

Evolution of Human Settlements- AR6004
Unit 3
Human Settlements & Their Characteristics
Lecture 7

Concept of Axis

If you actually look at the definition of axis it is nothing but an imaginary line, the main line of direction, motion, growth or extension. So, in terms of urban planning it is a very crucial component, axial design emphasizes long formal vistas with strongly defined edges; the vista is frequently terminated by a prominent building or monument. That is the importance of an axis with city or urban planning. It actually helps us in organizing principle to which other elements in composition are effort. It is very important in terms of spatial compositions, even in sculptures or even in single building architecture, this axis line is very crucial. So in urban planning this becomes so much more important as the scale is much larger. The line itself is obviously invisible but the perception it creates is obviously very definite. If it is a well-organized city, the importance of axis is even more felt and definite. As a tool of city building, the axis is a primary element in the European Baroque tradition, the most enduring themes of this tradition were articulated in the master plan of sixteenth century Rome. The notion of the vista, the use of the obelisk as a striking spatial marker, and the overarching principle of geometric order for its own sake. So, axis is such the first history of it begins from the 16th Century in urban planning. So, the street is no longer thought of just a space that is left between buildings, but it is actually a spatial element with its own integrity. The buildings defining the street channel are viewed as continuous planes rather than as independent entities and straight streets are used to connect churches and other public buildings creating 'constellations of monumentality.'

Now, if you look at this, this is the plan of Washington D.C, you can see the importance of Axis in this like no other planning city. You can see the important monuments which are marked in red and you can see the importance of the axis. One long axis; monument, monument, monument along the axis and it breaks at this point and straight ahead, you have another monument. So the principles of Baroque architecture and planning is obviously seen over here, you can see the clear importance of vistas, the linear axis vista, monument vista. The importance of a view and at the end of the view if you see a monumental building, it creates a sense of awe, it creates a sense of decorum, as well as a sense of being content in the sense the city is complete. The vista never allows restlessness to arise within anybody. Now, if you see a strong monumental building squat at the end of a vista, a sense of completes and contention is obviously felt. This is Washington D.C and you can see the axis felt, throughout the city. The entire city is built along a web of axis and the importance of it. This is again, an aerial view of the city, the obelisk over here, the straight pathway, the capitol building. You can see, without actually having the lines drawn, the streetscape actually awards the axis drawn in different directions. We will discuss Washington D.C as an example for us to understand how does axis play an important role in city planning. So, Charles l'enfant, the french architect and military engineer, he was the person responsible and hired by George Washington during the revolution to come up with the brand new city for portraying the ideal of an emerging nation. So, brand new capital was required and this seemed the best place to use the Baroque aesthetic, because it could easily perceive. It had strong urban emerges that were once modern wide straight streets, open prospects and the generous distribution of green which is basically resonant with historical authority. Baroque planning had become synonymous with city planning as a work of art. So, baroque planning was the only way to

go about planning Washington D.C and in Baroque aesthetic planning, axis played a very crucial role. So L'Enfant, what he did was, he fixed two highest ridges for two centers of the Government, the house of the executive and the house of the Congress. From this symbolic division L'Enfant radiated a dynamic web of diagonal avenues overlaid by a rational grid of streets. Within this framework, he actually envisioned a series of classical style buildings to convey the same message as the plan. A government aggressively radiating into the future, yet grounded with stable roots in the past. So, an urban plan is just not an urban plan in terms of people living there, Governments running or industries running but a city has to portray what it envisions to support in the future, does it forget its history? No, it has to be strongly rooted in history, but it must spread its wings to a brighter and wider future. L'Enfant's plan was revived and enlarged by the Macmillan commission, in the 1900s. The resulting plan which was overseen by a group of prominent architects and landscape architects is what we see as Washington D.C today. So, what are the key elements that took place with respect to planning? The physical dominance of the buildings, housing the legislative and executive branches of the government, the siting of the monuments on major axes to memorialize leaders and events that helped to form the nation. The provision of grand public spaces, most particularly the mall, which occupies the city's grandest axis-in which citizens can congregate for protest as well as celebrate. Definition of the edges of the axis, through the placement of prominent buildings. The mall for example is flanked by the national Gallery, the museum of Natural history, the museum of American History and the national air and space museum. So, it is very important. A mall is nothing but an open space, it is a large open space facing the obelisk. This is where everyone would congregate and it's surrounded by

prominent buildings which gives this open space a lot of historical meaning as well.

