eutrophication in bodies of water is another effect large urban populations have on the environment. When rain occurs in these large cities, the rain filters down the pollutants such as CO_2 and other greenhouse gases in the air onto the ground below.

Then, those chemicals are washed directly into rivers, streams, and oceans, causing a decline in water quality and damaging marine ecosystems.

Eutrophication is a process which causes hypoxic water conditions and algal blooms that may be detrimental to the survival of aquatic life. Harmful algal blooms, which produce dangerous

toxins, thrive in eutrophic environments that are also rich in nitrogen and phosphorus. In these ideal conditions, they overtake surface water, making it difficult for other organisms to receive sunlight and nutrients.

Overgrowth of algal blooms causes a decrease in overall water quality and disrupts the natural balance of aquatic ecosystems. Furthermore, as algal blooms die, CO_2 is produced, causing a more acidic environment, a process known as acidification.

The ocean's surface also has the ability to absorb CO_2 from the earth's atmosphere as emissions increase with the rise in urbanization. In fact, it is reported that the ocean absorbs a quarter of the CO_2 produced by humans.

This has been useful to the environment by decreasing the harmful effects of greenhouse gases, but also further perpetuates acidification.

Changes in pH inhibit the proper formation of calcium carbonate, a crucial component for many marine organisms to maintain shells or skeletons.

This is especially true for many species of mollusks and coral. Regardless, some species have been able to instead adapt or thrive in a more acidic environment

Food waste

Rapid growth of communities create new challenges in the developed world and one such challenge is an increase in food waste also known as urban food waste.

Food waste is the disposal of food products that can no longer be used due to unused products, expiration, or spoilage.

The increase of food waste can raise environmental concerns such as increase production of methane gases and attraction of disease vectors.

Landfills are the third leading cause of the release of methane, causing a concern on its impact to our ozone and on the health of individuals.

Accumulation of food waste causes increased fermentation, which increases the risk of rodent and bug migration. An increase in migration of disease vectors creates greater potential of disease spreading to humans.

Habitat fragmentation

Urbanization can have a large effect on biodiversity by causing a division of habitats and thereby alienation of species, a process known as habitat fragmentation.

Habitat fragmentation does not destroy the habitat, as seen in habitat loss, but rather breaks it apart with things like roads and railways This change may affect a species ability to sustain life by separating it from the environment in which it is able to easily access food, and find areas that they may hide from predation With proper planning and management, fragmentation can be avoided by adding corridors that aid in the connection of areas and allow for easier movement around urbanized regions.

Depending on the various factors, such as level of urbanization, both increases and decreases in "species richness" can be seen.

This means that urbanization may be detrimental to one species but also help facilitate the growth of others.

In instances of housing and building development, many times vegetation is completely removed immediately in order to make it easier and less expensive for construction to occur, thereby obliterating any native species in that area.

Other times, such as with birds, urbanization may allow for an increase in richness when organisms are able to adapt to the new environment.

This can be seen in species that may find food while scavenging developed areas or vegetation that has been added after urbanization has occurred i.e. planted trees in city areas

Health and social effects

When cities don't plan for increases in population it drives up house and land prices, creating rich (ghettos) and poor ghettos. "You get a very unequal society and that inequality is manifested where people live, in our neighbourhoods, and it means there can be less capacity for empathy and less development for all society." — Jack Finegan, Urban Programme Specialist at UN-Habitat

In the developing world, urbanization does not translate into a significant increase in life expectancy.

Rapid urbanization has led to increased mortality from non-communicable diseases associated with lifestyle, including cancer and heart disease.

Differences in mortality from contagious diseases vary depending on the particular disease and location.

Urban health levels are on average better in comparison to rural areas. However, residents in poor urban areas such as slums and informal settlements suffer "disproportionately from disease, injury, premature death, and the combination of ill-health and poverty entrenches disadvantage over time."

Many of the urban poor have difficulty accessing health services due to their inability to pay for them; so they resort to less qualified and unregulated providers.

While urbanization is associated with improvements in public hygiene, sanitation and access to health care, it also entails changes in occupational, dietary, and exercise patterns.

It can have mixed effects on health patterns, alleviating some problems, and accentuating others.

Nutrition

One such effect is the formation of food deserts. Nearly 23.5 million people in the United States lack access to supermarkets within one mile of their home.

Several studies suggest that long distances to a grocery store are associated with higher rates of obesity and other health disparities.

Food deserts in developed countries often correspond to areas with a high-density of fast food chains and convenience stores that offer little to no fresh food. Urbanization has been shown to

be associated with the consumption of less fresh fruits, vegetables, and whole grains and a higher consumption of processed foods and sugar-sweetened beverages.

Poor access to healthy food and high intakes of fat, sugar and salt are associated with a greater risk for obesity, diabetes and related chronic disease.

Overall, body mass index and cholesterol levels increase sharply with national income and the degree of urbanization.

Food deserts in the United States are most commonly found in low-income and predominately African American neighborhoods.

One study on food deserts in Denver, Colorado found that, in addition to minorities, the affected neighborhoods also had a high proportion of children and new births.

In children, urbanization is associated with a lower risk of under-nutrition but a higher risk of overweight.

Asthma

Urbanization has also been associated with an increased risk of asthma as well.

Throughout the world, as communities transition from rural to more urban societies, the number of people affected by asthma increases.

The odds of reduced rates of hospitalization and death from asthmas has decreased for children and young adults in urbanized municipalities in Brazil.

This finding indicates that urbanization may have a negative impact on population health particularly affecting people's susceptibility to asthma.

In low and middle income countries many factors contribute to the high numbers of people with asthma.

Similar to areas in the United States with increasing urbanization, people living in growing cities in low income countries experience high exposure to air pollution, which increases the prevalence and severity of asthma among these populations.

Links have been found between exposure to traffic-related air pollution and allergic diseases.

Children living in poor, urban areas in the United States now have an increased risk of morbidity due to asthma in comparison to other low-income children in the United States.

In addition, children with croup living in urban areas have higher hazard ratios for asthma than similar children living in rural areas.

Researchers suggest that this difference in hazard ratios is due to the higher levels of air pollution and exposure to environmental allergens found in urban areas.

Exposure to elevated levels of ambient air pollutants such as nitrogen dioxide (NO_2), carbon monoxide (CO), and particulate matter with a diameter of less than 2.5 micrometers ($PM_{2.5}$), can cause DNA methylation of CpG sites in immune cells, which increases children's risk of developing asthma. Studies have shown a positive correlation between *Foxp3* methylation and children's exposure to NO_2, CO, and $PM_{2.5}$.

Furthermore, any amount of exposure to high levels of air pollution have shown long term effects on the *Foxp3* region.

Despite the increase in access to health services that usually accompanies urbanization, the rise in population density negatively affects air quality ultimately mitigating the positive value of health resources as more children and young adults develop asthma due to high pollution rates.

However, urban planning, as well as emission control, can lessen the effects of traffic-related air pollution on allergic diseases such as asthma.

Crime

Historically crime and urbanization have gone hand in hand.

The simplest explanation is that areas with a higher population density are surrounded by greater availability of goods.

Committing crimes in urbanized areas is also more feasible. Modernization has led to more crime as well.

There is a greater awareness of the income gap between the rich and poor due to modern media. This leads to feelings of deprivation which can lead to crime.

In some regions where urbanization happens in wealthier areas, a rise in property crime and a decrease in violent crime is seen.

Data shows that there is an increase in crime in urbanized areas. Some factors include per capita income, income inequality, and overall population size.

There is also a smaller association between unemployment rate, police expenditures and crime. The presence of crime also has the ability to produce more crime.

These areas have less social cohesion and therefore less social control.

This is evident in the geographical regions that crime occurs in. As most crime tends to cluster in city centers, the further the distance from the center of the city, the lower the occurrence of crimes are.

Migration is also a factor that can increase crime in urbanized areas.

People from one area are displaced and forced to move into an urbanized society.

Here they are in a new environment with new norms and social values. This can lead to less social cohesion and more crime.

Physical activity

Although urbanization tends to produce more negative effects, one positive effect that urbanization has impacted is an increase in physical activity in comparison to rural areas.

Residents of rural areas and communities in the United States have higher rates of obesity and engage in less physical activity than urban residents.

Rural residents consume a higher percent of fat calories and are less likely to meet the guidelines for physical activity and more likely to be physically inactive.

In comparison to regions within the United States, the west has the lowest prevalence of physical *inactivity* and the south has the highest prevalence of physical *inactivity*.

Metropolitan and large urban areas across all regions have the highest prevalence of physical activity among residents.

Barriers such as geographic isolation, busy and unsafe roads, and social stigmas lead to decreased physical activity in rural environments.

Faster speed limits on rural roads prohibits the ability to have bike lanes, sidewalks, footpaths, and shoulders along the side of the roads.

Less developed open spaces in rural areas, like parks and trails, suggest that there is lower walkability in these areas in comparison to urban areas.

Many residents in rural settings have to travel long distances to utilize exercise facilities, taking up too much time in the day and deterring residents from using recreational facilities to obtain physical activity.

Additionally, residents of rural communities are traveling further for work, decreasing the amount of time that can be spent on leisure physical activity and significantly decreases the opportunity to partake in active transportation to work.

Neighborhoods and communities with nearby fitness venues, a common feature of urbanization, have residents that partake in increased amounts of physical activity.

Communities with sidewalks, street lights, and traffic signals have residents participating in more physical activity than communities without those features.

Having a variety of destinations close to where people live, increases the use of active transportation, such as walking and biking.

Active transportation is also enhanced in urban communities where there is easy access to public transportation due to residents walking or biking to transportation stops.

In a study comparing different regions in the United States, opinions across all areas were shared that environmental characteristics like access to sidewalks, safe roads, recreational facilities, and enjoyable scenery are positively associated with participation in leisure physical activity.

Perceiving that resources are nearby for physical activity increases the likelihood that residents of all communities will meet the guidelines and recommendations for appropriate physical activity.

Specific to rural residents, the safety of outdoor developed spaces and convenient availability to recreational facilities matters most when making decisions on increasing physical activity.

In order to combat the levels of inactivity in rural residents, more convenient recreational features, such as the ones discussed in this paragraph, need to be implemented into rural communities and societies.

Mental health

Urbanization factors that contribute to mental health can be thought of as factors that affect the individual and factors that affect the larger social group.

At the macro, social group level, changes related to urbanization are thought to contribute to social disintegration and disorganization.

These macro factors contribute to social disparities which affect individuals by creating perceived insecurity.

Perceived insecurity can be due problems with the physical environment, such as issues with personal safety, or problems with the social environment, such as a loss of positive self-concepts from negative events.

Increased stress is a common individual psychological stressor that accompanies urbanization and is thought to be due to perceived insecurity. Changes in social organization, a consequence of urbanization, are thought to lead to reduced social support, increased violence, and overcrowding.

