

Hierarchy of urban centers - Rank-size rule - Central place theory - Urban Problems - Slums - Urban Planning.

## URBAN HIERARCHY

### Introduction:

The concept of Urban System was introduced by Brian J.L. Berry (1964) in his noteworthy work “Cities as systems within systems of cities”. Urban places do not exist in isolation. There is a whole series of different types of relationship between separate towns and cities and we use the term urban system to indicate that the individual urban centers are linked to each other (Short 1984). The urban centers play a significant role in social and economic transformation, and geographic shift of population. With the increase of population globally, towns and cities have become magnets of economic, social and political processes. ‘At national level cities are part of a complex system of interrelated urban places and the key elements in economic, social and political organization of regions and nations. The interdependence among towns and cities makes it important to view a country as a systems of urban place rather than as a series of independent settlements’ (Pacione 2009: 121).

Urban system is defined as any network of interdependent urban places. The nature of interdependent urban places. The nature of interdependence among urban place may be economic, political, social or cultural. In the system of cities, the changes taking place in one city such as population, economy, employment structure, etc. will have consequences on other cities in the system. The idea of urban hierarchy is central to the concept of urban system. The urban hierarchy concept considers that the urban places vary in population sizes and economic functions. The analysis of urban hierarchy mainly relates to the ranked order of cities based on different criteria, such as population size, economic power, retail sales and number of industrial workers (Kaplan etal. 2004).

### RANK SIZE RULE

#### Rank-Size Settlement Systems

The concept of rank-size settlement system was suggested by G K ZIPF in 1949. He proposed that if all urban settlements in an area are arranged in descending order of their population, the population of the  $n^{\text{th}}$  ranking town will be  $1/n$  of the largest city. Thus the population series will be  $p, p/2, p/3 \dots P/n$  where  $P =$  population of the largest city (Primate city).

$$P_n = P_1/n$$

$P_1 =$  Primate city population  $N =$  rank

$P_n =$  Population of  $n^{\text{th}}$  ranking city

The rank-size rule addresses itself to two vital questions:

1. Why larger settlements are fewer in number?
2. What is the relationship between larger and smaller settlements?

The explanation to both these questions is based on the appreciation of forces of diversification and unification.

### **Forces of Diversification**

The location of small settlements is generally determined by nearness to the source of raw materials. In such a situation, where primary economic activities predominate, land becomes the basic raw material or resource. Land is tilled by farmers to produce food and other basic necessities of life. A present society rooted to the land merges with a large number of village settlements within walking distance of each other. Similarly, apart from agriculture, other primary activities such as mining, fishing and forestry also generate dispersed settlements of small size at regular intervals of distance. As society advances, secondary production makes it possible to locate settlements of greater distances from the source of raw materials. Thus, the settlements specializing in secondary production can be located farther apart, and also be larger in terms of population. Nevertheless, a wide range of secondary economic activities must be located near the source of raw materials so that the costs of transportation can be minimized. Secondary economic activities generate settlements of large size and greater distances apart as compared to primary activities.

### **Forces of Unification**

In contrast to the forces of diversification, the forces of unification result in the emergence of few large settlements. Here, the focus is on tertiary economic activities. Nearness to the market, rather than the source of raw materials, is the determining factor in the location of settlements. The size of market is measured by the population of the settlement itself. Thus, a large settlement in itself constitutes a large market. Tertiary activities, such as education, health and administration, are all consumer-oriented and tend to be concentrated in large cities. In recent times, a wide range of secondary activities have acquired a market orientation (for example, electronic and engineering goods and information technology industries). These secondary economic activities also tend to concentrate in large metropolitan cities. These forces lead to the emergence of a few very large cities. Higher degree of primacy suggests the presence of strong centripetal forces and hence greater tendency towards agglomeration and unification. ( $i > 1$ .) Absence of primacy suggests the existence of centrifugal forces and their greater tendency towards diversification. ( $i > 0, i < 1$ ).

A balance between the two forces i.e. of unification and diversification could result into the creation of an ideal urban system ( $i = 0$ ), which is possibly desirable and may be aimed at by the urban planners and policy makers.

### **Rank-Size Rule and Application**

Zipf studied urban pattern in many countries before propounding this law. It works better in larger countries like the US and Soviet Union. It also works well in countries with long urban history and in areas that have a more complex social and economic system.

### **Exceptions**

1. Where primate cities are there in smaller countries – This pattern could disrupt at least (1) & (2) levels – e.g. France, Mexico

2. When one or more of the city size groupings are missing

e.g. Australia – only big cities are there, no small cities Canada – only big and small cities, no intermediate ones. So, the rule will not apply.

## **Rank-size relationship in India.**

The rank-size relationship is absent in India at the national level as the population size of Mumbai, Kolkata and Delhi is very close to each other. Moreover, a great majority of states in India also do not conform to the rank-size rule. In fact, primacy exists in at least 15 out of the 29 states of India and in another eight states (Bihar, Kerala, M.P., Punjab, Orissa, Goa, Arunachal Pradesh and Nagaland) the leading city is only just larger than the second city. In Kerala, the three cities of Cochin, Calicut, and Thiruvananthapuram (Trivandrum) have nearly the same population size; this is also the case with cities of Indore, Jabalpur and Bhopal in Madhya Pradesh, and Ludhiana, Amritsar and Jalandhar in Punjab. Rank-size relationships appear to hold good in the state of Rajasthan. In brief, rank-size rule in India is an exception rather than a rule.

