Human Settlements Planning
Lecture 2

Elements of the Structure

We look at the elements of any urban structure, in conventional planning, the elements of structure are described in terms of circulation networks, public transport systems, open spaces, public facilities and public utilities which is nothing but your engineering services. However in the context of spontaneous settlement making, it is useful to describe the structural elements as connection, space, public institutions and utility services and we will be discussing these in detail now.

Connection: This refers to the movement of all kinds which are; fixed line systems like roads, light and heavy railway systems, underground railway systems, as well as pedestrian and bicycle routes. As a general principle, movement should be seen as an activity which occurs within a space. It is primarily within this network of movement spaces that the public life of a community takes place. Consequently, its making should be informed not only by technocratic considerations but also by human and environmental considerations.

Space: Space lies at the heart of the non-programmatic approach to settlement making. It is not just one element of the settlement program such as; the public open space, but should be approached as part of thinking about the whole. Settlements are characterised by diversity. They are many-placed places. Some parts are more public, others are more private, while other are more neutral, serving broader, more diverse sets of citizens and urban activities. Space becomes particularly significant when one is considering movement at a local scale. At this

scale the concept of 'road' needs to be replaced by the concept of providing spaces which are comfortable for people to be in, and within which movement can take place. In spcaes so conceived, neither the pedestrian nor the vehicle has complete dominance or right of way.

Public Institutions: Historically the institutions which were most valued by society such as; institutions of learning, worship, exchange, markets and universities, served as key structuring elements of settlements. The siting of these, in turn, formed the basis for locational choices of other, more private uses such as housing. It is considered important to revive this tradition. Initial settlements pattern if you look at it, first the government buildings would be placed around which the entire town or settlement would develop. But the current towns that are developing, we don't give importance to the public institutional buildings. Instead, we give importance to either the commercial district or the residential district. There are thoughts that state that we should go back to the stage where we gave importance to the public institution buildings, it is only then that these buildings as well as the spaces that are surrounding it, will serve better to the public. The location of institutions in relation to the other elements of structure is also of critical importance. Commonly, institutions occur in central places, are easily accessible in terms of movement patterns, and are announced by public spaces. The institution abutting onto the space gives unique character to the space and often attracts informal activities which is very important for a good living settlement. When public can congregate in a place, at the end of the day and have a sensible discussion, it is considered to be a good settlement because it offers public interaction.

Public Utility services - Public Utility services refers to those engineering services that are essentially very important to the

functioning of such settlements. These include; water provision, sewage removal, storm water disposal, solid-waste removal and electricity supply. These services are essential to the maintenance of public health in settlements. As a general principle, utility services should be provided as efficiently and as cost-effectively as possible, taking due cognisance of the human and nature-centred approach to settlement-making proposed herein. So, that's what is very important. Without public utilities you cannot have any settlement thrive, that is obviously a very important factor but it has to be done; ecologically, efficiently, as well as cost effectively.

Finally, Network: 'Movement Networks' are defined broadly as public right-way networks, accommodating land-based movement by a range of movement modes. Earlier guidelines have referred to 'movement networks' as 'road layouts'. Local movement networks are made up of (a) links and (b) junctions of public rights-of-way or reserves. These links and junctions contain overlaid systems of for different movement nodes - including footways, roadways, pathways, cycle ways, and sometimes even railways. Now, if you consider the first thing; 'the public right-of-way networks' as opposed to the road layouts. These are focusses toward planning and design.

Reference to conventional road classification, such as; 'access roads', 'collectors', 'local distributors' or 'arterials' is avoided to prevent preconception notions regarding these functions and cross-section of any particular public right-of-way and finally continuous, pedestrian friendly, public right-of-way networks are promoted ahead of conventional discontinuous suburban road layouts.

Anatomy and Classification

Now, we move on to anatomy and classification of human settlements. The descriptive study of human settlements also analyzes the anatomy of the settlement. Settlements or parts of settlements can be classified according to their degree of functional homogeneity, the type and number of central place functions, the circulatory patterns found within the settlement, or any special function or purpose observable in the settlement. The main purpose or function of a settlement can serve to categorize the settlement as a homogeneous region, such as a single farmstead classified as a homogeneous agricultural region or a bedroom community identified as a homogeneous residential region. So, we have to compare and analyze, what kind of settlement it is going to be as it is developing because only then can you go about placing the different functions and circulatory patterns depending on the kind of settlement we are hoping for.