It is these factors that are thought to contribute to increased stress. It is important to note that urbanization or population density alone does not cause mental health problems.

It is the combination of urbanization with physical and social risk factors that contribute to mental health problems.

As cities continue to expand it is important to consider and account for mental health along with other public health measures that accompany urbanization.

1.4 Suburbanization

Suburbanization is a population shift from central urban areas into suburbs, resulting in the formation of (sub)urban sprawl. (Sub-urbanization is inversely related to urbanization, which denotes a population shift from rural areas into urban centres.)

Many residents of metropolitan regions work within the central urban area, and choose to live in satellite communities called suburbs and commute to work via automobile or mass transit.

Others have taken advantage of technological advances to work from their homes. These processes often occur in more economically developed countries, especially in the United States, which is believed to be the first country in which the majority of the population lives in the suburbs, rather than in the cities or in rural areas.

Proponents of containing urban sprawl argue that sprawl leads to urban decay and a concentration of lower income residents in the inner city.

1.4.1 Impacts of Suburbanization

Environmental Impacts

With the growth of suburbanization and the spread of people living outside the city this can cause negative impacts on the environment.

Suburbanization has been linked to the increase in vehicle mileage, increase land use, and increase in residential energy consumption.

From these factors of suburbanization, it has then caused a degradation of air quality, increase usage of natural resources like water and oil, as well as increased amounts of greenhouse gas.

With the increased use of vehicles to commute to and from the work place this causes increased use of oil and gas as well as an increase in emissions. With the increase in emissions from vehicles, this then can cause air pollution and degrades the air quality of an area.

Suburbanization is growing which causes an increase in housing development which causes an increase in land consumption and available land. Suburbanization has also been linked to increase in natural resource use like water to meet residents' demands and to maintain suburban lawns.

Also, with the increase in technology and consumptions of residents there is an increase in energy consumption by the amount of electricity used by residents.

Social impacts

Suburbanization has negative social impacts on many groups of people, including children, adolescents, and the elderly. Children who are affected by suburbanization, or urban sprawl, are commonly referred to as "cul-de-sac kids."

Because children living in a suburb cannot go anywhere without a parent, they are unable to practice being independent. Teenagers that are unable to be independent experience a lot of boredom, isolation, and frustration.

These feelings have even led to an increase in rates of teenage suicide and school shootings in suburban areas. Despite these issues with young people, suburbia was still intended for young families.

The elderly in suburbia experience social isolation once they lose their license to drive. In order to leave their home the elderly need to be able to afford a chauffeur or be willing to ask relatives to drive them around.

This has resulted in upper-class elderly moving to retirement communities. Both the wealthy elderly and those who still live in suburbs are largely separated from all other groups of society.

1.5 Urban Sprawl

Urban sprawl is basically another word for urbanization. It refers to the migration of a population from populated towns and cities to low density residential development over more and more rural land.

The end result is the spreading of a city and its suburbs over more and more rural land. In other words, urban sprawl is defined as low density residential and commercial development on undeveloped land. Most of the time, people will move from these areas to try to find better areas to live. This has been the way of the world since the beginning.

Migration and urban sprawl isn't something that is just now becoming popular, as it has been around for quite some time.

Cities and their suburbs are now becoming overcrowded because of this, but now it is time to look at the causes and the effects of the urban sprawl, so that you can gain a better understanding of it.

1.5.1 Causes of Urban Sprawl

Urban sprawl can be caused by a variety of different things. These causes will mainly include:

- **Lower Land Rates:** Lower cost land and houses in the outer suburbs of the cities, because the centers of urban development have really made people want to stop settling in these areas and want to venture further out.

- **Improved Infrastructure:** There is increased spending on certain types of infrastructures, including roads and electricity. This is something that hasn't always been available, and there are still some areas that don't have these luxuries. That doesn't mean that they aren't working on it.

- **Rise in Standard of Living:** There are also increases in standards of living and average family incomes, which means that people have the ability to pay more to travel and commute longer distances to work and back home.

- **Lack of Urban Planning:** People love to find areas that are less trafficked and more calm, which leads them to sprawl out to other sections of the town. Unprecedented development, cutting of trees, loss of green cover, long traffic jams, poor infrastructure force people to move out to new areas.

- **Lower House Tax Rates:** Cities will usually have high property taxes, and you can usually avoid these taxes by living in the outer suburbs because the taxes are usually lower than they would be in other situations.

- **Rise in Population Growth:** Another factor that contributes towards urban sprawl is rise in population growth. As number of people in a city grows beyond capacity, the local communities continues to spread farther and farther from city centers.

- **Consumer Preferences:** People in high income groups have stronger preferences towards larger homes, more bedrooms, bigger balconies and bigger lawns. This also causes urban sprawl as this option is not available in crowded cities. People generally

look out for low-density residential areas where they can get home according to their preference.

1.5.2 Effects of Urban Sprawl

Now, we will take a look at the effects of urban sprawl, now that we have taken a closer look at the causes of it. Some of the effects include:

- **Increase in Public Expenditure:** They can actually play a part in the increases of public costs, because these changes in infrastructures and building must actually be paid for by someone- and it is usually the tax payers money that pays for it.

- **Increased Traffic:** Populations will begin to use their cars more often, which means that there is more traffic on the roads, and there is also more air pollution and more auto accidents that you have to worry with.

- **Health Issues:** When people use their vehicles, even to go to a very short distance, people are going to be more overweight and are also going to have to deal with ailments such as high blood pressure and other diseases that come about with obesity.

- **Environmental Issues:** Sprawls can also cause certain environmental issues that you may want to be aware of. In fact, when you think about going out to develop these lands you will have to worry about the wildlife that lives in these lands. You will be displacing them, and it can really cause a ripple in the environment.

- **Impact on Social Lives:** When people move further out, they also have an impact on their social lives. They don't have neighbors that live as close, which means that they won't really stay as social as they should. This isn't always the case, but it is something that should be taken note of.

1.6 Peri-urban areas

Peri-urban areas (also called rurban space, outskirts or the hinterland) are defined by the structure resulting from the process of peri-urbanisation. It can be described as the landscape interface between town and country, or also as the rural—urban transition zone where urban and rural uses mix and often clash.

1.6.1 Structure and function

Peri-urban areas (also called *rurban space*, *outskirts* or the *hinterland*) are defined by the structure resulting from the process of peri-urbanisation. It can be described as the *landscape interface between town and country*,[2] or also as the *rural—urban transition zone* where urban and rural uses mix and often clash.[3] It can thus be viewed as a landscape type in its own right, one forged from an interaction of urban and rural land use.

Its definition shifts depending on the global location, but typically in Europe where urban areas are intensively managed to prevent urban sprawl and protect agricultural land, the urban fringe will be characterised by certain land uses which have either purposely moved away from the urban area, or require much larger tracts of land. As examples:

- Roads, especially motorways and bypasses
- Waste transfer stations, recycling facilities and landfill sites
- Park and ride sites
- Airports
- Large hospitals
- Power, water and sewerage facilities
- Factories
- Large out-of-town shopping facilities, e.g. large supermarkets

Despite these urban uses, the fringe remains largely open with the majority of the land agricultural, woodland or other rural use. However, the quality of the countryside around urban areas tends to be low with severance between areas of open land and badly maintained woodlands and hedgerows.

Apart from the structural definition dominating English-speaking literature, the concept is sometimes used to fill the gap between suburbanisation and exurbanisation, and thus relates moreover to the movement of people in space. In this case, peri-urbanisation is seen as the expansion of functional rural-urban linkages such as commuting.

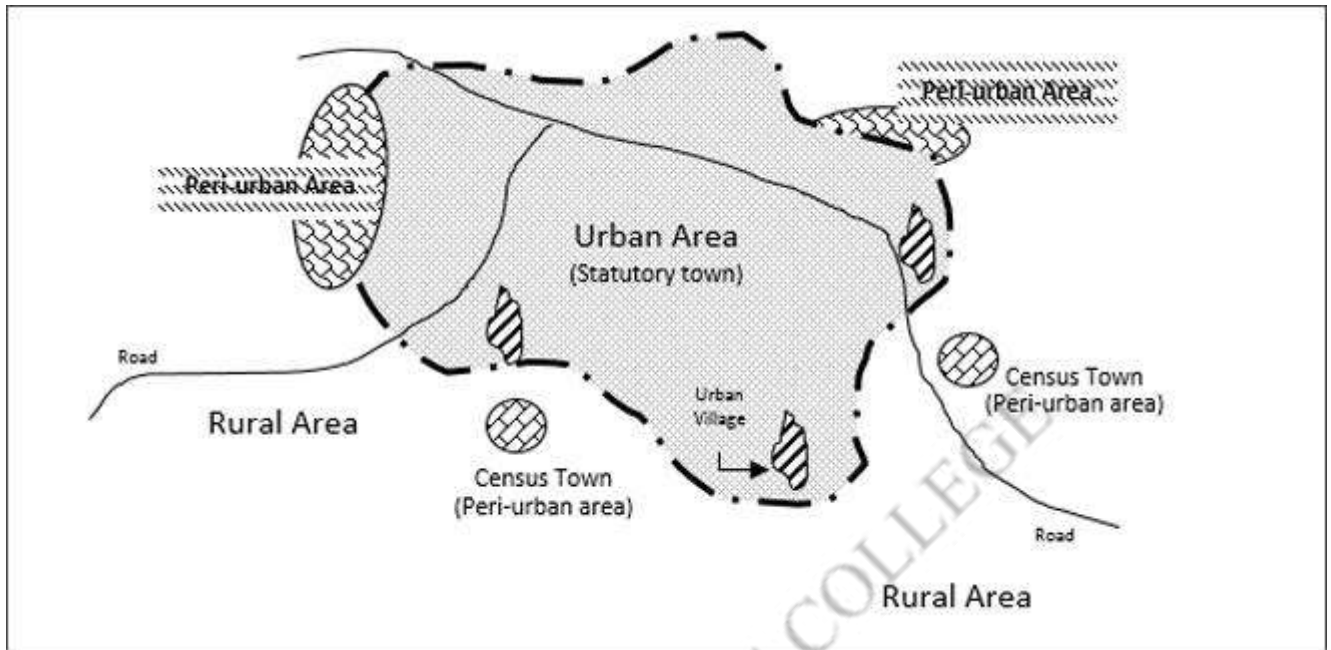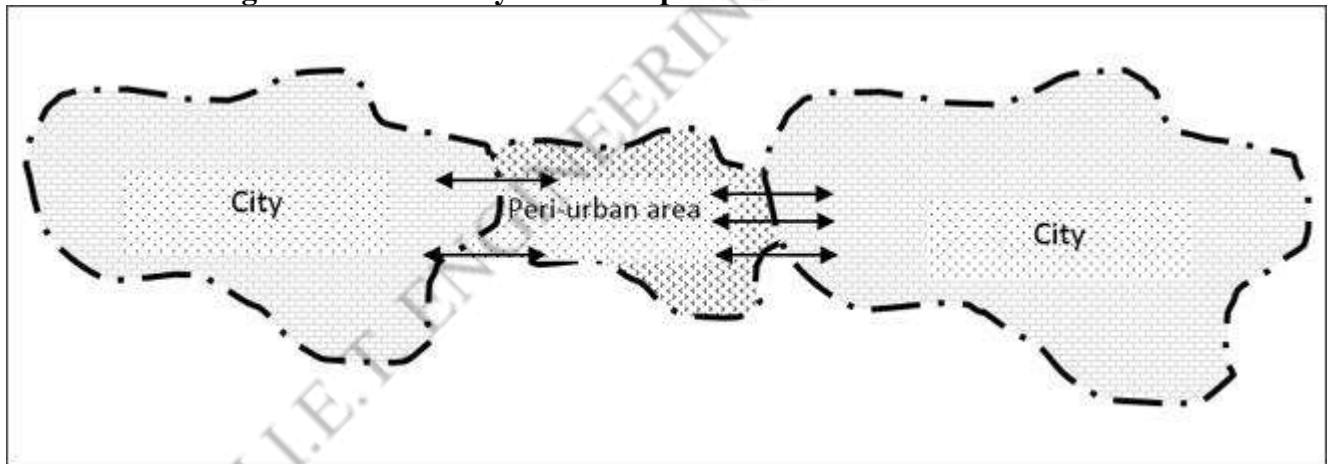**Figure 1: A visualisation of urban and peri-urban areas**

