Site Analysis and Planning

Lecture 11

Welcome to UGC lecture series for B.architecture. Today's topic is Site analysis and Planning. Subject code - AR 6512. Unit 4 - Site context. Lecture 11.

Presentation outline - presentation has been divided into three categories. First, we look into Introduction, then we move on to look into Development control and land use consideration in development control. In our previous presentation, we saw what is the importance of land use and how it has to be done. How land development control comes along to make sure the land use policies and codes are being controlled and followed throughout the master plan. Now, we are going to get into details and see what is development plan and how does it influence land use plan.

Development Control

The focus is the development control function of the land use planning process and it is this activity with which you are most familiar in your daily work which means you have a plot of land in which you need to propose a master plan. What you do is, you have your mainroad and you create roads within your site to be accessed, that comes under safety path, which is called as Safe Access Proposals. As you see in this image, it shows where are the green space, where your main roads are and where your plot is going to developed and how your primary needs are getting accessed by your secondary and tertiary roads. Then, Development Control Regulations is being developed for the same plot which show what are the zones that are going to get limited to a residential area and what is the zone which is going to get limited to commercial area and what is the zone that is going to be a mixed used area, institutional, educational and such. This is developed depending upon how your pedestrian and traffic movement is. For example, if you have a main road which takes up all your traffic or which has the main vehicular movement, it is ideal to make or zone your commercial spaces along with it so that all your commercial activity will attract the public and public will get to know what type of activities or commercial things are going around along the movement or axis path. Whereas, if it is a residential area, keeping it a little away from the main vehicular movement road is more sensible so that the noise that is being created on the main vehicular road or the congestion and smell that is produced does not affect the peaceful residential zone. This has to be allocated according to the traffic and transportation planning and analysis. This falls under development control.

The development control functions seeks to manage and regulate property development to ensure that all development takes place at an appropriate time and place and in such a manner that it conforms to a pre-determined set of policies or standards. When you begin a Land use

planning, you must decide when it has to be completed, for which you need to prepare a time schedule. First you need a time schedule and you need the client's approval and you need to develop a detailed programming in which the development has to happen. Say for example, you need to finish your design in a month or two, then you need to begin your project. From here, you begin clearing your site and start digging your foundation that has to be completed in 10 days or 15 days. This time framework is being worked out in detail so that the client does not waste his time and money in the place or also the masons and labourers that come to work are not wasting their time till one activity is completed. There are a lot of activities that can be performed simultaneously and have to be seen. The time framework has to be worked out accordingly. It has to follow a specified time that has been allotted.

Why do we need a development control? To avoid the following - Inappropriate or poorly sited development which should not be located where it is. If there are no codes, regulations or policies to control what type of development can be made, the designer can get lost many a times by making a master plan or envisioning a whole scheme. When there is something to control them, it becomes much more reliable for it to get executed and it reduces back and forth of design, correction and all these processes. Projects/ buildings that do not have the necessary facilities (car parking, sewage treatment plant) or infrastructure (access roads, drainage, water supply) to support it. If there is no development control, you won't know where your parking has to come, how your site can be accessed from the main road and is your site affected by the noise that is created on the main road and how the sewage/ rainwater is getting removed from your site; all this falls under development control. Buildings that are structurally weak and are easily damaged during hurricanes, earthquakes or other disaster events. When you are making all this zoning, we are also going to specify the zones in which it has to follow different types of construction or use different types of foundation because the soil is weak. This information goes into individual building block design. So, when you are making these types of information, it gives the user or the client ideas about the plot which they are going to buy or going to design. They might be instances in which it might get affected by earthquake prone areas. If it's going to be an earthquake prone area, they'd have to use a special type of foundation. When you document all this under your land use planning and development control, it will be easier for the users to adopt this and follow it. Development projects which have serious negative impacts on the country's sensitive environment, particularly its beaches/ coastal areas. If your building is going to be structurally weak, it becomes a weak building or it becomes like a building syndrome and also keeps us in control in development of coastal areas. When you are making some development around the coast, it has to be very sensitively made, so that the biodiversity of the coastal areas is not getting affected.