## **Assessment of the rank – size of primates-city systems**

The rank-size rule and primate city concept, both are empirical constructs and their objective is to give explanation of the real world structure of settlement. Although the rank-size rule covers the whole settlement system at the same time as the law of primate city focuses only on the leading cities, the rank-size rule has lesser empirical legitimacy.

In the Indian context, rank-size relationships are exceptions, while primate city characteristics appear to be important in a majority of Indian states. The rank-size rule is fundamentally economic to a certain extent than a sociological theory of settlement system. The desirability of both is a matter of debate and inconclusively so. On the other hand, both concepts can be constructive to the planners.

The rank-size rule given by Zipf is considerably unbending and rarely found in an exact empirical fit. Furthermore, it attaches great importance to the population size of the largest city in a region or country. The population size of every other settlement depends on the size of the largest city. The application of rank-size rule is difficult because there is no universal definition of city sizes. There are many cities where the built-up area extends outside the administrative boundaries of the city and where many city workers live further than the edge of the built-up areas.

Having a look at the problem of application of rank-size rule, it can be better used for comparative purposes. The rank-size rule is more descriptive rather than explanatory or predictive.

# CHRISTALLER'S CENTRAL PLACE THEORY

## Introduction

Central Place Theory (CPT) is an attempt to explain the spatial arrangement, size, and number of settlements. The theory was originally published in 1933 by a German geographer Walter Christaller who studied the settlement patterns in southern Germany. In the flat landscape of southern Germany Christaller noticed that towns of a certain size were roughly equidistant. By examining and defining the functions of the settlement structure and the size of the hinterland he found it possible to model the pattern of settlement locations using geometric shapes.

## Assumptions:

Christaller made a number of assumptions such as:

All areas have

- an isotropic (all flat) surface
- an evenly distributed population
- evenly distributed resources
- similar purchasing power of all consumers and consumers will patronize nearest market
- transportation costs equal in all directions and proportional to distance
- no excess profits (Perfect competition)

## Explanation of some terms: Central Place, low order, high order, sphere of influence

- ✚ A Central Place is a settlement which provides one or more services for the population living around it.
- ✚ Simple basic services (e.g. grocery stores) are said to be of low order while specialized services (e.g. universities) are said to be of high order.
- ✚ Having a high order service implies there are low order services around it, but not vice versa.
- ✚ Settlements which provide low order services are said to be low order settlements.
- ✚ Settlements that provide high order services are said to be high order settlements.
- ✚ The sphere of influence is the area under influence of the Central Place.

## Details of the theory

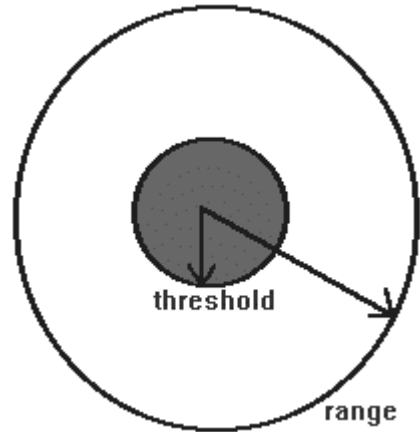
The theory consists of **two basic concepts**:

### ❖ **Threshold**

The minimum population that is required to bring about the provision of certain good or services

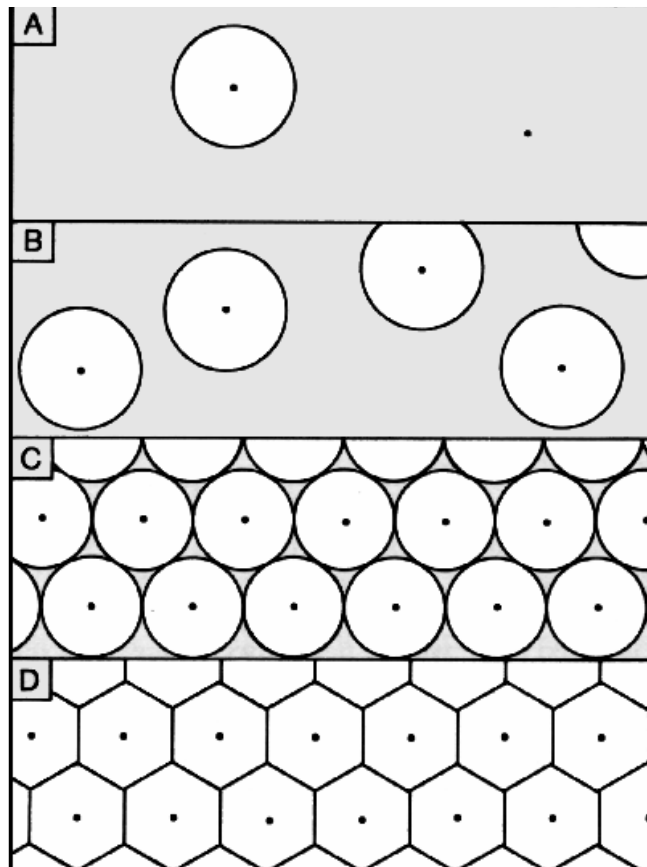
### ❖ **Range of good or services**

The average maximum distance people will travel to purchase goods and services. From these two concepts the lower and upper limits of goods or services can be found. With the upper and the lower limits, it is possible to see how the central places are arranged in an imaginary area.