Figure 2: Commonly observed problems and their causes

1.7 Central Business District (CBD)

A Central Business District (CBD) is a city's focal point or business and commercial center. The area is characterized by a concentration of commercial land use with a high number of commercial offices, retail shops, and services such as finance and banking.

The CBD is also the cultural and transportation center of the city. The city's history is almost always reflected by the type and shape of its central business district.

Some megacities, especially in Asia, have more than one CBD scattered across the city. However, each CBD is unique in terms of their spatial shape. Terms such as the financial district, downtown, and city center are sometimes used to refer to the CBD.

Some of the key characteristics of CBDs include:

- High concentration of offices, banks, financial institutions, and so on.
- High density and high-rise buildings.
- High land values.
- Lack of open and/or green space.
- Department stores and high-end shops.
- Multi-storey car parks.
- Well-managed infrastructure links with other parts of the city.
- Lack of people outside of business hours and at weekends.
- High concentration of pedestrians.

The following list of the various uses may indicate various CB and non-CB uses:

Groups of CB Uses		Non-CB Uses	
1.	Profit earning retail and services	1.	Permanent residential units
2.	Financial institutions	2.	Govt. offices, educational institutions, parks, etc.
3.	Retail marketing stores	3.	Place of worship, university campus, college-buildings and play-ground
4.	Shops and services for repairing job	4.	Industries-Manufacturing, etc. (Exception: Newspaper and Printing Books, etc.)
5.	Banks, L.I.C., legal-offices, restaurants, hotels, clubs, etc.	5.	Vacant plots and buildings
		6.	Wholesale units
		7.	Commercial storages
		8.	Railways

1.7.1 Land Uses in CBD:

Two groups of land uses are on average visible:

(a) Service-financial-office uses, and

(b) Retail business uses. Wholesale business activity and residential units as well as factories do not form part of it. Besides these some of the institutions like administrative municipal council, other public institutions, parks, churches, place of worship, etc., also do not form its part.

Delimitation of CBD:

It is a difficult job to delimit CBD accurately because land uses in the central part of a city also vary from cities to cities. There is lot of difference in the central areas of the developed and developing countries. Whatever methods are used by the western authors hardly suit universal urban environment. There is not yet any standard method of its delimitation. However,

some of the methods have been given here which may reflect on the nature of fieldwork involved in its delimitation.

(1) W. William – Olsson Technique: This method takes into account a 'shop rent index' which is the total of shop rents of a building divided by the length of its frontage. But because of the difficulties involving in the collection of such data, it is impracticable. In India nobody discloses the correct value of rents.

(2) Sund and Isachsen used total turnover or trade instead of total shop rents. But, again, this is rather more unreliable to obtain and in the developing countries this type of data obtained from the Municipal Council (Department of Marketing) are totally fake. Therefore, it is very difficult to prepare a map out of the aforesaid data and the picture which is thus obtained is mostly diffused.

(3) Proud foot used to locate intra-city business areas by block-frontage-volume of sales for each side of a block of all stores whose addresses indicate that they front on that side. But Proud foot method too involves weaknesses being unconcerned about the activities of offices and banks.

(4) Other possible efforts include the data of building heights, population distribution, traffic and pedestrian flows, valuation data and land uses. Some minimum building height may be taken as a cut-off point to mark higher heights on a lot basis as the boundary of the CBD area. If the resulting boundary obtained is irregular, the same may be smoothened out by basing the map on blocks rather on lots. Population of dwelling units, pedestrian flows, traffic volume may, similarly help in delimiting the area in question.

An appropriate criterion may be selected after close empirical studies of the central city. Of course, it varies from city to city, to their size, to economies, to culture and to various activities which are centripetal to the area.

1.7.2 Problems Faced by CBD

Nearly all CBD areas are overwhelmingly becoming crowdy during peak hours and near the Peak Land Value Intersection (PLVI) point traffic movement becomes a serious problem.

This must be channelized by planning arterial roads and indicating places for disallowing traffic movement. Parking spaces should be provided on all sides at least one-to-two furlongs off the PLVI. In the absence of parking facility there is always insecurity and danger for pedestrians.

Kolkata has the largest volume of pedestrian traffic and the problem in the CBD area is being enhanced by encroachments by vendors.

Calcutta Urban Development Project (CUDP) constructed underground parking plazas in the CBD. Usurpation of road-frontage and unauthorized occupation of footpaths should be strictly prohibited. The edge of CBD is notoriously occupied by slums and blight areas.

In Delhi, old CBD including Sadar Bazar and Chandni Chowk is inflected by slums and blights.

Commonly in India, an average size of city does not have a distinct CBD resembling the cities of USA and Western Europe. One may identify a compact CBD in the metropolises of Kolkata (Chowringhee), Mumbai (Kalba Devi-Tank Rd.), Bangalore (M.G. Road), Delhi (Old Chandni Chowk), New Delhi (Connaught Place), etc.

Identification of CBD area in India is not possible through the Murphy-Vance Index Method. There may not be a single compact area.

But in our cities, being multiple nuclei in structure, there may be small central areas developed on and around different nuclei. Their delimitation may be possible by plotting on map central-business uses of land.

Unplanned cities of India possess CB areas of distorted shape and may not be like 'quadrate cross'. Another distinction which makes CB areas of India different in nature from their western counterpart is their residential use.

Most of the central areas in India are occupied by semi-residential buildings and possess high density of population which is an uncommon feature in the Western Central areas.

CB areas of Indian cities are considerably flanked by haphazard retail marketing stores, narrow and tortuous roads, traffic congestion, in sanitary conditions, absence of footpaths and parking space, and above all, slums and squatters.

These possess an unhealthy look and movement within the central business areas of our country is rather unpleasant and rather a difficult job.

1.8 Classification of Urban Area

1.8.1 Summary of an Urban Area

Urban areas are statistically defined areas with no administrative or legal basis. This classification is designed to identify concentrated urban settlements, without the distortion of administrative boundaries.

Main urban areas represent the most urbanised areas in New Zealand and this part of the classification remains consistent with the standard urban areas classification. Main urban areas are very large and centred on a city or main urban centre. They have a minimum population of 30,000.

Urban areas in the main conurbations have been divided into urban zones, with each urban zone defined as a separate urban area. Population size is also used to define secondary and minor urban areas in the standard urban area classification. Does population size alone adequately describe the characteristics of different urban areas?

A minor urban area such as Rolleston, which is close to Christchurch, has different structures and needs to Westport, which is fairly remote from a large urban area. Yet both centres have similar-sized populations and are grouped together as minor urban areas. The experimental urban/rural classification takes this into account.

Urban areas previously defined as secondary and minor urban areas in the standard classification, were redefined on the basis of proximity to and dependence upon main urban areas. This dependence was determined using people's address of usual residence and workplace address sourced from Census.

Workplace address provides a simple but effective defining variable since it acts as a proxy for some of the six criteria used when defining existing urban boundaries.

The six criteria for including an area within an urban boundary are:

1. strong economic ties

2. cultural and recreational interaction

3. serviced from the core for major business and professional activities

4. an integrated public transport network

5. significant workplace commuting to and from the central core

6. planned development with the next twenty years, as a dormitory area to, or an extension of, the central core.

Main urban area

This is the same as the standard 2006 pattern for main urban centres and includes: Whangarei, Auckland, Hamilton, Tauranga, Rotorua, Gisborne, Napier-Hastings, New Plymouth, Wanganui, Palmerston North, Kapiti, Wellington, Nelson, Christchurch, Dunedin and Invercargill.

Satellite urban area

This category identifies towns and settlements with strong links to main urban centres. This connection is through employment location. Satellite urban areas are defined as urban areas (other than main urban areas) where 20 percent or more of the usually resident employed population's workplace address is in a main urban area.

Independent urban area

This category identifies towns and settlements without significant dependence on main urban centres. Again, employment location is the defining variable. Independent urban areas are urban areas (other than main urban areas) where less than 20 percent of the usually resident employed population's workplace address is in a main urban area.

1.9 Urbanization trends

Most of this increase is taking place in urban areas. Urbanization is an increase in the number of people living in towns and cities.

Urbanization occurs mainly because people move from rural areas to urban areas and it results in growth in the size of the urban population and the extent of urban areas.

These changes in population lead to other changes in land use, economic activity and culture. Historically, urbanization has been associated with significant economic and social transformations.

For example, urban living is linked with higher levels of literacy and education, better health, lower fertility and a longer life expectancy, greater access to social services and enhanced opportunities for cultural and political participation (UNDESA, 2014).

However, urbanization also has disadvantages caused by rapid and unplanned urban growth resulting in poor infrastructures such as inadequate housing, water and sanitation, transport and health care services.