Concept of Orientation

Now, we will move on to the concept of Orientation. How important is orientation with respect to city planning? We will garner its relevance in historically important Roman period, what is it that orientation did? It is obviously an important aspect of city design as well as building design. This is basically an act of positioning the city with respect to the cardinal directions which is north, south, east and west. The urban plan of the settlements was always the same. The layouts of the newly founded towns were indeed planned in accordance with the so called castrum (i.e military camp). Obviously at that point of time, we are talking about a Roman period where basically wars were being fought, there were still basic things of the feudal system which was left behind. Military camp was the main structure. City boundaries of a castrum town, formed a basic rectangle which is usually not stretched in a direction, it is basically a straightforward rectangle, this is what is a town. The rectangle could be limited by walls, the limited streets were organized in an octagonal forming the inhabited quarters i.e where the houses and the main human settlement lay was the insula. So the orthogonal town planning is seen in parts of the world in different cultures and basically there came about two orthogonal roads called the cardus and the decumanus which is basically the two main cardinal roads that are intersecting. This is the plan of Augusta Pretoria which is basically today's Aosta road from around 25 BC. It isn't very clear but you can see it is laid in a grid like pattern, you have the north, south, east, west. It was laid along the main decamnus and this is another cardinal road you have. Then you had the basic church or the sacred area, then you had the areas where people lived, then in the end, you had something like a

market area, this is where it would happen. So, in Rome what would actually happen is, in Roman towns the orthogonal layout was actually quad part type i.e four main roads, four main gates at the end of four roads. This was the center of where social and religious life happened. The foreign and the main temple we saw was the main element at the end of these roads or at the intersection of these two main roads. The orientation of Roman towns was never random, it comprised of two main reasons; one lying in the center of ten degrees southeast, and the other which is influenced by different Roman festivals because of the position of the Sun. Now, similarly what happened in the Indian sector with respect to the orientation and the vastoo. The ancient masters of Vastoo or vedic architecture have always highlighted the importance proper orientation. It obviously influences the dwellers in terms of living, education, physical and mental health, relationships, finances and even the welfare. It is even more important that cities follow this rule because an entire number of families are dependent on thriving of that particular city. It is based on a scientific explanation that the magnetic field runs north, south, obviously throughout the globe and the Sun gives life to the electromagnetic field in the East-West orientation. So, these directions obviously played a very crucial role. The Vaastu Purusha Mandala was the guideline for the layout of a building of a city. Either to be a building or even that of a city, this grid was very important. The grid had to be oriented such that the cardinal directions of the Earthly grid, then the plan of the city has to be over that Earthly grid. There has to be that particular sense of overlapping and no clashing of the directions, so there should be a geometric harmony that is maintained with the Earthly energy grid, if there is any distortion, deviation or deflection of the grid lines of the building, then the building space is said to be disharmonious with the Earth's energy grid and it is not considered to be a suitable urban planning. The geographical orientation is primarily

based on the movement of the sun, the electric current flows through the Earth's molten core, when the Earth rotates, a magnetic field is produced and it extends into space. While creating a residential layout or a city for that matter, proper orientation of buildings and pathways to the cardinal directions, helps in cross ventilation, creates order and balance that is obviously required for the happiness of the people dwelling in that particular place. This is the typical example of the Vaastu Purusha Mandala, we can't go into the details of it, because it goes into the realm but we can see the importance of orientation and direction. You have north, south, east, west and then you have the south west, south east, north east and north west. So, any town that is developed is based on this particular grid and you can see the form of human being that is situated within this grid between the head and the toe. This kind of planning is required, this importance of direction has always been given to city planning since time and memorial because if the city is not built properly, there could be a problem with lighting, breeze, ventilation, it affects the greenery of the place, it affects the wellbeing of the people, so it is a cyclic reaction. So, any city or town there are roads in all four directions and there obviously has to be houses on both the sides of the roads. The city looks more aesthetic if there are houses in all the four directions, so according to the true Vaastu, all plots are considered to be good. There is no such thing as this direction is bad or that direction is considered bad. It has to go well with the cardinal directions of that particular location, that's about it. This is Kautilya's Arthashastra, this also lends to a self the kind of planning that is required with regard to landscapes, and you have the forest. Arable land is basically private land, pastures. Forest could be productive, non productive. Reservoirs, mines and others. This kind of progression in types of land uses enables the orientation. This is all enabled by the orientation of the city. If it is an Arable land, how do you orient the city? If it is going to be a forest,

the non-productive kind and there is a city going to be nearby, how do you orient it? Different land uses decide the different types of cities that are going to emerge because of these land uses. This is a typical layout of any kind of establishment. So you can see, there are houses in any possible cardinal direction. So, there is nothing as such as bad or good but this entire layout is done in such a way that it does not affect the magnetic field of the Earth.

