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Housing Policy & Planning

Lecture – 17
Urban and regional Planning-2

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Hello, in the last lecture we discussed the urban and regional planning its fundamental concepts, its methodology. Today we will some of the very important concepts in relate to planning which will ultimately help us in analyzing, the housing and planning for the housing and also we will see some case study on urban and regional planning as an example.

So before you go to the content of the today's lecture let us see the quick some of the lectures, which we had in the last lecture.

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So last lecture, we discuss the planning hierarchy at the multi level planning system in our country which is at the central level, state level and the local level. At the central level we do 5 year plan, at the state level also we do 5 year plan, at the local level we do at drop development plan or city development plan for 5 years, and at the district and metropolitan level we made the perspective plan for 20 years and also at the gross road level like areas of our gram sabha level we do the annual plan.

We mentioned that in the urban and regional planning, we deal with the parameters like land use. We make a land use plan, infrastructure facilities and amenities and also we deal with the norms and standards for each facilities is its infrastructure, and then we showed this master plan of Delhi as an example.

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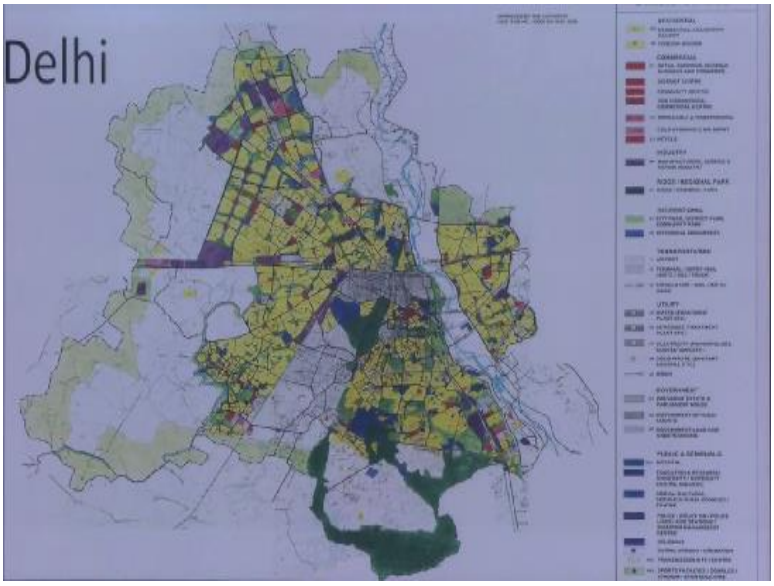

We told you that every land use is depicted or indicated with using different kind of color codes. So based on this today, we will cross it for our lecture today. So today we will discuss about the some of the fundamental concept, how from a colorful land use map, how the development is transferred.

The next level of technical exercise, that we will discuss using few parameters, like essential parameters, like density at various levels. And then also how it is related to the infrastructure development. Then we will see one or two case study of another land use development.

So here we have shown the land use map basically, if you know discuss the land use map we told you that we have different types of land use Residential, Industrial, then Commercial, then Public/semi public or Institutional/ Cultural. Then we have Transportation and also the urban agriculture and utilities.

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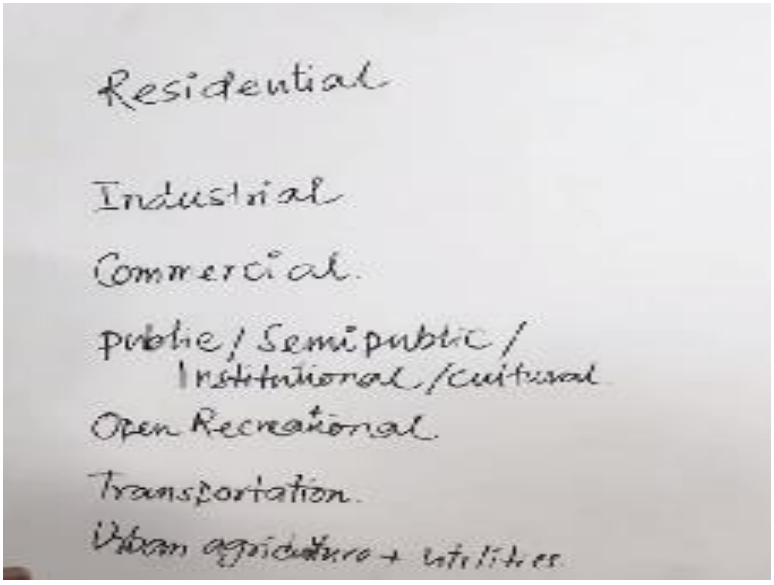

So these are the basic land use which we have shown in the land use map in the example of Delhi master plan, so under this land use we have told you that we so basically gross land use. So what next gross land use, let us now going to little further details of the gross land use?