1.9.1 Global trends in urbanization

In 1960, the global urban population was 34% of the total; however, by 2014 the urban population accounted for 54% of the total and continues to grow. By 2050 the proportion living in urban areas is expected to reach 66% (UNDESA, 2014). Figure 5.1 shows the change in the rural and urban populations of the world from 1950 through to projected figures up to the year 2050.
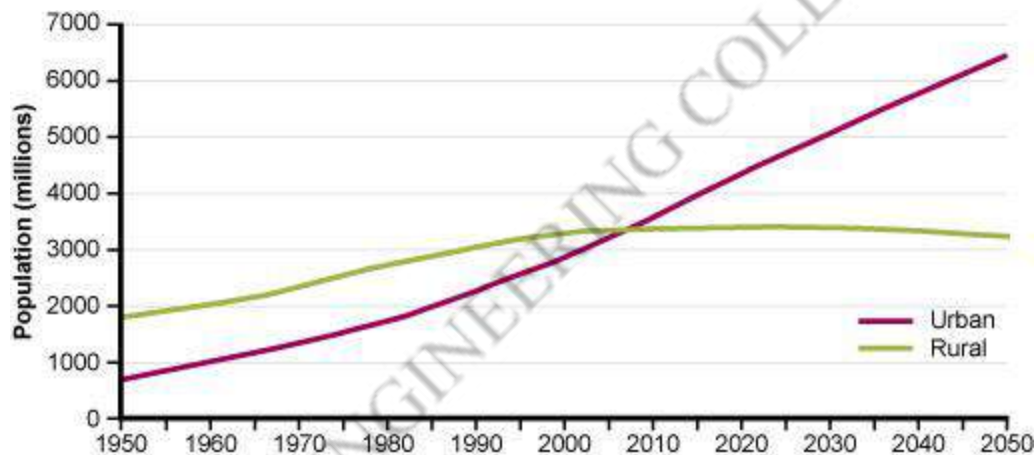
1.9.2 Urbanization in India

Urbanization in India began to accelerate after independence, due to the country's adoption of a mixed economy, which gave rise to the development of the private sector. Urbanisation is taking place at a relatively rapid rate in India. Population residing in urban areas in India, according to 1901 census, was 11.4%.

This count increased to 28.53% according to 2001 census, and crossing 30% as per 2011 census, standing at 31.16%. In 2017, the numbers increased to 34%, according to The World Bank.

According to a survey by UN State of the World Population report in 2007, by 2030, 40.76% of country's population is expected to reside in urban areas.

As per World Bank, India, along with China, Indonesia, Nigeria, and the United States, will lead the world's urban population surge by 2050.

Mumbai saw large-scale rural-urban migration in the 20th century. Mumbai, in 2018, accommodates 22.1 million people, and is the largest metropolis by population in India, followed by Delhi with 28 million inhabitants.

Delhi witnessed the fastest rate of urbanisation in the world, with a 4.1% rise in population as per the 2011 census.

Mumbai and Kolkata were close behind over that same stretch, with increases in population of 3.1% and 2% respectively.

Causes of urbanization in India

The main causes of urbanization in India are:

- Expansion in government services, as a result of the Second World War
- Migration of people during the partition of India
- The Industrial Revolution[citation needed]
- Eleventh five-year plan that aimed at urbanisation for the economic development of India
- Economic opportunities are just one reason people move into cities
- Infrastructure facilities in the urban areas
- Growth of private sector after 1990 .
- Growth of employment in cities is attracting people from rural areas as well as smaller cities to large towns. According to Mckinsey India's urban population will grow from 340 million in 2008 to 590 million in 2030.
- Therefore, it is being driven by economic compulsions where people move out for economic advancements to areas offering better job opportunities.
- It is also driven by land fragmentations, villages being erased due to roads and highway constructions, dam constructions and other activities.

†rends in Urbanization- 2001 to 2011

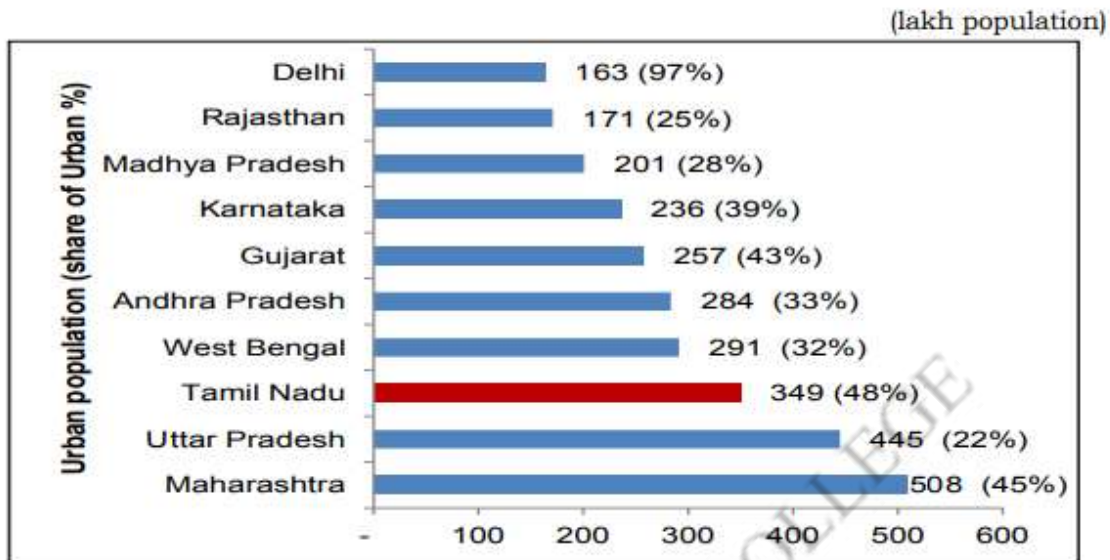| Class	Definition {Population}	Census 2001			Census 2011			Decade Growth Rate 2001 - 2011	
		No. of Towns	Population	% of Urban Population	No. of Towns	Population	% of Urban Population	No. of Towns	Population
Class I	>1 lakh	394	196.3	68.7	468	264.9	70.2	18.8	34.9
Of which,-									
Below Mn+	1 to 10 lakh	359	88.0	30.8	415	104.2	27.6	15.6	18.4
Million Plus cities	>10 lakh	35	108.3	37.9	53	160.7	42.6	51.4	48.4
Of which,-									
Mega cities@	>1 crore	3	42.5	14.9	3	48.8	12.9	0.0	14.8
Class II	50k to <100k	496	27.8	9.7	605	41.3	11.0	22.0	48.7
Class III	20K to <50k	1388	35.2	12.2	1905	58.2	15.4	37.2	65.5
Class IV	10k to <20k	1561	19.5	6.8	2233	31.9	8.5	43.0	63.8
Class V	5k to <10k	1041	6.7	2.4	2187	15.9	4.2	110.1	138.7
Class VI	<5k	234	0.7	0.2	498	2.0	0.5	112.8	180.1
Total		5161	286.1	100.0	7933	377.1	109.8	53.7	31.8
Statutory Towns		3799	265.1	92.7	4041	318.5	84.5	6.4	20.2
Non-Statutory Census Towns & UAs		1362	21.0	7.3	3892	58.6	15.5	185.8	179.0
Total Urban Population		5161	286.1	100.0	7933	377.1	100	53.7	31.8

1.9.2 Urbanisation Trends In Tamil Nadu

Tamil Nadu ranks first on share of urban population among large States in the country and third on absolute urban population.

As per provisional estimates of 2011 census, Tamil Nadu, with a provisional urban population of 34.9 million, has 48.45 percent of its population living in urban areas.

The Chart 7.1.1 gives the details for a relative comparison (among States and in India) for urbanization and show that Tamil Nadu is the most urbanized State.

Graph 7.1.1: Details for a Relative Comparison of Urban Population among States in India

(lakh population)

State	Urban population (share of Urban %)
Delhi	163 (97%)
Rajasthan	171 (25%)
Madhya Pradesh	201 (28%)
Karnataka	236 (39%)
Gujarat	257 (43%)
Andhra Pradesh	284 (33%)
West Bengal	291 (32%)
Tamil Nadu	349 (48%)
Uttar Pradesh	445 (22%)
Maharashtra	508 (45%)

Housing demand in Chennai-Second Master Plan of CMDA (Chennai Metropolitan Development Authority):

The second Master Plan for Chennai Metropolitan Area prepared by CMDA makes the following observations on housing related issues within the Chennai Metropolitan area.

The gap between households and housing units in 2001 was of the order of 36000 units in the Chennai Metropolitan Area.

It was estimated that 15 percent of the dwelling units were semi-pucca and 10 percent were kutcha with nearly 41 percent of the dwelling units being either one room or units without an exclusive room.

The slum population as identified at the time of preparation of the Second Master Plan was 818,872 or 19 percent of the city population. Of this about 75,498 families have been identified as being based in vulnerable locations such as river margins, water logged areas, seashores and road margins, and are categorized as objectionable slums.

The incremental housing demand in Chennai was 413,012 in 2011 and will go up to 1,237,482 in 2026. Similarly EWS (Economically Weaker Section) demand, which is 30 percent of the total mentioned above, is estimated to increase from 1,23,904 in 2011 to 3,71,245 in 2026.

As can be seen, there is a variation in the level of slum population and the incremental housing demand in the state. While the range of estimates for slum population in urban areas in Tamil Nadu varies between 59 lakh to 86 lakh in 2011, housing shortage is estimated at 28 lakh.

Thus creation/ periodic updation of baseline information on the level of housing stock, additions and shortage periodically through involvement of Urban Local Bodies (ULB) is critical to develop and implement plans for addressing housing demand effectively.

For the purpose of planning, the census figures are adopted as they have been captured through an elaborate exercise and are most recent.

Tamil Nadu Housing Board

Since its inception, Tamil Nadu Housing Board (TNHB) has constructed about 4.01 lakh dwelling units, out of which 2.91 lakh units have been constructed for Economically Weaker Sections (EWS), Low Income Group (LIG) and Middle Income Group (MIG) Sections.

As against a target of 81,100 units during the Eleventh Five year Plan, TNHB has developed 11,494 units by January 2012, of which 5130 units have been developed at a cost of 396.70 crore and 6364 units at a cost of `751.32 crore are in progress.

Tamil Nadu Slum Clearance Board

The Tamil Nadu Slum Clearance Board has constructed 1.29 lakh houses / tenements since its inception. The slum development works with land tenure have been provided in 504 slums under MUDP (Metropolitan Urban Development Programme) and TNUDP (Tamil Nadu Urban Development Project) thereby benefiting 1.30 lakh slum families.

The above said programmes are implemented adopting the following strategies with the motto of improving the environs of the slums and the living standards of the urban slum families.

 In-situ tenemental schemes: The slums located in unobjectionable areas, wherein equitable distribution of space to all is not feasible, are cleared and tenemental schemes are put up.

 In-situ plotted development and infrastructure improvement: Wherever in-situ development is feasible, such slums are identified and taken up for insitu improvement for provision of basic facilities to make the areas habitable and for provision of tenurial rights to the occupants after getting the land transferred to TNSCB.

 Rehabilitation and Resettlement scheme: Wherever neither tenemental nor in-situ development is feasible, (as in the case of objectionable porambokes like waterways etc.) Rehabilitation and Resettlement of tenements in nearby locations with necessary infrastructure is taken up.

The cleared site is then restored to its original use. As against the target of 71,752 housing units during the Eleventh Five Year Plan, TNSCB has developed 41, 754 units. The expenditure incurred during the Plan is 1318.80 core.

