

Site Analysis and Planning

Lecture 10

Welcome to UGC lecture series, today's topic is Site Analysis and Planning. Subject code - AR 6512. Unit 4 - Site Context, Lecture - 10.

Presentation outline - presentation has been divided into three parts - Introduction, then we are going to move on to what is Master planning and then we are going to look into Land use and zoning.

What is a Master Plan? A comprehensive long-term strategy to develop or improve (land, a community, a building complex, or the like) through a long-range plan that balances and harmonizes all elements. This is an example for a Master Plan. When you are making a Master plan it does not only encompass the details of a small area of land, rather it can go upto recording details of a district, a state or even for a country. Master plan is a missionary plan in which you are going to know what will happen in the future in which it is going to be a record that you are going to maintain of what happened in the past. This can be used to give information for people who are going to use the master plan in the years to come. To know or to understand how the land has evolved since the beginning to how it has been transferred to the present and what can be done in the future to benefit the most from this condition. As you see in this image, it is a huge parcel of land that has been divided into different zones and the general land use that you can see in the masterplan are Residential, Industrial, Mixed use, Retail, Institutional, Public Open space, Office, Parks. When you have a master plan, you will know where different zones or buildings are located. We cannot suddenly build a commercial space in a purely residential area. This information can only be recorded with the use of master plan.

Any municipality, from small village to sprawling metropolis, can have a master plan. Small communities will hire a private planning firm to prepare a plan and submit it to the local government for approval. In big cities, the department of city planning prepares the master plan. Master plan is not just for a small site, the scale varies from a very small site to a huge parcel of land for an entire city or an entire state. When you are making for a smaller project, what happens is a planner or designer prepares a master plan and then he considers the whole plan along with the client and then it is being submitted in the government bodies for approval. When you are going to make a master plan for a bigger city, what happens is, the government creates the master plan along with few site planners who have been employed under the government, they prepare the master plan. Depending upon the scale, this process varies.

The plan itself is a document, sometimes hundreds of pages show a community as it is and recommend how it should exist in the future. A master plan is not just a graphical representation but is also a complete document in which it is given guidelines, codes and regulations and understandings about different parcels of land and different elements that are going to go into the master plan. Even though the person who has developed the master plan is not continuing to carry it forward, someone else who takes charge can study the whole document and design from there on. This is just a combination of graphical representations, plans, maps and documents and it also has some of the sketches or renderings of the first master plan. When you see here, this is the impression of an artist who proposed Park plaza. This is in Google maps, in which he has overlaid how the plaza looks after it has been built. He also made small 3d renderings in which he has shown how the public spaces have to be and how the plaza has to be and what materials have to go inside. Here is a clear cut image of how the final output has to come. It often contains diagrams, aerial photos, maps, reports and statistical information that support the planner's vision. Once you make all this, once you have a vision what is going to come onto the land, it is much more easier to convert these ideas or these goals to an actual building or an actual built space.

A typical master plan addresses the following - Transportation and traffic: A good master plan takes all of a city's transportation corridors into account. A transportation corridor is any channel along which people and goods from place to place. When you are making a master plan, it is very important to understand how transportation and vehicular movement is going to happen around your site with which you can understand how the public or how the users are going to commute from other parts of the city to your site. There is no point in developing a huge commercial space in an area that does not have good transportation since it is going to be remotely placed and people are going to have a hard time commuting from their residence or other part of the city, to this place. First, we need to understand how transportation and traffic is going to work out around the site.

Park, recreational facilities fall under Community facilities. Cities support an array of community facilities that satisfy its demand for social and cultural enrichment. These include public and charter schools, police and fire departments and community centers. When you are making a community development say for 500 to 600 residents in a parcel of land, they need certain basic facilities that have to be present around where they live so that they can commute everyday using less transport as much as possible. When you are making a community, its supporting needs must be parks, recreation and small day care spaces, even hospitals that can be accessed everyday. These are supporting amenities that have to be present to make the community work.

Park and Open space - Parks are vital to cities because they serve as the focal points of neighbourhoods and often have community and cultural facilities grouped around them. If you are going to develop a large number of residences, the number of people going to use it are going to be in thousands or even in lakhs. When you are going to trap so many people in one place, you need a breathing space for the whole city. This green space acts as a breathing space for the whole city, the users can come outside and use the space and this can act as a recreation and also as a social element in which they get to meet people around them and interact with their neighbours.