Human settlements can be identified as; **Central Places that function as marketplaces, administrative centres, social and cultural meeting places serving surrounding hinterlands.** Circulatory patterns unite settlements by providing transport of people, goods, and information along lines of circulation such as roads. Nodal regions, or settlements, often form at the intersection of circulatory lines. Unique functions observable within a settlement are sometimes identified as a special settlement area, such as; an army camp with a large residential settlement or a large factory/ business in a midst of a relatively homogeneous residential area. Most human settlements possess some form of all these types at some geographical scale. If you look at the different classifications of human settlements, you can classify them based on number of factors, by Ekistic units, by Ekistic elements, by

Ekistic Functions, by Evolutionary Phases, by Factors and Disciplines. If you look at this, first classification based on sizes, small and sparsely spaced which are basically rural settlements or villages specializing in agriculture. Then you have the large and closely knit spaces which are the urban settlements specializing in secondary and tertiary activities. Then you have based on location of settlement which are; plains, mountains, coastal areas, etc. Based on physical forms such as; forms as the expression of content, function, as well as structure. Based on the Five Elements of Human Settlements. If you look at based on functions which are the most important to understanding what is the kind of meaning and role behind that kind of settlement. Reveal nature, Specialization and the main reason as to why this settlement has come into being; Based on activity - the activity could be social or economic, their performance, or special role such dormitories, retirement villages or it going to be a touristy town, etc. Based on the dimension of time - age of settlements, their place in the past, future or present; How old is that settlement? Their relative static of dynamic character, the whole process of their growth which process or stage is that settlement in. Is it in the nascent stage? Is it in the birth stage? Is it in the growth stage or is it close to the decay stage. Based on the degree of the city's conscious involvement in settlements creation i.e natural as well as planned settlements. Based on institutions, legislations, and administrations which society has created for settlements.

Now, by Ekistic units, you have four basic groups; **Minor shells or elementary units -** which are basically the room, the house where an individual man or family could stay. **Micro settlements -** units smaller than or as small as, the traditional town where people used to and still do achieve interconnection by walking or a small neighbourhood is what we are talking about here. **Meso settlements -** between traditional town

and conurbation within which one can commute on a daily basis i.e a small polis, either a small polis or polis, small metropolis or a small eperopolis. **Macro settlements -** whose largest possible expression is the Ecumenopolis, the city of today or so called tomorrow. If you look at the Ekistic units, how can they be classified, you have physical and social units where man is the smallest unit, space is the second unit either personally owned or shared with others. When you talk about space as a secondary unit, it's either personal space. Every surrounding unit has a particular area of a comfort zone where someone comes within that, you are not comfortable. Similarly, when you share a particular area like a neighbourhood or an apartment or a house, again that has a particular comfort zone. Then finally, the third unit is a family home. Social unit is a group of homes, the next stage of a town or a city. If you look at this, this is the Ecumenopolis where they believe that all the cities are eventually going to be connected. Megalopolis - a group of large scale cities that you combine which is a number of conniberations combining together. Each city should have a minimum of 10 million people. It is only then, a Megalopolis. The next thing is the Conurbation, which is the next level below Megalopolis. Then you have the Metropolis which are most of the cities in our country now. Other towns and other classifications that you have is a large city - a city with large population and many services having less than one million but over 3 lakh people. The next classification is a city, a city with abundant but not with as many services available in a large city, having over one lakh upto 3 lakh people population. A large town has a population of 20,000 to a lakh. It needn't have as many services as required in that of a city and it is expected that, for any of these services, people would have to go to the closest city. Town - population of 1000 to 20,000. Only the basic structure of a market will exist. Village - population anywhere from 100 - 1000. Hamlet - a very small population less than 100 and

very few if at all there are services. Usually there won't be any services besides the post office or a telephone complex. Isolated dwellings - One or two buildings of families with negligible services if at all there are services available.

Kinds of Human Settlements

Now, we will discuss the kinds of human settlements. You have the Rural Settlement; the majority of its inhabitants are involved in activities like; farming, fishing, forestry and mining. The pattern of rural settlement can vary from a single farm to a cluster of houses.

Characteristics of a Rural Settlement - In the form of a village, it is usually surrounded by farms. Next, small population. Occupation is predominantly forestry, agriculture, farming, fishing, tourism and mining. Service provided is very limited and most only for everyday needs. But, of course if it is a tourism oriented town, the services provided would be to a greater degree to satisfy the tourist attractions and the tourist footfall. Close knit communities and the atmosphere is quiet. Dominance of community feeling.