Tamil Nadu Cooperative Housing Federation

Since its inception, the Federation has provided financial assistance to the tune of `4752.88 crore for construction of as many as 11. 64 lakh houses in the State.

At present there are 837 Urban Cooperative Housing Societies and 197 Taluk Cooperative Housing Societies affiliated to the Federation. During the Eleventh Plan period, the federation has provided financial assistance to the tune of 88.90 crore for construction of 4,554 houses.

Tamil Nadu Police Housing Corporation Limited

The Tamil Nadu Police Housing Corporation Limited is providing shelter to houseless Police Personnel at an affordable cost under 'Own Your House' scheme as per the policy of the State Government.

Based on availability of land and demand, the TN Police Housing Corporation Limited has constructed 1985 houses under this scheme at a cost of 20.39 crore. The other activities of the Corporation, are 1) 29962 residential units were constructed for Police personnel at a cost of `1339.73 crore; 2) 911 residential units were constructed for firemen at a cost of 29.68 crore; 3) 950 residential units were constructed for Prisons at a cost of `39.18 crore; and 4) 3440 quarters are also in the pipeline for Police Personnel at a cost of `335.51 crore for which Government orders are awaited.

Vision Tamil Nadu 2023

Vision Tamil Nadu 2023 sets the Plan for infrastructure development for the State to reach the desired outcome by 2023.

It aims to provide among others, high quality infrastructure all over the State comparable with the best in the world.

 Under Housing, it is proposed to construct 25 lakh affordable houses to create hut free villages and slum free cities with an outlay of `75,000 crore thereby rehabilitating families living in slums.

The Vision Tamil Nadu 2023 also envisages Poverty Free State by 2023 - there will be no starvation or destitution in the State.

UNIT II   PLANNING PROCESS

Principles of Planning – Types and Level of Plan, Stages in Planning Process – Goals, Objectives, Delineation of Planning Areas, Surveys and Questionnaire Design.

2.1 Principles of Planning

> *"A city should be built to give its inhabitants security and happiness."- Aristotle*

Cities are known to be the most innovative and complex creations of human beings. They have existed in the past and will continue to exist in the future, showcasing human growth and development. Cities are economic and social systems, that are dominating the global canvas in terms of concentration of population. They are also the principle centers of economy, consumer markets and also have a highly trained workforce. As engines of economic growth, cities are known to be creators of wealth, generators of employment and promoters of the economy. **"Urban planning or city planning is a technical or political process which deals with the development and use of land, planning permission, protection, and use of the environment, public welfare and the design of the urban environment. These are also responsible for the planning and development of water use and resources, rural and agricultural land, parks and conserving areas of natural environment significance."**

As per World Urbanization Prospects –the 2014 Revision Report of Department of Economic and Social Affairs, United Nations: India by 2030 will have 7 Mega cities with population exceeding 10 million and 2 cities of a population above 5 million. It is also estimated that by 2050 there will be over a 100 Metro cities around India. This calls for critically and objectively looking at the urban centers in terms of their pattern of growth, development and evolving strategies which make them more productive, smart, efficient, healthy and sustainable.

Some of the basic principles of building a city, considered from technical, economical and the administration point of view are as follows:

1. The city planning principally consists of fixing the baselines of all traffic movements and transit facilities, including streets, railroads, and canals. These transit facilities should be treated liberally and systematically.
2. The street network should be planned in such a way that the main streets with the existing streets should be given greater consideration. The secondary streets should be fixed based on local conditions.
3. The building departments should adhere by some rights and privileges related to fire protection, aesthetic condition, health and safety of the buildings.
4. The town or city municipal authorities should facilitate for legal measures in cases of expropriation and impropriation and should also create a law providing for the regulation of the contour of new or reconstructed blocks to be built upon.
5. Efficient use of land and infrastructure: land is essential for making improvements and should only be built upon under reservations for its subsequent use by the city. High-density

development, infill development, and the adaptive re-use of the existing buildings result in efficient utilization of land resources and compact urban areas.

6. Cities are homes to complex webs of systems, and sectors, with their primary aim that ties into how a city functions. With this mind, collaboration is critical to identify innovative solutions.

7. Good urban planning addresses immediate needs while striving to achieve a city's unique vision of the future. Long-term visions are rarely achieved through an uncoordinated application of projects.

8. The municipality should constantly supervise the activities of interested property owners associations, regarding the improvement of certain section.

2.1.1 Principles of Town Planning :

The basic intention of town planning is to satisfy the needs of our future generations and to prevent the disorganized growth of the town or a city. Some of the principles of the town planning are as follows:

1. **Zoning:** the towns are divided are into suitable zones such as commercial zone, industrial zone, residential zone, and certain rules and regulations should be implemented for each zone.

2. **Green-belt:** is a non-developmental zone which is located on the periphery of the town. It usually prevents the chaotic spread of the town, confining its size. A green belt is an invisible line designating a border around a certain area, preventing development of the area and allowing wildlife to return and be established.

3. **Housing:** should be carefully designed to suit the local population and care should be taken to make sure that all the facilities are there inside the housing complex.

4. **Public buildings:** should be well organized and distributed throughout the town. Unnecessary concentration of public buildings should be avoided. Factors such as parking facilities, road widths should be taken into consideration while allocating the space for public buildings.

5. **Recreation centers:** are essential while designing a town. They are necessary for the recreational activities of the public. They include parks, for walking, cycling, amusement parks etc.

6. **Road systems:** road network hierarchy is very important while building a town or a city. The efficiency of any town is measured by the layout of its roads. The provision of a faulty road system in the initial stages of town formation proves to be too difficult and costly to repair to rearrange in future.

7. **Transport facilities:** the town should be provided with suitable transport facilities so that there is minimum loss of time for commuting between the work place and the residence. Efficiency in transport facilities includes both public and private networks. Public transportation network includes access to buses, trains, trams and trolleybuses.

Town planning has gained a lot of importance today. New towns and cities are being developed on a regular basis and it has become very essential for the town planners to concentrate on old development as well as the new development. Energy efficiency in planning should be the goal of every town planner and urban designer for a sustainable living and development.

2.1.2 Requirements Of Urban Planning.

1. Planners must pay attention to the area's environment.

Adding a new space to a community means paying attention to the region's environment. This consists of three essential categories:

Physical environment: This includes the location of the city or town as well as the area's geologic history.

A desert town in California will have different needs than a city with plenty of green space on the coast of the Pacific Northwest. Climate plays a role in a region's physical environment; so does its proximity to water and food sources.

Urban planners must also consider the land's current use. Planners may work with their city's GIS department to obtain terrain mapping data so that they can better understand the area's geography.

Social environment: The existing social fabric of a town or city is a crucial component in the expansion or revitalization of a particular area. Planners must pay attention to the resources available to different demographics in the region, like public transportation.

Economic environment:
Finally, planners need to know what economic factors might help or hinder a city's development. The number and types of businesses will impact how an area is laid out.

Residents' socioeconomic levels as well as any employment or economic trends in a region can help planners develop an urban area.

In other words, a city like Detroit, which has struggled in recent years, will have different needs than a more affluent area, such as Beverly Hills.

2. City planners need to consider city residents.

Urban planning used to rely solely on hand-drawn plats to design spaces. Today, this discipline takes into account other factors, like the goals of a particular region.

The reason for this is simple: when urban spaces began flourishing in the 19th and early 20th centuries, architects and city officials were so concerned about the aesthetic design of the city that they often failed to consider the people it affected.

Later on, however, many cities opted to build expressways in place of historic buildings or neighborhoods, which were often demolished despite public outcry.

This issue continues today, despite state and federal efforts to preserve important landmarks.

Today, cities involve their residents in planning and revitalization efforts in a process known as participatory planning. This gives designers and city residents the chance to have a say in the city's plans, thereby improving public awareness surrounding current plans.

For instance, the residents of a quaint, historic neighbourhood may not want a big-box retail store in their back yards, but those living in a rural area may demand such developments.

3. Plans should be forward-thinking.

Consideration for current residents is important, in that taxpayers want to have a say in decisions that impact them. However, city planners also need to look to the future.

An urban planning official will monitor population trends to determine the space needed for future constructions.

If the population is going up and a developer wants to build apartment buildings downtown, they may need to build high-rises rather than smaller two-story buildings if they want to accommodate future growth. Similarly, increases in tourism would call for additional hotels and events venues.

Ultimately, planners look to a specific outcome rather than a timeframe. They know that the population might increase, but it could be in five years or 20 years.

In order to predict such fluctuations, planners may look to data to track changes, such as new constructions or demolitions, in an area over time.

Sioux Falls, South Dakota, has become one of the fastest growing cities in the United States. Between 2000 and 2016, it saw an estimated 29% population increase.

Learn how GIS professionals and planners in Minnehaha County tackle urban planning challenges throughout their jurisdiction.

4. Areas in need of renewal need special consideration.

Many struggling cities in the United States are part of the trend toward urban renewal. This can involve either renovating existing structuring or demolishing them to make way for new buildings.

Urban planners especially need to keep in mind the history of the area's buildings. Although a building may be in disrepair, it could be a historic site or landmark. City residents may want to preserve the area in favor of building a new strip mall or, as mentioned previously, an expressway.

Many planners also keep in mind the tax incentives available to different regions. Tax credits help fund sustainable or green designs and provide better access to public transportation or low- to moderate-income housing. Some incentives also help encourage small businesses to open in particular neighborhoods or regions.

In the event of a natural disaster, urban planning professionals may play a role in recovery and mitigation efforts. These include rebuilding roads, updating building codes, and strengthening the overall resiliency of a jurisdiction.

Find out how one county is recovering following Hurricane Harvey.
5. Urban planners need the right tools at their disposal to do their jobs.

The U.S. Bureau of Labor Statistics lists the median salary of an urban planner at $71,490 as of 2017, and that figure could increase as the demand for sustainable urban plans grows. Although not all planners go to graduate school, many have at least a master's degree in planning.

In addition to education, planners must know how to create effective plans for current and future residents. Much of this comes down to having the right data.

Planners and other officials often employ a number of GIS solutions that include high-resolution aerial imagery for planning and mapping.

High-resolution oblique aerial imagery enables users to view, analyze, and measure objects seen in imagery. Three-dimensional models use the most up-to-date imagery and can be delivered in a variety of 3D file formats.

Not only are these tools ideal for those in urban planning and development, but they can be used for emergency planning, terrain analysis, and subsurface infrastructure engineering studies.

In addition, these tools are utilized in managing high-profile events, like sports tournaments, conventions, or visits from world leaders. These are issues that urban planners in any city must anticipate.

Orthogonal imagery is a critical element found in all county and municipal planning projects. But what planning professionals may not realize is that the right aerial imagery can make a world of difference.