Neighbourhoods and housing - Successful neighbourhoods also emphasize community, livability, appearance, transportation opportunities, convenience and safety for all residents. It has to also ensure the community development or the neighbourhood development has proper safety as well as other amenities that we might need. Such as; recreation parks, etc.

Economic Development - A master plan recommends how a city's design can be enhanced to attract new businesses and protect existing businesses. When you are making a community development, you must also make sure there is economic development with it, only with which you'd be able to see some economic growth in that space. For example, a plan might call for redevelopment of a downtown area to include a public market and a conference/ convention center, with the goal of better serving the city. If there is a space that has not been used much, there might be a redesign of this whole plot in which you can incorporate some of the economic development spaces in which a small market area or a small convention centre that can attract people on a daily basis, people can come and use these spaces which will also be a form of revenue generation for this whole area.

Land use - the major land use recommendations presented in a master plan result from analysis of a city's environmental and physical conditions, as well as the planner's vision for future growth. When you have a land use plan, you will know what zone and what development can be made and what are the restrictions that have to be followed. When you start developing, you cannot take the entire land just for residential or just for commercial, it has to stop with certain limits. Land use plan is the plan which gives that type of information until which zone what development can be made. Public support of a master plan, no matter how comprehensive or visionary, is crucial to its overall success. Even though the plan you have created is revolutionary, you need the end users to be satisfied with what development or what change you are going to make. Public support is vital and mandatory. Strong public opposition can arise if city residents believe the proposals of a plan are too costly, aren't fair and equitable or could interfere with their safety and well-being. If the public decides the plan is not going to work for them, they protest against it and they can even make the growth completely stop. You

need to actively participate along with the design process. In situations like this, urban planners may have to explain their plans to planning boards, interest groups and the general public. Organisations like NGOs might be interested in knowing what the development is and how beneficial it is going to be for them in the future. This has to be done when there is strong public opposition. Once a plan is adopted, implementation can begin. Not all programs can be implemented at once, so most plans include, usually as part of the appendix, an action agenda that provides the outline of the short- to medium- term actions essential to get the master plan off the ground. When you are going to make a development as a whole master plan, it is difficult to get the whole thing started at the same time. What usually happens is, they divide the entire plan into smaller phases in which phase 1 gets started immediately and can get over within a year or chartered time. Then, we move on to phase 2 - development which happens either simultaneously or after phase 1 is completed so that phase 2 can start and then it goes on until the whole master plan is conceived. For example, if you take this master plan, this is the first building which gets developed and eventually when this begins to get constructed and the design evolves, they start doing landscaping in front of it. When the building 1 is completely finished, landscaping will be completely over and this parcel of land can actually work separately. Finally, when you move on to the other parts of the site until the whole master plan is executed. The city may use its grant of the police power to adopt and enforce growth and development regulations. It may also use its power to tax to raise the money necessary to fund growth and development. When you are making a master plan, sometimes due to the increase in cost of material or cost of labour that happens on a daily basis, government might fall short in the amount to be spent on the master plan to get executed. While such things happen, they have the power to enforce tax on the public in which the money has to be paid to the government in order to conceive or envision the whole master plan. And it may use eminent domain, which means they can even take a small parcel of a private land to include along the master plan to fulfil the needs of the future. The power to force sale of private property for valid public use. They can even take your house and include it within the master plan. For example, when the expansion of the road took place, they usually take the residences on either side the road and compensate them in pittance depending upon the person whose residence has been taken. To enable various infrastructure investments and redevelopment actions in support of public policy and plans. They can even levy extra tax money in order to finish the master plan or collect more money or even take private land to include it or make it available for public use and they can include different support policies, quotes and regulations to fulfil the master plan.