Next, you have Urban Settlement; The majority of people are engaged in non-rural activity. So, its either manufacturing industrial or service sector. They work in offices, shops, factories, operate machinery, provide health care or other services. Urban settlement can be small like around 10,000 people or it can be as large as Tokyo - Yokohama in Japan with over 30 million people. The characteristics of an urban settlement, in the form of both towns and cities, they are large, both in population as well as area. They have functions such as; business, manufacturing, government, as well as cultural centres. Wide range of

services are offered including specialized service. Unlike rural settlements, neighborhood is separate with limited knowledge of others. Traffic and pollution are problems. So, when community is the ruling principle or characteristic of a rural settlement, here economics is what drives the urban settlement. This is a typical urban settlement; Manila, Philippines. You can see a distinct Central business district, crowded residential areas in the outer area and then you have residences in and around. So, it's a complex mix of both the low income groups, middle income, as well as the Central Business district. If you look at the difference in services between rural and urban settlement; its basic service in health would be provided in a rural settlement as a medical clinic. In an urban settlement, it would be a hospital and specialized hospitals in particular diseases and care. Education, you will have nothing more than a primary school. You are expected to travel beyond that vs an urban settlement that has everything including a university. Shopping, you will have basic needs covering general store and a market vs an Urban settlement where they will be a shopping mall. Finance, basically you will have cooperative banks if at all possible or basic money lenders and in urban settlements you will have international banks. Transport is only bus service and pedestrian vs Urban settlements that has international airports. The kind of nodes and linkages will also vary simultaneously.

The basic type of Settlement, by the bottom of the pyramid you have Isolated dwelling and on top of the pyramid you have Conurbation, which is most of our multi-million populated towns. You have decrease in frequency, Increase in size of settlement as well as population and other services. As you have your isolated dwelling, your services are least here and even the density of population is lower. Hamlet density is slightly higher vs the size could be a little larger. So, as the size

increases, the density will also increase as well as the frequency, in the sense how many of these occur will decrease.

Isolated dwelling, this would have just one or two buildings or families in it. It won't have any services. Usually this is found in far farm lands or mountainous regions. Hamlet is a settlement with a very small population, less than 100. Very few services and few buildings. This is in Philippines, Ifugao Province. Village - generally it does not have any service when compared to a town or a city. In villages, people are expected to go to the town to fulfill everything besides their everyday needs. You just have a corner shop or a small post office. Population is between a 100 to 1,000. You can still see the importance of nature and the feeling of community is still there. Lack of proper roads and the houses are individual houses. A small town has a small population of 1,000 to 20,000. A town is a type of settlement ranging from a few to several thousand in habitants. Usually a town is thought of to be larger than a village but it is definitely smaller than that of a city. This is a small town, usually towns would have a tourism sector of it because they do offer some kind of services but they still offer the tranquility and peace of a village. A large town has a population of 20,000 to 100,000. This again is a historic town of Vigan. Again, a tourist backbone town, population is also there vs having a floating population and services to support that as well. A city has abundant services but not as many as a large city. Over 100,000 inhabitants is the population consideration, it is in an urban area with a large population and particularly administrative, legal or historical status. Example is again from Philippines, Pagadian City. Again , you can see the change in the landscape, broader roads, lesser greenery and even the buildings are increasing in height. You can see the different kind of wires and cables cutting across. Even if tourism wants to be prevalent here, it will be relatively lesser because the

ethnicity and the character of that particular place will reduce as it gets more and more urbanized and globalized. A conurbation is an urban area agglomeration comprising a number of cities, large towns and larger urban areas that through population growth and physical expansion, have merged to form one continuous urban and industrially developed area. This can usually be confused with the Metropolitan area. As the term is used in North America, a metropolitan area consists of many neighborhoods, while a conurbation consists of many different metropolitan areas that are connected with one another and are usually interdependent either socially or even economically.

If you look at Ekistic Elements, how are they classified? **Nature :** Represents ecosystems including water cycle, biosystems, climatic zone etc. **Anthropos :** Constantly adapting and changing certain physical and psychological diseases directly associated with urbanisation. These include obesity, respiratory problems caused due to pollution and a sense alienation or depression caused by lack of community. **Society -** Realm of society comprises all those aspects of the urban or rural scene that are commonly dealt with by sociologists, economists and administrators; population trends, social customs, income and occupations, and the system of urban government. Other important Ekistic elements are **Shells;** the built environment is the traditional domain of architectural and engineering professions. **Networks -** Provide glue for all systems of urbanisation. Changes profoundly affect urban scale like advent of the railroad, or of piped water supplies, or of the telephone which affect the extent, texture and densities of human settlements. By Evolutionary phases if you have to classify settlements; you have Macro Scale - which is nomadic, agricultural, urban, urban - industrial. Micro scale - Is a specific area at a limited period of time. By factors in discipline, you have Cultural Disciplines, Technical disciplines, Political sciences

Administration, Sociology, Economics and the main Ekistics which combines all these factors and is the true study of science of human settlements.