## Arrangement of the Central places/ settlements:

As transport is equally easy in all directions, each central place will have a circular market area as shown in C in the following diagram:



However, circular shape of the market areas results in either un-served areas or over-served areas. To solve this problem, Christaller suggested the hexagonal shape of the markets as

shown in D in the above diagram. Within a given area there will be fewer high order cities and towns in relation to the lower order villages and hamlets. For any given order, theoretically the settlements will be equidistance from each other. The higher order settlements will be further apart than the lower order ones.

**The three principles in the arrangement of the central places:**

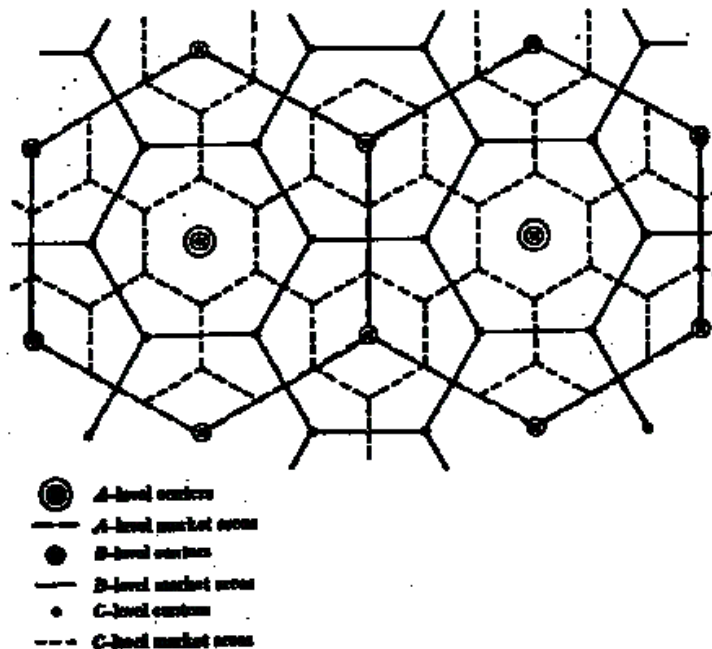
Christaller noted three different arrangements of central places according to the following principles:

1. The marketing principle (K=3 system);
2. The transportation principle (K=4 system);
3. The administrative principle (K=7 system).

**1. The marketing principle**

The following diagram shows the arrangement of the central places according to the marketing principle. There are \_\_\_\_\_ orders of central places.(note: There can be many orders of settlement.)

- (a) First order service center providing first order services
- (b) Second order service center providing second order services.
- (c) Third order service center providing third order services The different orders of settlements arrange themselves in a **hierarchy**.



Generally speaking lower is the order, larger is the number of settlements and higher the order, greater is the area served.

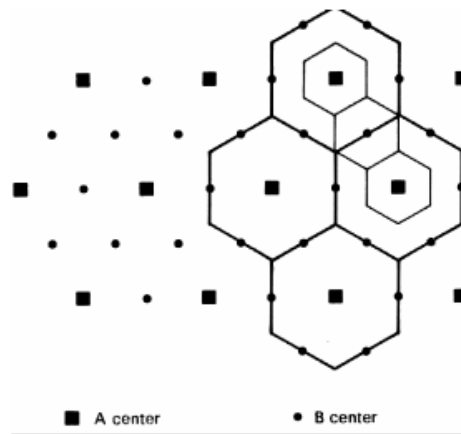
If the arrangement of the settlements is according to the principle  $k=3$ , the theoretical **number of settlements** will progressively divide the previous order by 3 as shown in the following table:

	Cumulative total	Actual number
7th order	1	1
6th order	3	
5th order	9	
4th order		
3rd order		
2nd order		
1st order		

One high order **central place** is serving three (including itself) of the next lower order central places. The relationship of the **market area** between a lower order center and the centers of the higher level can also be indicated by the value 3.

## 2. The transportation principle

Christaller pointed out that the marketing principle is an awkward arrangement in terms of connecting different levels of the hierarchy. As an alternate arrangement, Christaller suggested that central places could be organized according to what he called the transport principle. The traffic principle states that the distribution of central places is most favourable when as many important places as possible lie on one traffic route between two important towns, the route being established as straightly and as cheap as possible. The more unimportant places may be left aside. According to the transport principle, the central places would thus be lined up on straight traffic routes which fan out from the central point. When Central places are arranged according to the traffic principle, the lower order centers are located at the midpoint of each side of the hexagon rather than at the corner. Thus the transport principle produces a hierarchy organized in a  $k=4$  arrangement in which central places are nested according to the rule of four.



The following table shows how the  $k=4$  principle can be interpreted:

Level of hierarchy	Equivalent number of central places dominated by higher order center
Equivalent number of marker areas dominated by higher order center	

1. Metropolis 1 1
2. City 3 4
3. Town 12 16
4. Village 48 64
5. Hamlet 192 256

### 3. The administrative principle



Christaller's other suggested organizing principle was based upon the realization that from a political or administrative viewpoint centers it was unrealistic for centers to be 'shared'. Any pattern of control which cuts through functional units is potentially problematical. Christaller suggested that an arrangement whereby lower order centers were entirely within the hexagon of the higher order center would obviate such problems. Such a pattern is shown in the following diagram. All the six lower order centers are fully subordinate to the higher order center

which, therefore, dominates the equivalent of seven market areas at the next lowest level.

### Evaluation of Central Place Theory

The following passages are some of the evaluation of Christaller's central place theory. Can you summarize the ideas?