Planners must also be aware of zoning laws, which are another way cities control the physical development of land. Zoning laws designate the kinds of buildings permitted in each part of the city. An area zoned R-1 might allow only single-family detached homes, whereas an area zoned

C-1 might allow only certain commercial or industrial uses. This is a land use plan, when you have a land use or a zoning law which means certain type of building typologies can be designed or developed only in certain spaces. When you see here, this light yellow colour is R1. R1 is a residential plot, in a residential plot, you cannot develop something like C1, C1 is commercial. You cannot build a commercial complex or a shopping complex in a residential zone, it would disturb both the residential zone and reduce the public who are going to the commercial building. Zoning is not without controversy. Zoning ordinances have been challenged as unconstitutional several times, and some argue that they are tools of racial and socioeconomic exclusion. As we will see in the next section, this is just one of the many criticisms leveraged against urban planning. When zoning is being made sometimes zoning undergoes a lot of change, that is why zoning keeps getting revised. There might be some parcel of land that might not be eligible for construction this year but in later years there might be construction possible since the community needs more industry to get developed, those areas can become industrial zones in which industries come up. This is completely changing and this vision depends upon how the city is going to grow and what economical development it can bring into the city. This is another example on the zoning map in which they have shown how the families are located, commercial, residential, mixed use building and even the green space. In future years, the green space might get reduced because there are a lot of people coming inside the city, since people are going to some other city, there might be some vacant land in which further smaller parts can be developed so this is a continuous changing process.

Land use - A map that shows the types and intensities of different land uses in a particular area. This is a land use map of Chennai, as you can see these are different percentages in different zones present. So, at first when you see, there is 33% of Residential used zone, according to a proposed land use. This is a proposed land use, this can change even in between depending upon what current economical growth the city has been facing. This shows residential areas, what is the purpose of mixed residential used zone and commercial used zone, Institutional zone and special and hazardous industrial zone. It has industry, institutional, commercial, residential, bars, green spaces, everything is being detailed out and marked in the land-use plan.

The importance of development plans/ land use policy for development control - Land use planning refers to the process by which land is allocated between competing and sometimes conflicting uses in order to secure the rational and orderly development of land in an environmentally sound manner to ensure the creation of sustainable human settlements. When you have a land use plan, you will have know how much development can be made, how effectively it can be made, what are the materials that can be used and how sustainably it can be made. Sustainability becomes an important factor even from land use plan, how it can be

conceived or work independently over the years to come. These are the factors that can be analyzed in your land use plan. The process of land use planning consists in the main of the two twin functions of development/ land use planning and development control. Of necessity, these two functions must be supported by relevant research and mapping which are also major components of land use planning process. When you are making land use planning, you need to consider various factors that have to go into land use planning and it also has to work side by side with development control which is going to tell the designers or the architects how much development can be done and what is the point at which it has to be stopped. Development cannot be done while making a certain plan or improving it, you cannot make the development continuously or restrict it to some zone or some area, that is done by development control. As you see here, when you are developing a parcel of land, you need to consider social factors and biodiversity, engineering, land use, environmental considerations. Social factors are the people who are going to use it, what are their social needs and biodiversity that's present. On the site, vegetation, topography and wild life, everything has to be studied, which comes under biodiversity. You need to understand about engineering, what types of services and amenities are present around the site and also about land use and what are the areas which can be developed and cannot be developed, which zones fall under commercial and which zones fall within residential, have to be understood. Then, we have integrated of all this together with our environmental considerations such as sun path, wind movement, wind pattern, wind speed, all have to be integrated together to make a holistic approach to a master plan.

Why do we do it and how does the need for it arise? Land-use planning does not exist in isolation. It is necessary to view land-use planning as an integral part of the process of national growth and development. When you are making a land use plan, do not segregate the land or just the plot as a separate development, it has to envision the whole city or the growth of the entire country. Among other things, this process seeks to identify, articulate and satisfy the basic social/ human needs of a country's population within the context of available economic/ financial resources and technical knowledge. When you are making a land use plan, you need to analyze the information you possess and how much money can be used into creating this land use plan. Also, what type of technology are we going to have in building services, what is the schedule that is going to go in and what is community concern, what are you going to for the entire community, all these have to be taken into account, we can make the most from the land we are given with a minimum cost. People have needs that must be satisfied. For instance, they need housing, jobs, education, opportunities for recreation, transport and basic services like water, electricity, clean air and health care. When you are making development, you need to make sure you are also going to give these supporting amenities to fulfill their requirement or make them economically stable.