2.2 Types of Plan

2.2.1 Types of Plans

There are number of plans available to direct the development in an urban or rural areas. The levels at which they operate is different & similarly the nature and details provided in each type is different. Hierarchy and Types of Plans are explained below

Master plan :

A coordinated act of planning proposals, for the physical development of a city, via the purposeful transformation of its socio-economic, natural and built environment, taking into consideration the existing requirements and the future needs , with population as the basic parameter.

Contents of the master plan

- extent of planning area
- immediate surrounding area and its effects
- broad delineation of the land use
- major circulation pattern of the city
- major work centers
- delineation of high and low population density zones
- zone and sub zone divisions
- development codes and norms
- allocation o land for various use zones

- policies and proposals for development

Main functions of the plan:

- to develop the town or city as a combined unit and maintain a balance b/w the spatial allocations for the distribution of facilities
- formulation of policies for the development of the town/city, aiming at the decentralisation of city centre
- presenting broad circulation links, for inter-city & intra-city traffic and a multi modal mass transport system
- Preservation of the natural features of the city
- division of the city in sub-divisions or zones.

Zonal development plans:

The master plan divides the city into sub-divisions or zones

Criteria's followed are:

1. physical & historical growth
2. character of land
3. intensity of land – use
4. circulation pattern (railways , major arteries etc.)
5. municipal boundaries , election & census wards

Contents of a zonal plan

- land use plan confirming to the master plan
- location and extent of land uses
- more detailed circulation pattern
- special objectives of the zone if any
- allocation of use zones into further use premises

Functions of a zonal plan

- A zonal development plan details out and elaborates the policies of the master plan
- Acts as a link between the master plan and the layout plans
- Contains a land-use plan for the development of the zone and show the approximate locations and extents of land-uses proposed in the zone
- The schemes and layout plans indicating use premises should confirm to the master plan

Local area plan

A local area plan (lap) sets out a strategy for the proper planning and sustainable development of a specific area within a local authority and for a timescale as specified by the authority.

Contents of a local area plan

1. Land use zoning & density
2. Public open space
3. Private open space
4. Car parking
5. Provision of infrastructure
6. Conservation of built heritage
7. Conservation of natural environment
8. Provision of traveller accommodation
9. Community facilities
10. Design & development standards.

Functions of a local area plan

- a local area plans gives plot level detail
- it is also used to check if the master plan is confirming with land.

A sector plan consists of a group of neighbourhoods where it is possible to provide higher order facilities for larger population

Contents of a sector plan

- it is a detailed site plan with broad identification of residential clusters
- Allocation of commercial areas and other facilities based on access requirement
- Formation of a boundary depending on circulation pattern and administrative setup
- Social and physical infrastructure to be allocated based on development control norms laid down in master plan
- Traffic links to be identified between arterials and collector roads

Functions of a sector plan

- Each sector plan has to identify the various neighbourhoods with population ranging from 3500-15000
- It is the lowest level plan for the implementation of the various levels of planning proposals extensively detailed out

THE FOLLOWING TABLE SHOWS THE LEVEL OF DETAILS OF VARIOUS USES IN DIFFERENT LEVELS OF PLANS

PLANNING LEVEL / CIRCULATION LINKS	RAILWAYS	NATIONAL / STATE HIGHWAY 90-100 m	ARTERIAL ROAD 50 - 60m R/W	SUB-ARTERIAL ROAD 30-40 m R/W	COLLECTOR ROAD 20-30 m R/W	LOCAL ROADS 9-20 m R/W
MASTER PLAN	●	●	●	●		
ZONAL PLAN		●	●	●	●	
SECTOR PLAN				●	●	
NEIGHBOURHOOD PLAN					●	●

PLANNING LEVEL / OPEN SPACES	FOREST AREA / GREEN BELT	REGIONAL PARKS	DISTRICT PARKS	COMMUNITY PARK / PLAY GROUND	HOUSING AREA PARK	TOT-LOT
MASTER PLAN	●	●	●			
ZONAL PLAN			●	●	●	
SECTOR PLAN				●	●	
NEIGHBOURHOOD PLAN					●	●

PLANNING LEVEL / OPEN SPACES	CBD	SUB-CBD	DISTRICT CENTRES	COMMUNITY CENTRE	LSC	CSC
MASTER PLAN	●	●	●			
ZONAL PLAN			●	●		
SECTOR PLAN				●	●	
NEIGHBOURHOOD PLAN					●	●

PLANNING LEVEL / OPEN SPACES	GENERAL HOSPITAL	INTERM HOSPITAL A	INTERM HOSPITAL B	POLY CLINIC	NURSING HOME	DISPENSARY
MASTER PLAN	●	●	●			
ZONAL PLAN	●	●	●			
SECTOR PLAN				●	●	
NEIGHBOURHOOD PLAN					●	●

2.3 Level of Plans

There are three planning levels:

- National
- Regional
- Local

LEVELS OF PLANNING

To maintain the continuity in the planning process, following **Levels** of planning are considered;

1. Local planning

2. Country planning

3. Regional planning

4. National planning

5. International planning

LOCAL PLANNING

Planning is based on creation of healthful living and working environment for the majority of the inhabitants of the town with due consideration to the physical background, economic limitations, public administration, finance and change in technology, etc.

The development plan for city or town aims at proper distribution of population densities, regulation of green belts, suitable division of the area in various zone of the area in various zone, etc.

REGIONAL PLANNING

Regional planning helps in controlling and reshaping major towns in the region.

Term region is used to define as an area separated not merely or exclusively by natural boundaries but equally by political or administrative boundaries.

Four methods of determining a region is advocated;
1. Geographic boundaries,
2. Economic considerations,
3. Administrative convenience, and
4. Metropolitan influence.

REGIONAL PLANNING

❖ It avoids the wasteful duplication of facilities.
❖ It ensures the most profitable utilization of the resources at minimum expense for the maximum benefit.
❖ Provides information regarding the economic functions.
❖ It grants mutual control over the areas in the region.
❖ It grants planned and harmonious development.
❖ It involves planning in terms of regional dimensions.
❖ It reveals new town-planning and building principles.
❖ It serves as a link of co-operation and co-ordination between the areas of the region.

Country planning cannot be divorced from town and regional planning, because the town and country are not two separate entities but are complementary to each other

NATIONAL PLANNING

National planning involves careful study of the social, education, economic, industrial and other problems facing a country and suggests measures to be adopted to obtain realistic solution thereto.

It accounts for country's existing and potential resources in men, materials, power, manufacturing industry, etc and draw out a phased programme of action for achieving the targets set in the various spheres of activity.

whole country is considered as a single unit and an overall picture of development is kept in view, while striving to strike a balance between the various states

In India, the various five year plans are an example of National Planning.

NATIONAL PLANNING

Vision:
A. Development of nation in terms of its administrative or political system.

B. Development of various economic sectors such as agriculture, fishing, mining, quarrying, etc.

C. Developments in terms of social sector such as clothing, housing, food, education, health, employment, recreation, etc.

D. Development at various level i.e. international level to local level or vice versa.

INTERNATIONAL PLANNING

✓International planning came in to picture with the formation of United Nation Organization (UNO).

✓It involves numerous study and surveys in the fields such as health, education, housing, food and agriculture.

✓The studies helps in finding out remedies and solutions of complicated problems at an international level.

UNESCO, WHO, LIC, GROUP 8 SUMMIT, SAARC, UNISEF

2.4 Stages in Planning Process

Simplified URBAN PLANNING PROCESS
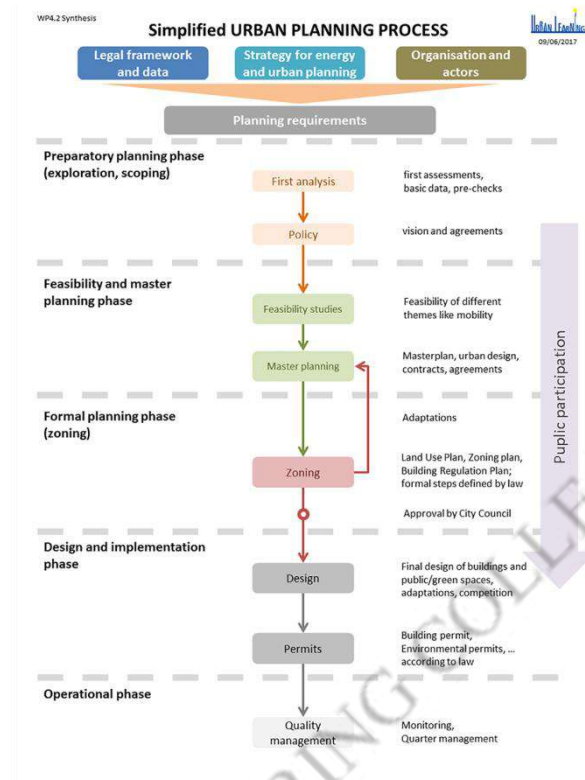
Stages of the Planning Process
Use as a guide to develop 5-10 year program plans, or to revise existing plans
Stage 1: Identify problems and needs Stage 2: Develop goals and objectives Stage 3: Develop alternative strategies Stage 4: Select strategies and develop a detailed plan Stage 5: Design a monitoring and evaluation plan

The advantages of using this sequence of decision-making steps include:

- Clarification — Serves as a communication tool to inform the community, village or town about future activities.
- Control — Minimizes uncertainties since the planner must carefully weigh alternative courses of action.
- Management — A useful method of allocating limited resources.
- Evaluation — Encourages periodical assessments of progress in meeting intended objectives.

2.4.1 Identification of the Problem

At this stage, the planner(s) and community leaders collect information to assess problems and needs. A variety of techniques may be used:

- Conduct surveys — Using a complete census of a given area, or sample surveys that focus on problems/concerns
- Hold community, village or town meetings — Identify key problems and issues
- Conduct interviews — With others who are involved or concerned such as other government agencies, non-government organizations, and community groups
- Use secondary data — Census or prior survey data to identify problems and needs

The planner and team see that many problems exist. The planner must work with staff and residents to select problems requiring attention. The planner needs to ask a number of questions at this stage to clarify the problem(s):

- What is the main problem of concern?
- Why is it a problem?
- Are existing resources available to eliminate the problem?
- Is another agency or organization trying to solve the problem?
- How severe is the problem?

It is important to realize that problems are not always what they seem to be at first glance. Detailed investigations, in addition to a consensus with community members, are needed prior to proceeding to the next stage.

2.4.2 Goals and objectives

Once the problems have been identified and agreed upon, the planner develops goals and objectives to alleviate the problem or needs. Goals are usually accompanied by detailed and specific objectives.

Definition: Goals are broad statements of desired accomplishments. Goals are usually accompanied by detailed and specific objectives.

In general, objectives can be defined as specific, measurable accomplishments to be achieved within a given time period. Developing clear objectives provides the guidelines for measuring progress and achievements. Objectives are written best if they are S.M.A.R.T.