The pattern of cities predicted by central place theory may not hold because of the failure to meet initial assumptions.

1. Production costs may vary not only because of economies of scale but also by natural resource endowments (i.e. not a homogeneous plain)
2. Transportation costs are not equal in all directions
3. Rural markets (initially households) are not evenly distributed
4. Non economic factors (culture, politics, leadership) may be important but not evenly distributed



5. Competitive practices may lead to freight absorption and phantom freight (other forms of imperfect competition)

***What are the advantages of central place theory?***

The theory does a reasonably good job of describing the spatial pattern of urbanization. No other economic theory explains why there is a hierarchy of urban centers.

Heilbrun wrote: "A hierarchy is by definition a systematic arrangement of the classes of an object." In this case the object is economic centers, large and small. The central place hierarchy provides a description of the relationship between a central place--higher order place--and its tributary areas--lower order places. Once this hierarchy is pointed out, anyone can see it.

(An aside: There is a hierarchy of towns in North Dakota--and make no mistake about it, the four cities top that hierarchy. Hierarchy has become a dirty word in some academic circles, but with central place theory, hierarchy is as natural as the ecological spread of vegetation. The question is--will there be a stable long lasting relationship, or a 'dysfunctional' one? In biology, if one species dominates too much, it ends up killing itself off. The cities need the 'export dollars' provided by people in small towns, and the small towns need the specialized services provided by the cities. A strategy which helps both of them develop--in which state level development resources are shared--seems to be reasonable and wise.)

Central place theory does a good job of describing the location of trade and service activity. (It also does a good job of describing consumer market oriented manufacturing.) Trade and service activity has an increasing relevance as the U.S. economy shifts from manufacturing to services over time. Small-town community economic developers can secure quite specific, relevant information about what kind of trade or service enterprise will likely work, and what kind of enterprise will not likely work in a given small community.

**URBAN PROBLEMS**

Urbanization is the movement of people from the countryside or rural areas to go to more developed urban areas like towns and cities. This leads to rapid growth in these areas. The movements are usually motivated by the belief that urban areas have more to offer in terms of growth, job opportunities, and development than the rural areas.

Urbanization primarily stems from the industrial revolution as it played a big part in bringing people from rural areas to the developing industrial urban areas, which had factory jobs that rendered agricultural jobs less popular. In modern times, urbanization is taking place on a large global scale as most of the development projects tend to focus more on towns and cities.



This is also evident in both developing and developed countries as governments and municipalities allocate urban areas more resources than rural areas, which encourages urbanization. Currently, half of the total population of the world lives in urban cities, a trend that is definitely going to continue for years to come. Despite urbanization creating opportunities for people who take the leap to look for greener pastures in urban areas, it is often faced with a lot of challenges which this article looks at in-depth.

### **1. Overcrowding or Overpopulation:**

Overcrowding is a situation where a lot of people accumulate in a rather limited space that is unable to accommodate them without succumbing to the pressures around it properly. As a result of urbanization, overcrowding is a persistent problem as a large number of people are consistently moving to urban areas on a daily basis.

This leads to cities growing in population and getting crammed when it gets beyond its capacity. When a city is at maximum or excess capacity, the people tend to compete over the limited and scarce resources such as electricity, water, transport, and the main reason they make a move, employment.

### **2. Unemployment:**

Unemployment is another urbanization problem. What is surprising is that a big percentage of youth who are unemployed belong to well raised and educated families. The job opportunities might be more in urban areas and also pay more, but as the number of people continues to grow, the jobs become even harder to find and retain.

Companies find themselves retrenching employees as well as putting even more people out of a job. All these factors put together to make the unemployment rate at an alarming high in

urban areas. In recent times, with the Covid-19 outbreak, the unemployment rates have also increased manifolds. With people being laid off at an alarming rate, more and more people are becoming unemployed every day. Companies are retaining just the bare minimum number of employees. It is alarming because, with the pandemic at our doors, we are facing the evils of urbanization even more. The jobs that had to be created once for fending the needs of the ever-growing urban population are being forced to shut down in the face of a huge economic crisis.

### **3. Housing problems:**

Housing problems tend to develop when people move to cities and overcrowd in them. If the cities were not well prepared for the numbers, the houses become more scarce. It is even harder to settle people who come to cities and don't end up getting employed or those who settle in as immigrants. Some of these people are unable to afford to build their own homes or even paying rent. The problem grows in intensity as the materials required to build new houses become more and more insufficient. Limited space also makes it difficult to facilitate construction, and financial resources may even be scarce as they become primarily channeled into other development and social safety net programs other than housing. This only adds to the problem.

### **4. Development of slums:**

Urbanization and industrialization make a lot of people move to the urban areas, but they do not prepare them for the conditions they are likely to face when they arrive there. Urban areas tend to have a high cost of living. The housing problems fuel this even more as all the people who move to urban areas cannot be adequately accommodated. This leads to the advent and growth of slums as safe havens for those who cannot afford the high costs of rent or lack substantial money to purchase apartments or build homes in urban areas. The slums arise from the construction of houses on under-developed or undervalued land due to how scarce and expensive apartments or land is in urban areas.

The houses in slums are often poorly constructed and most of the time lack basic amenities like clean water and proper sanitation. They are built to cater to low-income urban earners. Some of these settlements are even illegal and may be set up next to dumpsites, heavily polluted areas, or natural disaster risk areas such as swampy and mudflow areas.