The development control function is an important one and for those who work to evaluate applications for development permission; grant or refuse permission; and inspect development have a tremendous responsibility to ensure that the problems just identified do not arise. A Development control function is an important one because we need to elevate the lifestyle or the standard we have in the present. The approval authority has much more responsibility while making any approval because we need to make sure the problems that have been identified before does not repeat itself again in the future and is completely controlled by alternative solutions so that it makes sense for us to invest so much money in a development so that the problem does not arise once again and our standards of living elevates.

At first it's a vision, then waits for an approval by government officials, after the approval, there might be some changes that goes to the designer. Again after the approval, it gets completely executed on the site. This is like a process which can go in loop until the whole project is revised before investing the money.

They have a responsibility to ensure that development occurs in the right place at the right time; that buildings are structurally sound and will not endanger the safety or lives of those who live in rouse them. When you are making a development on the site, you must make sure the problem does not repeat and also be sensitive to the neighbours or the block that surrounds it so that the new construction is not affecting what is existing already that they are provided with the basic services and facilities necessary to support the purpose for which they are erected. It has to ensure that you have basic facilities that we have studied in the earlier presentation with community concerns, what are the different community concerns that are required when you make a development. So, if you are going to make a residential zone development, you cannot just design a residence or just an apartment building, you must make sure they get their supporting services like how gas or fuel is going to come inside or how other amenities like drinking water, drainage is going to come and leave the site. All these supporting services have to be taken into account.

First is, Development control. We have to follow the time schedule, we have to make sure it ensures safety for the users, people who are involved in executing the plan, we should have a good communication between the design team and the public. Track together and make it a better planning.

Land use policy and Development Control

Development control is the most visible part of the land use planning process and the function with which members of the public - particularly those engaged in the construction and property development industries - interact on a daily basis. When you have a development control, it is a

planning process in which you are going to see what is going to happen in the future and how the interaction between the public, amenities and services is going to happen on a daily basis. You have to understand all this so that the user and the end population is not stranded in a specific place and they do not get any services that is present around. You need to ensure that their everyday life is not getting interrupted.

The preparation of Land use plans and formulation of land use policies and development standards are some of the main outputs of the development/ land use planning process. Plans are prepared to; anticipate the development needs of an area, identify relevant development issues. Two things that are very important when making a land use planning is to identify what the place needs and what are the issues that are present. Only when you know what is required and what is lacking, you can bring in a balance to satisfy both. Identifying opportunities and constraints to the development. When you are going to bring a very advanced type of technology, methods in solving a problem, there might be a lot of limitations. There might be a limitation of cost, time schedules that have to be finished. Only when you know what are the opportunities, some compromises can be made in order to make a better design with minimum costing. We need to hit the right balance between both; opportunities, what is lagging and how much can be done with the present site conditions. Identify areas that are suitable/ unsuitable for different types of development. When you are making a huge plot, you might want to develop something in a particular space but the place might not be ideal for such development. When you know the parts of land, what is happening around it, there might be chances where you could replace the building or breakdown your building into smaller parts or can be scattered around the site and still benefit the entire community. You need to understand the whole parcel of land in order to bring in a better design.

Make proposals for the way in which the area should develop over time and establish policies and standards to guide development. When you are making a proposal, you are identifying what the problem is, what the public needs and how it can be envisioned and then you make the final proposal which has the final details as to what has to be done and it has to follow a certain timeframe. To execute this whole proposal, we need policies and standards which will control the construction and execution of this proposal. Plans are also prepared for areas which are already experiencing significant development pressures or some of the negative effects of growth and development in an effort to find solutions to these problems and to manage future growth. When you are making a proposal you can understand what can be done in the future. It might not be possible right now but you can see how your city has been growing. For example, if your city has a central nuclei where all your urban growth has been happening, then there might be few industries developing outside, few offices and IT buildings which have been developing outside and can possibly become a corridor on which all developments can happen

connecting your central nuclei to the outside city. That spot can become more of a commercial area in the future. These type of futuristic planning ideas can also be given while constructing your land use planning and quotes in regulation. All this future planning aspects should also be considered and noted down.

Do we really need a plan? The plan is a statement of intent or vision. It sets out how we would like to see the country develop over a specified time period. Only when you have a plan, you will know what type of development we need or what type of development we are going to have in the future. It is like a vision for us to see what is going to happen. We need a plan in order to follow it and also to make it elevate our living standards. It is also a road map, since we have a vision and a goal. It is like a futuristic map to see what is going to happen in the future. When you know what is going to happen in the future, you can make good decisions right now so that you move towards the right economical growth. The users or the end population will get benefited maximum out of it.