S.M.A.R.T. Objectives

- Specific — Indicates the target population for given services.
- Measurable — Indicates how many will be targeted.
- Area-specific — Indicates the geographic location of the target population or community.
- Realistic — Takes into account existing resources, and has the support of the target population or community involved.
- Time-Bound — Should indicate the time period when accomplishments will be achieved.

Examples of goals and objectives:

2.4.3 Development of Alternative Solutions

There are several ways to achieve goals and objectives. At this stage the planner working with staff and community leaders, comes up with a list of alternative strategies to achieve the goals and objectives. There are 3 basic ways to collect information for this activity:

1. Investigate ways that other agencies and communities are achieving similar objectives.
2. Have staff and others generate ideas based on their personal experience.
3. Use knowledge gained from demonstration or pilot projects that offer possibilities in achieving the intended goals and objectives.

Once alternative strategies have been identified, evaluate each to determine which is the most appropriate for achieving goals and objectives. There are a number of ways to evaluate each alternative strategy.

- Financial considerations
  How much would it cost to implement?
- Available resources
  Are staff, money, and time to implement available?
- Target population
  Will the target population accept the given strategy?
- Social costs
  What are the long term positive and negative consequences of the strategy to the target population?
- Intended objectives
  Will it achieve the intended objectives?

2.4.4 Selection of Strategies and Development of Detail Plan

Once a strategy (or group of strategies) has been selected, a detail plan to implement the strategy is developed. The development of the plan requires four types of activities:

1. Programming: Identify the activities or tasks that need to be completed in order to reach the desired objectives. In many cases, several major tasks or activities are required to achieve each objective. Activities then need to be put into the order in which they should be completed.

2. Allocating resources: Determine and assign the resources needed to implement the activities. Resources are normally divided into three general categories: *human*, *physical (materials, facilities and equipment)* and *financial*. In planning, both internal as well as external resources are identified. While it is important to identify resources within the organization to carry out specified activities, other public and private sector agencies can also play major roles in implementing the plan. Community members can also contribute to planning and implementation activities.

3. Scheduling: Establish the required time needed to complete each activity. This will involve an assessment of how long each task takes to be completed.

4. Fixing accountability: Determine specific individual and/or agencies/institutions responsible for the accomplishment of activities. Simple devices can be used to indicate tasks and planned completion time such as Gantt charts, which indicate tasks vertically (Y-axis) and time horizontally (X-axis).

2.4.5 Monitoring and Evaluation

Monitoring and evaluation help guide the following kinds of decisions:

- Continue or discontinue a program or component of a plan
- Improve existing programs/plans
- Add or drop a component or an entire program
- Institute a similar program elsewhere
- Reallocate resources among competing programs or program components

There are two types of evaluations:

1. Process evaluation: Helps program managers and policy makers redirect program activities to achieve desired goals. Process evaluation is concerned with the efficient use of resources such as personnel and equipment, and focuses on reducing waste and making more productive use of scarce resources. It is primarily concerned with finding better ways of implementing the plan.

2. Impact evaluations: Measure whether or not the plan is having an impact on the target population or environment. It is concerned with program effectiveness, that is, whether or not the plan is achieving its objectives.

Some people also refer to monitoring programs as a form of evaluation. Monitoring simply tracks the progress of program implementation and operation.

It usually entails the development of an information system that is updated periodically to meet reporting requirements of certain activities, such as the expenditure of funds, the number of participants, allocation of staff to given tasks, and the completion of given tasks. Evaluation, however, is more concerned with addressing specific decisions concerning program success.

Program evaluations are successful if the following three conditions are met:

1. Program objectives are well defined in terms of specific measures of program performance
2. Intended uses of evaluations are well-defined, and
3. Monitoring and evaluation plans are developed.

Include an evaluation strategy in the plan to determine if goals and objectives are being achieved. The plan should include a time frame and budget for monitoring and evaluation.

2.4.6 Developing a Simple Monitoring and Evaluation Plan

1. Time Frame: Develop a schedule for monitoring and evaluating the plan. Determine how often it is necessary to monitor and evaluate progress in achieving each objective.
2. Indicators: Develop indicators to measure progress in achieving each S.M.A.R.T. objective. If one of the objectives is to build 30 homes for residents, an indicator or measure of success could be the number of homes built.
3. Data sources: Indicate the types of information needed to measure indicators. How will the information be collected? Are service statistics, census data, sample surveys, and/or community focus group meetings.

4. Means of analysis: Once data are collected, identify ways to analyze it and produce reports.
5. Reporting: Identify ways to present the findings to different audiences within the community, village and/or regional office. Which method will be used to report findings? *...In addition verbal reports in meetings? Written reports?* In addition, determine who will receive the reports.
6. Assigning responsible person(s): Identify and train, if necessary, individuals to implement the monitoring and evaluation strategy.

The planning process is a continuous cycle. The outcome of monitoring and evaluation efforts can provide new information to revise plans and programs.

2.5 Typical goals and objectives

The primary obligation of urban planners is to serve the common good.

Urban planners strive to advance the art and science of urban planning for the benefit of the citizens of the town or city and related environs and, while allowed to act as an advocate for a project, should always seek to secure the delivery of proper planning and sustainable development, pursue quality place making for people and respect diversity in cultures, ecosystems and the built environment.

Some of the typical goals/objectives of the urban planner include:

- Creating policies and objectives to control and guide the optimal growth of the city or urban area, in a sustainable, socially and economically progressive manner, that facilitates quality of life and safety for all citizens;
- Managing development and helping to create affordable housing;
- Playing a role in regenerating socially-deprived areas and creating new jobs;
- Designing towns and cities to include attractive buildings, vibrant public spaces and successful commercial and retail activities (healthy and dynamic urban areas);
- Working to protect the wider urban environment;
- Helping to bring back historic buildings into sympathetic use;
- Creating policies for managing traffic and providing sustainable solutions to transport needs;
- Improving energy efficiency and cutting carbon emissions in homes, factories and businesses;
- Engaging communities to have a say in how their living space is developed and protected to improve their quality of life.

2.6 Delineation of formal region

Regional Delineation was defined as determination of boundary.

Regional delineation is the first step in the preparation of any regional development plan to ensure tentative operational area of planning. Within the planning region the frame of all regional studies could be undertaken and development envisaged.

Delineation of formal regions involves the grouping together of local units which have similar characteristics according to certain clearly defined criteria and which differ significantly from the units outside the region on the basis of certain chosen criteria.

i.   The criteria can be unemployment rates, activity rate, migration trends, per capita income etc.
ii. The characteristics should differ significantly from units outside the region.
iii. Two techniques for delineation of formal regions are detailed below.

The delineation depends on the development objectives.

Variables for delineation of formal region (homogeneous):
i.   Land use characteristics

ii. Demographic characteristics

iii. Transport infrastructure

iv. Social service and public utilities

v.   Socio-economic structures

2.6.1 Methods for Delineation of formal regions

A. Weighted index number methods
B. Factor analysis

A. The Weighted Index Number Method

- The study area is divided into several localities varying according to unemployment rates and per capita income levels.
- The aim is to isolate the main problem region; i.e. the area of economic malaise.
- Weights are assigned to each criteria and when taken together and weighted, one of the region can be isolated.

B. The Factor Analysis method

- Used for delineating economic health regions.
- Smith identified 14 industrial criteria on a local employment exchange area base and 14 socio-economic criteria on a local authority base.

- Many of these criteria are interdependent. The factor analysis method can be used to isolate these factors and to group areas on the basis of factor loadings.
- Smith identified 'industrial change' and industrial structure' as major industrial factors, and 'population change' and 'social structure' as major socio-economic factors.
- These factors help in delineating economic health regions.

Two approaches of functional regionalization

- Gravitational analysis based on theoretical observations,
- Flow analysis based on actual observation of what people do

2.7 Surveys and Questionnaire Design

2.7.1 Creating and Designing of Survey in Urban Planning

 A **survey** usually has its beginnings when a person, company or organization faces a need for information and there is no existing data that is sufficient. Take into account the following recommendations:

- **Define objective:** The survey would have no meaning if the objective and the end result was not planned before administering the survey. The methodology has to be planned for and broken down into actionable milestones as well as the sample planned for. Appropriate distribution methods for these samples also have to be put in place right at the outset.
- **The number of questions:** The number of questions used in a market research study is dependent on the end objective of the research. It is important to note, not to ask redundant questions or questions where the answers are already known. The length of the survey has to be dictated only by the core data metrics that have to be collected.
- **Simple language:** One factor that can cause a high survey dropout rate is if the complex language is used or if the respondent finds the language uncomfortable to understand. Therefore, it is imperative to use easily understandable text in the survey.
- **Question types:** There are several types of questions can be used in a survey. It is important to use the question types that offer the most value to the research whilst being the easiest to understand and answer to a respondent. Using close-ended questions like the Net Promoter Score (NPS) questions or multiple-choice questions help increase the survey response rate.

- **Consistent scales:** If you use rating scale questions, make sure that the scales are consistent throughout the research study. Using scales from -5 to +5 in one question and -3 to +3 in another question may confuse a respondent.
- **Survey Logic:** Logic is one of the most important aspects of the survey design. If the logic is flawed, respondents are put off from continuing with the survey. Logic has to be applied and tested to ensure that on selecting an option, only the next logical question shows up.

2.7.2 Questionnaire for your survey

Effective questions are the cornerstone for the success of any survey and subsequently, any research study.

The characteristics of the survey questions are as follows:

- **Data collection:** Whether it an email survey, SMS survey, web intercept survey or a mobile app survey, the single common denominator that determines how effectively you are able to collect accurate and complete responses is your survey questions and their types.
- **Fundamental levels of measurement scales:** There are four measurement scales that are fundamental to creating a multiple-choice question in a survey. They are nominal, ordinal, interval and ratio measurement scales without the fundamentals of which, no multiple-choice questions can be created. Hence, it is important to understand these levels of measurement to be able to create a robust survey.
- **Use of different question types:** Multiple choice questions are the most common type of survey questions, in which, some of the popular question types are: dichotomous question, semantic differential scale question, rank order questions, and rating scale questions. Open-ended questions are used to collect in-depth qualitative data.
- **Administering the survey:** It is important to plan the type of survey to ensure you get the optimum number of responses required for your survey. It could be a mix of interviews and questions or a questionnaire. Interviews could be telephone interviews, face-to-face interviews, online interviews, and questionnaires can be mall surveys or web surveys. The underlying difference between a survey and a questionnaire is that a questionnaire may or may not be delivered in the form of a survey, but a survey always consists of a questionnaire.