### **5. Sanitation problems:**

Sanitation problems are rampant in urban areas due to the overpopulation that is seen in many of the areas people settle. The local governments find it hard to properly set up and manage a proper sewerage system due to the rampant bulge of the human population. The fast increase in people's population sometimes overwhelms the local government's resource capacity to construct the required sanitation and sewage systems.

Sometimes, the existing sewerage systems may not have adequate human as well as the infrastructural capacity to treat and manage the waste. So instead, it is drained into the water sources – polluting them and endangering the health of urban dwellers who may not only contract harmful water-borne diseases but also consume water contaminated with industrial waste and heavy metals.

## **6. Water shortage problems**

Water is very important for sustaining life. The rampant growth of the population in urban areas makes the water very scarce as the normal supply becomes strained and inadequate to properly meet the demands of the large population.

What is more, the water problems may worsen with the increase in water pollution due to poor sewerage systems and a lack of preventive measures for managing local water pollution.



## **7. Health hazards:**

People living in congested urban areas expose them to a lot of risks. The poor sanitation, water problems, and living in high-risk areas like next to dumpsites leads to disease of all kinds. To make matters worse, people in these areas often do not have proper access to health care services, which makes the disease much harder to cure, and at times, they even lead to death.

In the slums, people are often diagnosed with diseases like infertility, food poisoning, allergies, asthma, cardiovascular complication, respiratory failure, cancer, and death. This can all be accredited to the overall pollution that is experienced in these urban areas.

With the onset of the Covid-19 pandemic, the problem that global urbanization poses can be felt even more. Now that social distancing has become absolutely essential, urbanization has become the greatest health hazard of all times. In developing countries, especially, the problem is even more.

The slum areas are the worst affected. It is in these areas that the pandemic is spreading at a much higher rate. In most cases, the cases reported here are severe, and the fatality rate is very high. Here it is worth mentioning that, when the pandemic started spreading in India, people were really concerned about it spreading in Dharavi, India's largest slum situated in Mumbai. When it spread there, it was by sheer luck that it could be controlled at the earliest.

## **8. Degraded environmental quality**

This is one of the most common effects of urbanization. The congestion of people in limited spaces and areas reduces the quality of air, contaminates water, and pollutes the noise and land. This leads to very poor environmental conditions for people to live and is often detrimental to the health of these people. There is also the need to improve the infrastructure so as to accommodate the rise in population by erecting new buildings and amenities.

This leads to the destruction of forest and natural habitats in order to acquire the materials required. Industrial waste poured to the river and lakes contaminates the water, and the noise brought about by the numerous human activities carried out sums up the many effects urbanizations bring in slum areas.

The more the urban population, the more pollution is caused by automobiles. Although carpooling is a relatively better practice, not everyone has come to terms with it. Most of the people prefer using their personal vehicles. Even if people opt for carpooling or public transport, it does not really help much. Every day, millions of people avail of the commutes, which means, tens and thousands of vehicles run on the streets every single day. Most of these vehicles run on fossil fuels and, as a result, cause an immense amount of air pollution and degrades the quality of the air considerably.

## **9. Disposal of trash:**

Urbanization has led to many factors that have made the trash disposal very difficult. The urban cities produce a lot of waste on a daily basis that they cannot properly dispose of, this subjects the people living in these areas to multiple health risks.

The areas that were initially set aside to accommodate trash disposal needs become full, and some of them are inhabited by slum people who move close to such areas.

Diseases are easily spread, with some often spread by the insects and animals that frequent the dumping site areas and then get into contact with water that people consume. The trash fills are also located in areas where people live, which subjects them to many of these health hazards.

## **10. Transportation problems:**

A lot of people are often moving around in between their workplaces and their homes; this more often leads to traffic jams and congestions. The number of people who own cars is growing every year, especially in urban areas and the public transport system is very unreliable. The number of cars increases, and as a result of this, the traffic problems continue to worsen. This does not only lead to blockages in traffics but increases the chances of people getting involved in traffic accidents and urban air pollution.

## **11. Urban crime:**

The more people are congested in urban areas, the higher the rate of unemployment as the available jobs are not enough to accommodate all. Resources have also become scarce, and not everyone has access to essential social services, which lead the disadvantaged to get into substance abuse, violence, burglary, and organized crime.

Lack of employment also increases poverty, which, as a result, makes it even harder for people to get the essential things they need to survive. People then turn to poverty-related crimes such as theft, conning, and organized crime as a way of earning a living.

Such criminal activities, mainly those rampant in urban areas due to poverty and lack of job opportunities, include kidnapping, robbery, carjacking, rape, and even murder. These acts make cities very hard for people to live in as they are not guaranteed their safety, especially for victims who cannot defend themselves in such situations.

## **12. Increased rates of poverty:**

Global urbanization ultimately leads to poverty. As the rates of unemployment increases, more and more people continue to sink beneath the poverty line. Also, as the population increases and the urban areas become more and more congested, the state government starts losing track of the population.

As it does so, in some cases, it also fails to provide for all the people adequately. It ultimately leads to extreme forms of poverty where people have to live on the streets with only a little or nothing to eat or to drink.

As a result of poverty, the standard of living of people also decreases to a point where it can also sometimes be rendered as inhuman. In a world where the rich are constantly becoming richer, and the poor are constantly becoming poorer, poverty is by far one of the largest threats to human existence.