How do we get there? Policies and standards help us achieve the vision we have set ourselves for the future development of the country. When you have your policies, quotes and regulation, it is going to guide us as to what has to be done and what does not have to be done because when you don't have all this, there are a lot of opportunities that would leave the designers lost with the new development or get carried away with something else. This is a point that stops the designer to consider the right direction.

Why land use? One primary reason for preparing land-use plans and policy statements is to fulfill a legal requirement of the Land Development and Control Act 1977. It is not just to fulfill what is going to happen but is actually a control act that has been passed in the year 1977. We have to have a Land use plan in order to execute any type of master plan. It satisfies the legal requirements. However, plans and policies are mainly prepared to guide the operation of the development control system and to facilitate the development decisions of private and public sector developers, including home builders. This is not just for institutional recreational and industrial zoning but it also applied even till residential development with which we can understand what type of residential typology should be built if it has to pure residential or a mixed typology of commercial as well as residential and what is the height restriction it can be built with. What are the FIR of the stay? All this can be understood only with your the help your land use planning, along with your quotes and policies that are being developed.

Land Use Considerations in Development Control

Applications for development permission are assured to determine; land-use suitability, structural integrity of building. When you are making land-use considerations, what you need

to do under developmental control is, you need to make sure that piece of land is going to get developed, it is suitable for the type of proposal we are going to make. For example, if you are giving a residential area, you need to make sure it is far away from the main road, it is much more quieter, calmer and is not getting disturbed by the commercial zones present in the city. If you are giving a residential area, you need to make sure they are getting their necessary services to satisfy their day to day needs. This comes under Land-use stability. Next is, Structural integrity of buildings, which means you need to make sure the land on which you are going to build is structurally strong. For example, you must understand if the land is vulnerable to landslides, erosions, things like Earthquakes so that the sensitive design typology and structural can be chosen for the building so that it does not fall under the Sick building syndrome. In practice, however, there is no clear distinction made between the two levels/types of appraisal and insufficient attention is paid to the analysis of land-use issues. Since we do not have proper codes and regulations to be followed for these two categories, as designers and architects we need to be sensitive to both these typologies while making each design changes. On the contrary, not by withstanding this, rather by following the land-use issues, you must determine an application - Type of existing land-uses, Compatibility of proposed use with surrounding land-uses/activities. That is to say, we should ask ourselves the following questions - Will the activity generate noise, air or any other kind of pollution? When you have an existing land-use pattern and you are going to change it, you must understand what type of improvement is going to happen when you are going to change from existing to your new proposal, it has to be in such a way that it is going to completely stop the problems and elevate the living standards, and economical development for the whole community and even the country as such. You must make sure this is being addressed and you have to also be sensitive to the people who are going to use it, you have to question yourself if it is going to be a residential area, if the place is going to attract a lot of noise, pollution and if the safety of the people is ensured. All these details have to be understood and policies, codes and development have to address these aspects. Will it conflict with the existing uses in the area? When you are making a revision of land-use, you must make sure what exists is not getting affected. Say for example, bringing a new Industrial area, closer to the residential area, even though it is going to open up a lot of job opportunities there are a whole lot of other problems. Such as; Noise pollution which is going to come along with the industrial development, which is going to affect the livelihood, health and safety of the public that is going to use the residential area which is already present. You must be sensitive to what is already present and what type of development can be done in a balanced manner. Will it increase traffic congestion on nearby streets and how will this be accommodated? If you are making a new design development, you must scrutinize how your traffic and public movement is going to be taken care of. You might incorporate more public transportation systems to take out more public, branch out the use of public transportation and to make sure people use less private vehicles. Will in increase the

demand for public services and/or physical or social infrastructure to support the proposed development? While you are making a development, you must be sure if we need to improve our public transportation system that exists, if you are making a huge development and the bus connectivity is very less, you need to make sure that the buss connectivity has improved. Also, if you need any other extra metro train proposal and also social infrastructure, things like other amenities for social development, recreational parks and green spaces or a child care centre in order to satisfy the growing needs for the future.