City: Important Components

Now we will discuss the important components of a city. If you look at the different components of a city, you have commercial components, a cultural hub, or basically the functional or residential hub. We will start with the commercial hub of the city or otherwise known as a central business district. This is basically the commercial and business center of the city. In larger cities it is synonymous with the financial district, geographically it coincides with the city centre or downtown but these concepts are two separate concepts. Downtown doesn't necessarily have to be the CBD of the city, it could be located away or near the cultural city or downtown. Both the CBD or the city centre or downtown may also coincide with the central activities district. So, there are a lot of terminologies that we have to be aware of over here. A commercial hub necessarily has to be a financial district along with the commercial centre district. The location of it with respect to the city geographically doesn't necessarily play a very crucial role. The city's CBD is usually typified by a concentration of retail and office buildings. The retail and office buildings could be both government as well as private. But if it is predominantly government buildings, then it is a commercial hub but if it is predominantly private buildings, then also it is still a commercial hub. It usually has a

an urban density higher than that of the surrounding districts and is often in the location of the tallest buildings of the city. The shape and type of a CBD always closely reflects the city's history. Cities with maximum building height restrictions often have a separate historic section quite apart from the financial and administrative district. CBD's usually have very small resident populations. So, a central business district, like the term says, concentration and retail office buildings, so it is basically not a 24 hour city. People don't stay there before working hours or office hours, it is strictly commercial, the entire area thrives because of these commercial activities. So, if you look at India, the term CBD is used to describe commercial vibrant pockets like MG Road in Bangalore, CBD Belapur in Navi Mumbai and Nariman point (Fort Area) for Mumbai city. So we will look at some of these example and how actually CBD doesn't necessarily have to remain prominent or important over a period of time. So, here you see this is a central district business, Belapur where you have the flyover which is the main important connecting element with the rest of the city of Mumbai, as well as Navi Mumbai. You have the CGO, RBI and CIDCO offices right bang near the flyover or the main expressway or highway. So, that is the importance of a central business district. This you have the Mumbai skyline around Nariman point, again a concentration of tall buildings, very important business wise. This is the oldest central business district in the city of Mumbai which is the Fort St. George walls, the remains of it as such. So, we can see a progression as the industries as the industry demands it, as the market demands it, a new central business district emerges. Initially when the Britishers were here with the East India company, the Fort area was the maximum thriving commercial area of the city. Then, as the focus of the industries and kind of private sectors changed, Nariman point came into being and once Nariman point reached its saturation point, when suburbs started to develop in the outer realms of Mumbai,

Belapur has come to replace Nariman point. So, we will just look at this quick transgression once. So, Fort is basically the business district in Mumbai, India. The oldest hub ever. It gets its name from the defensive fort obviously built. The area extends from the Docks, the docks are very important because the shipyard was where all the transportation goods, all that happened to the Azad Maidan in the west, Victoria Terminus in the north to Kala Ghoda in the South. Again, victoria Terminus played a very important role because it was the railway station that again led to the transfer of goods inwardly to the city and towards other parts of the country. This area was considered the heart of the financial area of the city. Institutions such as the Bombay Stock exchange, reserve bank of India and Tata group headquarters are located in this area. So like you see, all these institutions are age old institutions and still exist in the oldest hub. Now, the fort area has been declared protected under certain regulations over urban development authorities and an advisory committee now oversees the development, repairs and renovations. The side streets you have schools, playgrounds, restaurants, cinemas and other important business houses. This street is famous for its software vendors. It is also famous for street shopping, book stalls and myriad types of shops which is not particularly relevant to the economics of the city but very much to the commercial hub with respect to retail shops. So, the fort area is not completely lost its CBD status but it is still a commercial hub at the same time. Now, we move on to Nariman point which was the business district in Mumbai city and still is for many people. For formally prominent districts on the west coast, now this is replaced by the Bandra-Kurla complex and now CBD belapur. It is located on the Southern tip of Mumbai peninsula, obviously close to Marine drive, close to the docks, very important, close to Victoria terminus again, very important. It houses the most prestigious headquarters, but again, it obviously altered the skyline, lots of