Social planning and policies attempt to take care of the basic social needs of the country's population. When you are making your land use plan or master plan along with the document, you also need to prepare social planning and policies in which it is going to take care of the community concerns. Economic planning and policies seek to ensure that the country has a sound economic base which provide revenue to finance the government operations and pay for provision of services to the public while also ensuring that jobs are available to the country's labour force. When you are making an economic plan, you need to make sure it constantly generates revenue and that people do not run out of jobs or have to move some place else to make a livelihood. By making it, it doesn't just stop with where everything comes but it also envisions the project, as to how people are going to get benefitted through the economic plan. Land-use planning seeks to accommodate these needs within a technical and spatial framework. While houses must be built for the population for example, they cannot be provided in a swamp, or an area that is unsuitable for housing development because of its terrain, vulnerability to natural or other disasters, or inability to physically support the building or in an area that endangers the health and safety of the occupant or other members of the public. When you are making development, you need to understand which places cannot be used for development or construction and those have to be especially taken care of. You cannot build a housing development in a place which has very steep slopes where construction is not possible or where they have a dumpyard. This has to be built very sensitively. Similarly, economic decisions to focus on tourism, manufacturing industry or agricultural development as the basis of the country's economic development must be translated into land-use terms. Again, these are some of the revenue generating aspects for a whole master plan. So, when you have a plot of land, you must have an industry that will employ people around the space. Also, things like tourism can attract to people come and visit your place. Your place automatically gets its revenue from the people who visit the space.

First, each of these activities use land. Furthermore, some areas of land are more suitable for some types of activities than others and some activities have negative impacts on the terrestrial (land) and/or marine (sea) environments. When you do land use planning, you can also get the information on what type of development can be made in what type of area. If you are going to make a hazardous industry located in the residential area or along the coastal area, the sewage water or the smoke that is going to come out is going to directly affect the public that is going to come to the coastal line or the sewage water is going to directly connect up to the sea which is going to affect the whole life of the coastal region such as fish, tortoise and the living organisms that are present in the sea. Also, use of land for one activity often prevents its use for another activity at the same time. Only when you know what activity is going to happen in a specific land, only then the further assumption of using it for something else can be avoided.

National social and economic needs are identified and articulated by people themselves, by politicians, community groups and sometimes by the technical experts like Land use planners. While preparing a land use map, it is usually done by land use planners. It can also envelope community groups and other technical experts and also goes with the revision of politicians, government officials to make improvements and changes in the land use planning. These needs are translated into spatial form or a land-use activity and reflected in land-use plans, policies and development actions. As we said in few slides before, when we are making a plan, it also has few documents that have regulations and policies which get developed along with the whole vision which act as a guideline for people to follow. So, when you are making land use and these studies, this gets transferred into your policies and codes. Land use planning therefore is derived from the need to satisfy these needs on the ground, in a rational manner and within a technical framework. It is a crucial part of the process of integrated development planning which include social and economic planning and reflects their land-use and spatial components. Envisions the whole project along with the social and economical growth and it gives the maximum benefit out of the cost that is being derived to the end users, this is very important when making a land use plan. Land use planning also takes place within a legal context. At this stage, it is suffice to say that the legal context provides justification for undertaking land use planning and sets out the powers and duties of the agency responsible for the planning auction - the development control authority. Since we are developing quotes and regulation, it all follows a legal context. Whatever you do has to follow the rules and laws that are being followed by the government for the construction industry. Say for example, you are making a plot development, it has to follow certain minimum setbacks that are being set by the government, we cannot deviate from that. It has to follow the new planning principles along with the legal context that is being already present for that type of site. The legislation also sets out the procedures to be followed, the conditions under which they may be carried out and the matters to be covered in executing both the development planning and development control functions. It goes hand in hand in which we also envision development planning, which stop, which helps us stop where it has to be stopped. The law also makes provision for revising and changing land-use plans and policies to ensure that they are always current and relevant to the country's development needs. If you have a land use plan or a development plan that has envisioned the next 50 years, it constantly changes so that it gets updated each time so that there is a technological development or a development in the building services that can be integrated and the final output you are going to design is completely up to date.

The law also provides for remedies for those persons affected by planning and development decisions/ activities and penalties for those who fail to comply with the provisions of the legislation which means if the government is taking a land as land acquisition, as an eminent

domain, they'd give you replacement either with land or as the same amount of cash for the area that is now being used for public use.

Let's summarize what we have learnt from the whole presentation as learning outcomes - We saw introduction to master plan and then we went through factors to be addressed while making a master plan. Introduction to zoning and land use planning and then we saw the importance of development plans/ land use policy for development control. Questions - Define a master plan and mention its significance. How is a master plan conceived by the designer? What are the various factors to be addressed while making a master plan? Define land use plan, what is the difference between land-use plan and zoning. Are development control policies important, if so, why? Thank you!