The physical characteristic of the development site and surrounding land, include topography, on-site physical features, Geology and soil type, Drainage patterns, etc. These are some of the major amenities that have to be considered. As we saw in our earlier presentations, we know how important topography and surveying is, we need to understand the terrain and what is the slope ratio, all these process and we need to see on-site physical features which means the existing physical boundaries that is present on site. Say for example, if your site has a huge rock deposit that prevents any other type of growth has to be recorded. Geology and soil type, makes sure what type of rock formation is present before your soil levels and what type of soil type is present which gives us the idea about type of foundation and how deep does your foundation have to be. Also, drainage patterns, when you know your topography, you'd figure out how your drainage can be taken. We need to understand what is the public drainage system that is being used in your area so that you can connect the sewage that has been collected on your site to a public drainage system. Some of these characteristics are crucial in determining an area's vulnerability to natural disasters. When you understand all these aspects it is much more easier to understand what can be done to reduce the natural disasters.

Proximity to wetlands - (swamps/mangrove); water courses/ rivers, wells, reservoirs, aquifers, forests, watersheds, beaches/sea, and other sensitive environments. We need to understand how far are we located from these wetlands or water bodies so that we can understand where your water table is located and until what depth do you need to layer boards and motors, what type of motor has to be selected in order to fulfil the water needs for the site. We need to also understand about wetlands. Availability of physical infrastructure serving the area, eg: vehicular access roads, electricity, water. These are physical infrastructure which we need in a daily basis like water, electricity, these are public and common amenities that are provided for us from the municipal cooperation to our side. We need to ensure that we get all these benefits and that it is connected to the end users. Availability of social infrastructure to service the proposed development eg; schools, job opportunities, public transport, etc. This is mainly for the population in growth. When there is population growth, you need to make sure all your other social infrastructures also increases to meet in the extra requirements of population growth. Social requirements are schools that lead to job opportunities and public transportation

systems, these come under social infrastructure. We also need to understand if there is adequate vehicular access to and egress from the site onto the existing access roads. Proposals for disposal of waste generated at the site. You must understand how you are connected to your public transportation and how the waste that is created or accumulated at the site is getting disposed and car parking facilities on site. You need to understand not just vehicular movement to your site but you also need to give proper space in which your car can be parked and is within walking distance to your site or to your end building.

The following examples highlight some of the problems that may occur if land-use planning issues and criteria are not adequately considered during and incorporated into the process of evaluating development applications - Proliferation of advertising and directional signs, this means keeping proper advertisements and directions to guide the users who are going to use the space. For example, sign boards, directions and the distance between one place to another have to be properly designed, have to be kept in an ideal space so that it does not conflict with the safety of the users. Proliferation of roadside vendors. People who are temporary road side vendors have to give in proper license so that it does not affect their livelihood and that they also have a safe place to sell their commodities. Incompatible use in residential areas, Conflict between agriculture and development land. We need to understand that we don't completely take in agricultural lands that is being used for cultivation so that even with the population increase, we might need a lot of land to cultivate the amount of food requirement, we must be sensitive to all these aspects while you are making land-use changes. Subdivisions, Failure to enforce development standards, Uncontrolled development. When you have development control, it controls all this growth and keeps a check for architects and designers so that they don't get lost.

Conclusion - land use planning function must be viewed as an integral part of the national development process that cannot be viewed in isolation from the other critical elements of that process, namely social and economic planning. When you are making land-use planning proposal, it has to be viewed as a holistic approach and you have to integrate all the elements that is going to go in and how all the elements are going to improve because of the land-use planning proposal. Land-use policies and plans address a number of issues which the development control staff, especially the building inspectors face on a daily basis while evaluating applications for development permission. We need to understand and make sure that every day, on a daily basis, people's amenities and requirements are not getting affected, people are being satisfied of all their needs because of the new Land-use plan that has been proposed.

Let's summarize what we have learnt from the entire presentation as learning outcomes. First we saw, Introduction to development control and its importance. Then we moved on to see, Relationship between land-use policy and development control. Then the, Influence of development control in planning. Land-use consideration in development planning. Then we saw, Highlights of various aspects of development control. Questions - Define development control and state its uses? What are the various aspects of development control? Why do we need to consider land-use in development control? List the physical characteristics of the development site and surrounding land. How does land use policy being used to overlook development of a master plan? Thank you!