skyscrapers but once skyscrapers came into being, prominent buildings came into being, land value increased exponentially and then it reached a saturation point where people couldn't afford it anymore and people had to move away from there and once people started moving away from there, the area lost its value at the same time. So, the basic reasons for its decline are high prices, lower quality and age of construction as this part of Mumbai was developed between the 50s and 80s, increasing distances from the residential hubs like Navi Mumbai, Thane district etc, which now have moved northwards and towards the suburbs. So, now to replace this, we have CBD Belapur which is the most important node of Navi Mumbai. Navi Mumbai is this part of Mumbai which is developed, number of districts within it to support the over population and businesses of the main city of Mumbai, this is one of the most fastest developing region, the Navi Mumbai in terms of residential and commercial construction. CBD Belapur is well connected to all other parts of Mumbai through railways, BEST which is nothing but their local buses, they have a ferry service for traveling to the Elephanta caves from sector 11. Elephanta Caves is again we are talking about the fort area or South Bombay. So, it is well connected to all parts of Bombay and it still has the land for it grow exponentially and support the growing district. So, this was under the Portuguese rule in 1460 and before that, it was captured by the cities of Janjira. So, there is a Portuguese influence at this point of time. Then, in the 1800s we had the British East India Company come in and capture this from the Marathas. So, this is the southernmost town in the Thane district as well as in Thane Taluka. When you talk about Belapur, even having historically important details, it is a true CBD in the sense, it has a part of the town that is old and historical. It also gives the scope for the town or the city to grow to support the growing businesses as well as the residential activities as well as people who are going to move in there because of the

exponential business growth. So, it is the house where most prominent call centers like Choiceconnex, Wipro and other companies, it has a number of restaurants, recreational grounds. It has very important schools, lots of complexes and the most important thing, it offers a very good quality of life, because it has lush greenery, better climate in terms of that. More organized than other parts of Navi Mumbai, there are a lot of open spaces in and around Belapur. So, that has obviously played a very important role in the growth of Belapur. Now, we will move on to Cultural hub. The cultural hub is basically a group of cultural organizations, art schools in an area or a city which supports a direct dialogue or sharing of skills, and a meaningful relationship between educational and cultural sectors. So, if you look at the Government, what the ministry of culture has done now is they have actually chosen cultural zone in India which will promote and preserve the cultural heritage of various regions. So look at the zone in our country, if you look at it, they have come up with is this list has come about in 1985 - 1986 period but it is only now that these cultural centers are being built. This is the main goal of these cultural centers is; to strengthen to the ancient roots of Indian culture and evolve and enrich composite national culture. When we talk about building new cities and new towns, we have to make sure that there is something unique about all the cities and towns that are being built. Our town shouldn't be faceless such that it can actually be removed and placed anywhere in the country and no one will know the difference. That is not a true way an urban planner will design a city. There should be a sense of uniqueness to where that city exists. If you take a look at the kind of zones that we come about with; south, south central, North, north central, East, north east and west. All of these states come together. For South we have Thanjavur which has been chosen as the cultural centre. This is the south zone cultural centre. So, the main aim of these cultural centres is to protect the heritage core, to

promote different angles of culture and built heritage, make sure it instils amongst citizens a sense of pride and belonging and also at the same time, ensuring preservation of our cultural heritage, this way we not only garner revenue because when people start travelling, tourism brings in revenue but the importance of heritage is also relevant. It could be a promenade surrounded by a craft bazaar, museum, modern art gallery, amphitheatre; it should induce a sense of communal belonging which goes beyond the boundaries of the city itself. This is an example of cultural hub; Kala Ghoda in Mumbai. You can see the kind of atmosphere. When the festival is not there, it is like this, when it is there, it is like this. You have a lot of important buildings that are cropping around it. The next part of the city we come to is the main purpose why an urban settlement comes in, the residential purpose of it. To afford comfortable and healthy life, clean and green environment for healthy living, through parks, open spaces and gardens. They should be connected by roads, bus, other public transportation. It needs to be connected to economic or commercial nodes of the city which offer job opportunities. So, a residential area should support that as well as suburb as well. Thane is one such example. It is one of the most popular suburbs of Mumbai. It has both agriculture and many other manufacturing and service related industries. This is a glimpse of Thane, you can see a support industry, the open lakes, the greenery, as well as the institutional buildings, the pathways, the kind of parks, the kind of living that is involved, colleges, schools, lakes which offer a better standard of living, a lot of these apartment complexes, green spaces. When we actually look at Thane as an example, it is one of those districts that not only afford better desirability for residents but also business owners and commercial districts.