If you look at the classification by size, the changing dimensions of human settlements and the change in their character from static to dynamic which gives them different aspects as everyday passes, makes these settlements confusing for places to stay as such, because people are not able to relate to that place. They want to escape from there because of the growing size of it. Some, mistakenly support the Utopian thought of returning to the system of the small city, but they don't know how to do that because they are kind of used to certain facilities and infrastructure because we want the advantages that a great city can give to us. We want the advantages of living in a village and clean atmosphere as well. The feeling that one cannot return to a small city system, supports the big city concept, we do not dare to change the real structure because we don't want to disturb the nuances of a big city which basically lacks in quality of life. Another major road is to realize that a big city is an inevitable phenomenon. Whether we want it or not, it is definitely going to happen. Basic problem is man wants to have the best of both worlds, let it be the rural world as well as the urban world but he does not know how to change the phenomenon of that of a big city which cannot actually be controlled by man. As and as the population grows, as well as technology grows, the city is going to become a big city. The number of big cities and large metropolitan cities are constantly increasing. This is the only realistic road that we can follow; to discuss the quality of life or any other important phenomenon in human settlements, without referring to their size is actually impossible So, classification by size is the most important, as well as useful classification. The confusion caused by small and big, town and

metropolis, city and megalopolis is very great. If we actually want to avoid it, we must classify all human settlements by size in order, to be able to understand them and assign them values. A small neighbourhood with cars running through it, loses its value and a metropolis without meaning of a very transportation cannot actually operate. So, we have to see what kind of transportation system, what kind of services are there, what kind of size of the city is there. Without any context if towns begin to grow without a proper infrastructure, that's where the confusion comes into place because we can't randomly only decide what kind of a city or what is the size of the settlement by size because it could be a small town but the facilities could be large. But if it is a large city without the speedy facilities required, it is pretty much wasted or be considered only a town. Even though classification by size is very important, it is by growth and provision of services along with the size and supporting the population is equally important. If you look at the fifteen levels of Ekistic units, right from man, single unit to the Ecumenopolis which is of 50,000 Million, which is the city of tomorrow, where eventually all the cities are going to converge and meet. Four basic groups is how we divide it, where you have a small unit until a village, then from a neighbourhood to a small city, from small city to large city - metropolis and then Eperopolis is about 7,500 Million again a very large population.

If you look at the quality of human settlements, we can now face the most important question of quality because a specific unit by first defining its size. A small town, especially in older civilizations, can satisfy many of our aesthetic needs for picturesque streets and squares, and this is exactly why we like it. But most people want to go there only for a vacation, no one wants to go and settle down there, because they know that the facilities offered by that place are going to be negligent or

not superior quality as a big city - Metropolis is going to offer. The facilities could be choice of a job, education, health facilities, better social contacts as well as entertainment. Judgement about quality can be made in several ways in terms of the relation of every individual to his environment i.e his relation to nature, society, shells and networks. The benefit that he gets from the contacts, the great size of the modern city is not what causes the bad quality of our environment. Corporations have increased in size even more without any loss in efficiency, and the armies of the World War II were able to operate very efficiently despite their unprecedented size and rate of growth. The problem is actually not just our population growth but our perception of how we can grow our cities, completely ignoring the ecological aspects of it or the environmental aspects of it. That is what hampers the quality of human settlements. The quality of our city expressed in terms of a system of movement is decreasing because we have not been able to reduce the increasing complexity by introducing a higher degree of simplicity, as a primitive man has managed to do so.

To conclude; Study of human settlements should be comprehensive and have an interdisciplinary scope related to five Ekistic elements. Any study of settlements shall refer to Ekistics units of scale from man to Ecumenopolis, the fifteen levels in Ekistics logarithmic scale. Time dimension must be integrated in analysis and design of human settlements from past to present to distant future. The scientific method shall be used in a systematic treatment of human settlements, following the models, concepts, principles, values and postulations of Ekistics. Cities must be treated as a dynamic settlement for which the concept of Dynapolis shows for growth and change. Unlike other disciplines or sciences, interested primarily in only one element of human settlement such as; society or shells, Ekistics draws upon the language of

Economics, social science, technical disciplines, cultural disciplines and two fields of study closely allied to this study are; urban geography and regional science and by drawing knowledge from all these fields, it seeks to draw general conclusions and not only formulate new theories and laws but also helps us understand the older urban laws and theories and it will also help cure the maladies of existing settlements and prevent such ills from happening in future settlements. So by the end of it, Ekistics not only helps us study the past of settlements, but also helps us study what can go wrong and futuristically even plan our settlements in such a way that we can learn from our past mistakes and incorporate those theories into the planning of future settlements.