## **SLUM POPULATION**

### **Meaning:**

A slum, as defined by the United Nations agency UN-HABITAT, is a run-down area of a city characterised by substandard housing and squalor and lacking in tenure security. According to the United Nations, the proportion of urban dwellers living in slums decreased from 47 per cent to 37 per cent in the developing world between 1990 and 2005. However, due to rising population, the number of slum dwellers is rising. One billion people worldwide live in slums and will likely grow to 2 billion by 2030.

“Slum” was originally used mainly in the phrase “back slum”, meaning a back room and later “back alley”. The origin of this word is thought to come from the Irish phrase ‘Slomic’ (pron. s’lum ae) meaning ‘exposed vulnerable place’. The Oxford English Dictionary says it may be a “cant” word of Roma (Gypsy) origin. The etymologist Eric Partridge says flatly that it is “of unknown origin”. In short, ‘slum’ means a community of low-class, homeless population.

According to UN Expert Group, slum has been defined as an area that combines various features, including inadequate access to safe water, inadequate access to sanitation and other infrastructure, poor structural quality of housing; overcrowding and insecure residential status.

### **Characteristics:**

The main characteristics of slum population are listed below:

- (i) High rate of poverty;
- (ii) High incidence of unemployment;
- (iii) Huge extent of urban decay;
- (iv) Breeding grounds for social problems like crime, drug addiction, alcoholism etc.;
- (v) High rates of mental illness and suicide etc.;
- (vi) Low level of economic status of its residents;
- (vii) Inadequate infrastructural facilities;
- (viii) Acute problem of malnutrition;
- (ix) Lack of drinking water;
- (x) Lack of basic healthcare;
- (xi) Unsanitary and unhygienic environment;
- (xii) Low standard of living or poor quality of life.

In many slums, especially in poor countries, many people live in very narrow alleys that do not allow vehicles (like ambulances and fire trucks) to pass. The lack of services such as routine garbage collection allows rubbish to accumulate in huge quantities. The lack of infrastructure is caused by the informal nature of settlement and no planning for the poor by government officials. Additionally informal settlements often face the brunt of natural and man-

made disasters, such as landslides, as well as earthquake and tropical storms. Fires are often serious problems.

Many slum dwellers employ themselves in the informal economy like street vending, drug dealing, domestic work and prostitution. Recent years have seen a dramatic growth in the number of slums as urban populations have increased in the Third World.

In April 2005, according to UN-HABITAT report an additional 50 million people have been added to the slums of the world in the past two years. According to 2006 UN-HABITAT report, 327 million people live in slums in Commonwealth countries – almost one in six Commonwealth citizens.

### **India's Slum Status:**

The number of people living in slums in India has more than doubled in the past two decades and now exceeds the entire population of Britain, the Indian Government has announced. The detailed information of slum population in India (State-wise/Union Territory Wise) are given in the following table.

### **Total Slum Population - Slum Population in Mumbai:**

Greater Mumbai is the home to the country's largest population of city slum dwellers in the country. It is followed by Delhi, Kolkata and Chennai. According to the report of Ministry of Housing and Urban Poverty Alleviation, there were nearly 6,475,440 slum dwellers in Greater Mumbai in 2006, while Delhi has 1,851,231 people living in slums. Around 1,485,309 slum dwellers live in Kolkata while 89,873 people live in slum clusters in Chennai. Next comes Hyderabad with around 626,849 people living in slums. Patna has the smallest population of slum dwellers. According to Mrs Kumari Seija, India's largest slum population is in Mumbai, the country's financial and film Capital, where an estimated 6.5 million people- at least half the country's residents – live in tiny make shiftshacks surrounded by open sewers. Mumbai is also home to Dharavi, Asia's biggest single slum, which is estimated to house more than a million people.

## **URBAN PLANNING**

### **Definition and Objectives**

Urban planning is also popularly known as Town Planning. It encompasses many different disciplines attempts to accomplish sustainable, user-friendly, economic and social organization of all elements of a town, city or any other urban environment. It has to take care of the residents' housing, employment, recreation, trade and business, sanitation, mobility and communication besides preserving the natural and built heritage of the place. In the next section,



we shall briefly browse through the history of planning from that of ancient cities to its present form.

Conveyers and Hills (1984) define planning as ‘a continuous process which involves decision and choices, about normative ways of using available resources, with the aim of achieving articular goals at some time in future.’ There are many other specialized streams of planning that constitute urban planning: environmental planning; transport planning; land use planning; housing etc. Regional planning involves planning at a larger scale, comprising of both urban and rural planning.

### **Brief History and Evolution of Urban Planning**

The first towns were human settlements that were established when human society evolved from hunting-gathering to an agricultural one. Agriculture as an occupation required settling close to water sources that are needed for irrigation. Thus, ancient civilizations were cities and settlements on riverbanks such as Mohenjo-Daro and Harappa (Indus Valley); Egypt (Nile), Mesopotamia (Tigris and Euphrates) going back to the Bronze Age i.e. 3000 BC – 150 BC.

#### Ancient Cities



As society became more complex, cities started being planned on the basis of societal and religious hierarchies. The great cities of Rome, Athens etc. all had hierarchical planning where the most important structures (public or religious) occupied the centre and all other functions of the town were planned concentrically or radially around this structure with their importance decreasing as their distance increased from the centre. Similar examples are seen in many Islamic cities or temple towns in South India where the main mosque or temple occupies the highest or central point and the rest of the town is planned around it.