2.7. 3 Case Study:

Questionnaires for the Policy Paper on Urban Strategic Planning – INPUTS FROM THE CITIES

Response of the city of Delhi, India

1. Introduction	
1.1 Are you following a City Development strategy (CDS) or another kind of urban development plan? Please list them.	In December 2005, the Government of India had launched a national flagship programme called Jawaharlal Nehru National Urban Renewal Mission (JNNURM) which covers 65 cities in India including all the Metros. It envisages a total investment of over $20 billion over a period of seven years (2005-12). All the 65 cities are expected to formulate a City Development Plan (CDP) as a pre- requisite before submitting request for funds for various projects. The CDP is based on an assessment of the existing situation, and outlines a vision for development, strategies for achieving this; indicative investment requirements and financial operating plans, indicating how investments made are to be sustained. The CDP will facilitate identification of projects. The ULBs/ parastatal agencies prepare DPR for the projects.
1.2 Why did you create a City Development Strategy (CDS)?	This was a pre-requisite for seeking grant funds for investments for various infrastructure projects under JNNURM.
1.3 Who is responsible for the strategy?	Urban Local Bodies are responsible for preparing City Development Plans with the involvement of all the stakeholders in the city.
2. General context	

2.1 Has your city/ association recently undergone political, economic, spatial or sociological changes which raised your awareness concerning planning processes? Could you briefly describe them?	In India the process of decentralisation and empowering both rural and urban local bodies started in 1992 with the 73rd and 74th Constitutional Amendment Act passed by the Indian Parliament. One of the key provisions in these Acts was the setting up of District Planning Committees and Metropolitan Planning Committees. Of the 29 States in India 18 states so far have passed necessary legislations for setting up the District Planning Committees which will take up the task of preparing Integrated District Development Plans which also will include Local Development Plans for
	urban settlements both in towns and cities as well as in peri-urban areas. The work for IDDP and LDP has been taken up by some of the DPCs in some States including the States of Kerala, West Bengal and Goa. Similarly, the Metropolitan Committees in some states have started functioning recently.
2.2 Is your country (and city) undergoing a decentralization process, aimed at empowering institutional and technical capacities of Local Governments?	As explained in section 2.1 the process of decentralisation of both urban and rural local bodies started in 1992 empowering these bodies politically by ensuring regular elections, devolving various functions and giving more fiscal powers and transfer of funds thus strengthening their organisational, institutional and local functions. The Constitution of India was amended through passing 73rd and 74th Constitutional Amendment Acts, in 1992.

2.3 What are the planning competences of local governments (urban planning/budget planning)? Are planning tasks and institutions of local and national governments related?	So far most of the cities have been preparing Master Plans which were mainly land use plans. The Economic and Social Plans or sectoral plans did not receive the desired focus. However, with the renewed emphasis on Local Development Plans and integrated district development plans and the Metropolitan Planning in the Metropolitan Planning Areas the Master Plans will become an integral part of the IDDP which will include Social and Economic Development Plans. The district development plans are the lowest in hierarchy. These will be part of the State Development Plans and ultimately the National Economic Development Plan which is put together by the Planning Commission of the Government of India thus creating a balance between Bottom to top and top to bottom planning process.
If your city is still in the process of defining a CDS, please go directly at the end of the document. **If CDS or other strategic plans were already carried out in your city, please continue to answer the next sections.**	For cities without CDS
3. City vision and leadership	
3.1 Did you enforce a vision statement reflecting unique and singular values of your city? Did it help you to make strategic choices?	The City Development Plan/Strategy of the City of Delhi outlines Strategies across sectors to achieve the vision below. "To become a highly liveable city that offers a superior quality of life through a robust, employment generating economy; that is safe and inclusive, environmentally and socially sustainable; and is based on reliable infrastructure and offers a transparent, responsive system of governance dedicated to the city's felt needs."

3.2 Did political lobbying (up/down; internal/external) and leadership play a role in the implementation of your strategic plan?	The leadership of the City Mayor of Delhi and the elected Municipal Councillors of the Municipal Corporation at the City level and the Chief Minister of the National Capital Territory (NCT) of Delhi at the State level and the National Government through various line ministries play a very important role in the implementation of the City Development Plan.
4.Establishment of a diagnosis and objectives	
4.1 When and why did your city realize the necessity to establish a diagnosis to identify the main problems?	City Assessment relating to Basic Services for the Urban Poor was carried out while preparing CDS. On the basis of this assessment, an analysis of the strengths, weaknesses, opportunities and threats to the city was undertaken. SWOT analysis brought out degrading urban environment, haphazard growth of the city due to lack of provision of developed land and Infrastructure inadequacies in the water supply, sewerage, solid waste, drainage and transport.
4.2 What were the objectives of the City Development Strategy? Which ones were achieved, which ones not? Which achievements were unexpected? Which were too ambitious?	The goals of the City Development Plan of Delhi include a collective city vision and action plan aimed at improving urban governance and management, increasing investment to expand employment and services, and systematic and sustained reduction in urban poverty. In order to achieve the above goals, the objectives of the CDP are to: • Guide & promote economic development of the city; • Develop a consensus building process to establish the city's development priority, strategies and actions;

	• Assist local authorities outline their financing and investment strategies; and build local capacity for more effective urban management. Improving urban governance and management is highly ambitious as there are several urban local bodies which include Municipal Corporation of Delhi, Delhi Development Authority, New Delhi Municipal Council, Delhi Cantonment Board, Delhi Urban Arts Commission, Public Works Department. Coordination among them and coordination with the State and National Government and its line Ministries is the biggest Challenge for the smooth implementation of CDS.
4.3 Did your city set up proper targets and specific indicators in order to measure the necessary performance? Which one? Could you attach it?	As part of the CDP a capital investment plan has been prepared for various sectors. These related to (a) Urban Infrastructure and Governance and (b) Basic Services to the Urban Poor. The shares of major sectors are water supply (7%); sewerage (11.5%); road network & transportation (56%); and urban poor and slums (18%) respectively. However, the City Development Plan which ultimately becomes an integral part of the National Economic Development Plan has specific physical targets to be achieved and for each sector both financial and physical targets are set and duly monitored based on the indicators for each sector separately.
5. Definition of an action plan	
5.1 Could you describe the most important methodological instruments you employed and why they were useful to carry out the strategy?	Action Plan for Greening Delhi, an action plan for cleaning river Yamuna passing through Delhi, action plan for conserving heritage sites of Delhi have been specifically prepared

5.2 Which role did the private sector play in the definition of the action plan?	Private sector is involved in the implementation of various projects through public-private partnerships as well as through other mechanisms of direct investments for implementing various projects.
5.3 How were the other city actors (experts, urban dwellers) involved in the planning process (involved in meetings, consultation, and oral /written participation…)?	Multi-stakeholder Forums for consultations. These include Residents' Welfare Associations (RWAs). The city has a scheme called 'Bhagidari' which means 'Partnership'. The objective of the scheme is to engage with the civil society for their participation in various developmental programmes and activities from concept to implementation and completion of various project initiatives.
5.4 In which steps of the process were they involved? What were the objectives of the promotion of citizen participation?	As mentioned in section 5.3 people participation is from planning to implementation of the projects.

5.5 Did the strategic plan generate new/specific institutional structures (such as agencies for strategic planning or economic promotion)? Could you shortly describe it?	with the aim of framing policies and strategies for conservation, appropriate action plans and 'Special Development Plans' have been prepared by all the agencies concerned with the protection of Delhi's built heritage such as the Archaeological Survey of India, Government of NCT of Delhi, Department of Archaeology, MCD, NDMC, Cantonment Board and DDA. The DDA has formulated and financed the implementation of proposals for designated heritage resources with the assistance of INTACH and other organizations (MCD, DJB, DTTDC). The institutional framework for urban management in Delhi consists of a multiplicity of agencies, at both central and state levels, responsible for various aspects of planning, land management, urban infrastructure and its management. The institutions/agencies involved in performing city level functions include Central Government Agencies and State Government Agencies. Owing to multiplicity of organizations there is a lack of coordination and no common data base for management. In addition there are conflicting and overlapping jurisdictions e.g. There are three different agencies which are responsible for storm water drainage in the city
5.6 In the spirit of increased intergovernmental relations, is your city aligning its planning policy with national and provincial priorities (such as spatial development or economic competition)? If not, what are the main difficulties?	As the city is dependent heavily on the fiscal transfers from the higher levels of government i.e. both the State and the Centre, and the City Plan ultimately becomes an integral part of the National plan, the City has to adjust its priorities also keeping in view the National and State level priorities. Judicial Activism has also forced Cities in India to reprioritise their plans particularly relating to issues of environment etc. The City of Delhi had to reprioritise its plans for Solid Waste Management, River Cleaning Programme, Spatial Plan (Master plan) and many other areas including introduction of CNG for city public transport vehicles etc.

6. Content of the plan	
6.1 Were you formulating binding decisions or general orientations?	Specific Targeting with investment plans aim at formulating binding decisions. However, there are many a time slips which result in shortfalls and gaps in meeting the targets/ goals.
6.2 Could you list 3 maximum 10 of the most important projects you carried out in your city? Please indicate for each the most relevant field of outcomes :	1. URBAN INFRASTRUCTURE AND GOVERNANCE This covered Water Supply, Sewerage, Road Network and Transportation System, Storm Water Drainage , Solid Waste Management, Heritage and Conservation, City Environment, And Urban Governance. City becoming more liveable. 2. Basic Services for the urban poor include up gradation of slums by providing secure tenure, water and sanitation, primary health care and basic education, street lighting and drainage. Overall city life is improving with enhanced livelihood opportunities for the urban poor 3. Public transport : Mass Rail Transit System for the City of Delhi is getting completed by 2010. City Bus service has improved thus reducing pressure on individual transport such as cars and motor bikes etc.
7. Investment and Implementation	
7.1 To what extent does the strategy help direct the capital and operating budget of your city?	The strategy has helped in attracting FDI and also generating greater interest of the donors as well as the bilateral and multilateral stakeholders.

7.2 Please indicate the sources to finance your plan, first in its creation and then in its implementation:	JNNURM investments of the national and state governments are helping the city in implementing the strategy. Private sector investments in building activity as well as in other economic sectors is fast growing.
7.3 Has the strategy been helpful to channel public and private investments on urban infrastructure, services and housing (e.g. urban renewal or new developments)?	As stated in 7.2, the strategy is directing these investments in improving the city infrastructure.
8. Sharing of experiences	
8.1 If you would reinitiate the process by today, what would you repeat, what not? Please recall two interesting singular lessons that might interest other cities/ association?	Participation of all stake holders in preparing the strategy. Most cities got the CDS prepared with the help of consultants who used templates of other cities in preparing CDPs in a short time but in the process lost vision for the city as such. This needs to be totally avoided. Building capacity of the local government itself in the planning process.
8.2 Does your city/ organization intend to support another local government, from your country or abroad? Which one(s)? Has your city been itself influenced by the experience of another national or local authority? Which one(s)?	City-to-city cooperation should help. Peer Review by other cities and also sharing of knowledge will help improving the strategy.
8.3 Is your city participating in any strategic planning association/network? Which one(s)?	The city is partnering with several European cities for learning in many areas.