In the 16th-17th century, land occupation by communities or tribes for settlement became the primary objective and thus cities started being planned as citadels, fortifications or within walled enclosures. Most of the historic cities in India are actually forts or walled cities, such as Agra, Delhi, Hyderabad, Daulatabad and Jodhpur. With advancement in warfare, walls and forts became obsolete as defense mechanisms but these cities still stand as evidence of a time when

‘security’ dictated their form and the built heritage of forts and walls forms a unique combination with new developments. With increased globalization, sea-travel and trade in the 18th century, market towns and ports gained huge importance as centres of trade across the globe. In fact, the most powerful countries were those with mighty naval fleets and prosperous port cities as capitals. All colonizers such as the English, Spanish, Portuguese and Dutch etc. captured areas in far off places due to their naval dominance and planning practices also got globalized and more universal.

Urban Planning metamorphosed into its modern form owing to the Industrial Revolution, with the advent of machines, new construction technology and cars. The scale of a town underwent tremendous expansion in terms of having wider roads, taller buildings, spread out cities due to extensive railroad networks, huge industries etc. Areas that were not very good for crops, started developing into industrial centres and manufacturing townships called ‘factory towns’. But in a few years, all these towns were brought with squalor as people had been accommodated in minimum living area with no attention towards sanitation. The only focus was industrial mass production in these towns whereas the elite lived in more sanitized quarters of the cities. Epidemics and diseases resulted in further transformation in city planning with more attention to sanitation and aesthetics.

Planning gained popularity in the mid-to-late 19th century, when it became obvious that there should be some kind of plan or larger goals for the growth of big cities like New York, London, and Paris etc. as they had grown haphazardly and disproportionately to the available infrastructure. In America, this transformation was called the ‘City Beautiful Movement’ and large tracts of land were cleared for the purpose of building public areas like parks and plazas. Urban Designers, Landscape Designers and Architects gained great importance as professionals besides urban planners. Land use planning and Zoning became the most necessary tools for planning of cities. There have been criticisms of this movement in terms of non-involvement of common people and pushing the poor to the periphery in order to make the city ‘look good’.

Urban Planning for the past 100 years has sadly not transformed much. It is only recently that ‘environmental sustainability’ and ‘people’s participation’ have become pertinent issues to be considered by planners and hopefully, city planning will evolve into a more inclusive, just and ecologically sensitive practice.

### **Urban Planning in India: Practice and Administration:**

After Independence in 1947, the Nehruvian vision of catching up with the rest of the world penetrated the planning practice in India and cities like Chandigarh and Bhubaneswar were especially planned as iconic cities showcasing the fast paced progress of India as an independent nation. Chandigarh’s layout is inspired by the ‘navagraha mandala’ like the city of Jaipur and was planned by French architect and planner Le Corbusier whereas Bhubaneswar was

planned by German architect and climatologist Otto Koenigsberger. These along with Jamshedpur are the first planned cities of independent India.

Sadly, it was not these well laid out plans that inspired urban planning in the rest of the country. The example that was emulated by every city was mainly that of Delhi and Mumbai. The Town Improvement Trusts that existed under the British rule were brought under the umbrella of Town and Country Planning Act 1954 to establish agencies to provide physical infrastructure (first enacted in Maharashtra) but this was removed from ground reality and city municipalities felt that these agencies had been imposed on them. In 1973, the Model Law prepared by Town and Country Planning Organisation (TCPO) added the Model Urban Development Authorities Law providing for the creation of Development Authorities to undertake large scale development works. Though these legislations were created for better planning, they resulted in multiplicity of agencies with ambiguity of roles without any coordinating body.

After independence and partition, Delhi as the capital saw a gigantic influx of population and refugees with no place to house them. The Delhi Development Authority (DDA) was the first authority established under the Model Urban Development Authorities Law (Delhi Development Act of 1957) as an agency empowered with the right to acquire land for development from private landowners, plan residential colonies and other infrastructure and sell them. Advised by a team of eminent American planners led by Albert Mayer, the DDA chose the policy of creating Master Plans with 20 year timeframes supported by Land use Plans (LUPs) and Zonal Development Plans (ZDPs). Though the first master plan for Delhi was well intentioned, by the time it was prepared, development had already occurred on the land for which it had planned uses. All subsequent plans also had the same problem of a distinct difference between planned use and actual use. Also, in so many years, the ineffectiveness of segregated land use in Indian cities has also been proved. Thus, by following the mistake-ridden template of Delhi, all emerging urban centres in India adopted the 20-year timeframe Master Plan method of urban planning.

### **Institutional Framework Pertaining to Urban Planning in India:**

Initially, urban planning was a state subject in the constitutional division of responsibilities but after the 74th Constitutional Amendment Act passed in 1992 and came into force on 01.06.1993, the urban planning function was devolved to the urban local government.

The various bodies in India that are related to Urban Planning are:

#### **At the National Level:**

Though the Central Planning Commission is the primary body that formulates policy level decisions with regard to all kinds of development through the channel of five year plans, it is not specifically focused on 'urban' planning.

At the central level, the Ministry of Urban Development (MoUD); the Housing and Urban Development Division of the Central Planning Commission and Ministry of Housing and Urban Poverty Alleviation (MHUPA) are the three authorities dealing with the subject of urban planning and development performing advisory and co-ordination roles apart from providing technical assistance for promoting orderly urbanization. These agencies focus mainly on policy planning, allocation of funds and monitoring of central schemes.

The Town and Country Planning Organization is the technical planning agency at central level. It lays out broad guidelines urban development including Housing, Poverty, Urban Governance, Mapping, Infrastructure, Capacity Building, Land Policy, Urbanization, Urban Reforms etc. It is responsible for providing assistance and guidance of the highest competence to the centre. It has two main divisions: (a) National Policies and Prospective Division - responsible for national urbanization policies, urban- regional information systems, norms and indicators of urban planning and development; and (b) Regional Level Policies and Planning Division - carries out studies relating to regional development planning at different levels, assessing regional impacts and devising strategies for spatial development.

The Housing and Urban Development Corporation (HUDCO) assists various agencies and authorities in upgrading the housing conditions and infrastructure in the urban areas of the country. Its domain spreads over Urban housing; Rural housing; Staff rental housing; Repairs and renewal; Shelter and sanitation facilities for footpath dwellers; Working women ownership condominium housing; Housing through private builders/ joint sector; Land acquisition; provision of Infrastructure; Integrated land acquisition and development; Environmental improvement of slums; Utility infrastructure; Social infrastructure; Economic and commercial infrastructure; Financial Services such as provision of housing loans; Research on Building materials and technology; Consultancy services.

The National Institute of Urban Affairs (NIUA) is another autonomous central agency that deals with research, training and information dissemination in urban development and management. It undertakes and conducts and promotes studies on urbanization and urban issues. It also provides relevant training and research facilities to evaluate the social, administrative, financial and other aspects of the implementation of urban development plans and programmes. It also undertakes publication of books, research papers, monographs etc. pertaining to urban affairs.

The state level Town and Country Planning Organization in every state was created for planned urban & regional development of the state. The department was conceptualized essentially for preparation of blue print for such developments. It assists the State Government in formulating policies for urban areas and prepares Master Plans for Development area / Regulated Area/ Special Area Development. Delineation of Regions and preparation of Regional Plans for different Regions is also carried out by this body. It also provides technical assistance to various

implementing agencies in terms of survey of land and implementation of state and central schemes of urban development.

The Development Authorities / Improvement Trusts / Special Planning Authorities are independent bodies created by the state governments as required from time to time for certain metropolitan cities and other towns, empowered with acts and rules to take care of the aggregate physical development of a given/identified area. The Special Planning Authority (SPA)/Improvement Trust is usually created for intermediate towns/cities, whereas the Development Authorities (DA) have been established for metropolitan and big cities. These bodies are very powerful and empowered to prepare interim development plans, comprehensive development plans, preparation of zonal development plans, and preparation of town planning schemes for smaller areas, to implement these plans, to impose development control, to guide, regulate and intervene in the development process as and when required.

The other parastatal agencies related to infrastructure provision are Water Boards and Sanitation Boards; Public Works Department etc. These carry out the works relating to planning and implementation of water supply, sewerage and drainage and roads for the whole state but their head offices are established in major cities. These agencies also have ownership of the entire infrastructure and related land though the maintenance may be carried out by the local body or municipality.

With regard to establishment of Social Infrastructure, Education and Health Departments are governed by the State Government. These Departments carry out implementation of schemes, planning for education and health facilities at state level for both urban and rural areas.

Municipalities, also called Urban Local Bodies are the agencies responsible for planning of cities. As per the 74th Constitutional Amendment Act (74th CAA), there are three kinds of Municipalities in India:

***Nagar Panchayats for areas in transition from a rural area to urban area;***

***Municipal Councils for smaller urban areas;***

***Municipal Corporations for larger urban areas.***

Every State has a different norm assigned to each of the above and there is no particular population size accepted all over India for a city to have a particular kind of municipality. According to the 74th CAA, the function of 'urban planning' is one of the eighteen functions mentioned in its Twelfth Schedule (refer list) that fall under the purview of the municipality or urban local body. Yet even after 20 years of the passage of this amendment, this function has not devolved to the local government and remains the domain of parastatal agencies like Development Authorities.

## Challenges and Issues of Urban Planning Practice in India

- ✚ Lack of clarity of responsibilities and jurisdictions coupled with multiplicity of agencies with overlapping functions. There are agencies both at state and local level that are carrying out the function of urban planning for e.g. TCPO, DA's, and ULBs etc.
- ✚ Opposing Acts and Laws: The 74th CAA devolves the function of urban planning to the urban local bodies but the Development Authorities Act assigns the same function to respective parastatal authorities.
- ✚ Lack of capacity: ULBs are not equipped with professional and technical capacity to carry out this function.
- ✚ Lack of proper Financial Devolution: Unless the ULBs have resources to spend on this function, they cannot become the primary urban planning bodies.
- ✚ Lack of innovation and contextualization as per Indian conditions: Segregated Land use planning has failed in many cities and there is need to experiment with more socially sustainable zoning such as mixed use planning.
- ✚ Lack of short term monitoring and appraisal of plan: Master Plans are made for a period of 20 years but there is need to evolve plans of smaller scale and duration (ward plans/ local area plans; annual plans etc.) for better monitoring and timely revision of the larger planning decisions.
- ✚ Limited spaces and opportunities for People's participation in the urban planning exercise. As we shall see in the next module, Participatory Planning is a better approach as it develops ownership of the people in the city plan and its implementation. With the diverse character of the city, all stakeholders of the plan are varied and numerous and cannot be treated as a single block
- ✚ Lack of adoption and adaption of current global practices: World over, city plans are giving special consideration to aspects of Social Inclusion and Climate Change. Planning for better quality of life for urban poor and slum dwellers has become a primary concern. So has planning for ecological sustainability of any city plan. In India, we are still taking our first steps towards these practices.

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