For example the residential land use consisting of residential plots, that is basically plots we are not for the housing development. Then the plots here not for the access roads. Now to little of the details of the access road in any city you will find that the roads are different types some roads gives you access from one zone to another zone, you are coming from one zone of a city to you

are coming to another zone those are higher level or roads namely we call those as arterial or sub arterial road. And there are few road, which are basically main to give the access to the plots within the locality they were called local roads or collector roads.

So the access roads include local plus collector. So local road basically is the narrowest road the basic road, which is passing through your plot just outside your plot the road, which gives access to you a particularly your house and the collector road is basically main for collecting the people or the vehicle or the movements from the local road together and to transfer all those movements to the higher level road to transfer from one zone to another city.

So only local road and collector road which are servicing, which are giving access to the plot by enlarge those are included. Then we also add the local facilities required or amenities required for residential development. For example, convenient shops the shops which is required at the your cluster, your neighborhood level which is require to for day to day purpose for example grocery shop, for example the vegetable shop or this kind of small shops which will need at the destiny of your neighborhood those are also added here.

Not only that the community facilities like community centre, community halls, local libraries all those are collected here local residence association, cooperative association all these are and local markets. Those are local facilities and including the health facilities and cultural facilities so this includes commercial, cultural and health facility.

So local facilities includes this three types of facility and then also green space, so you can see that when we represent the gross residential land use by using a color code like you know you can see every pockets, we have shown in yellow color residential land use, but if we zoom it if we see in a very detail manner we will find this fundamental four component where definitely residential plots will be around 50 to 70% of total area and remaining area will about 30 to 50%.

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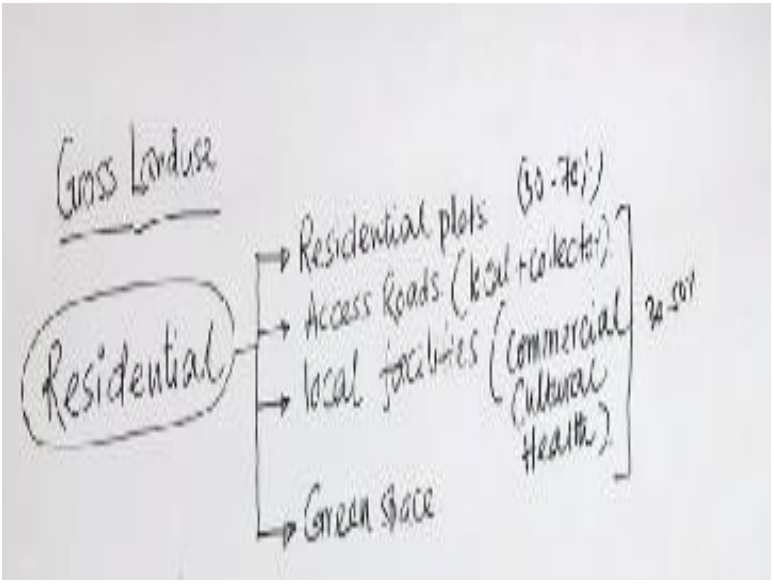

So when you see gross land use, gross residential it includes all the residential plots, plots for the local facilities, access road and green space and then while you develop definitely we have to develop the residential plots and the local faculties plots. So the gross land use which is shown in the land use plan we have take a room, we have to distribute that plots if this is a gross land use zone and this is the road.

So this zone which is otherwise shown as residential as a gross land use with yellow color, we have to make further distribution of the plot by like this. So this will be local roads and within the local road there will be plots. Everywhere there will be plots and not only that there will be green space. So that means after the gross land use is shown in the land use plan we have to further subdivide the whole land into small pieces of land parcels.

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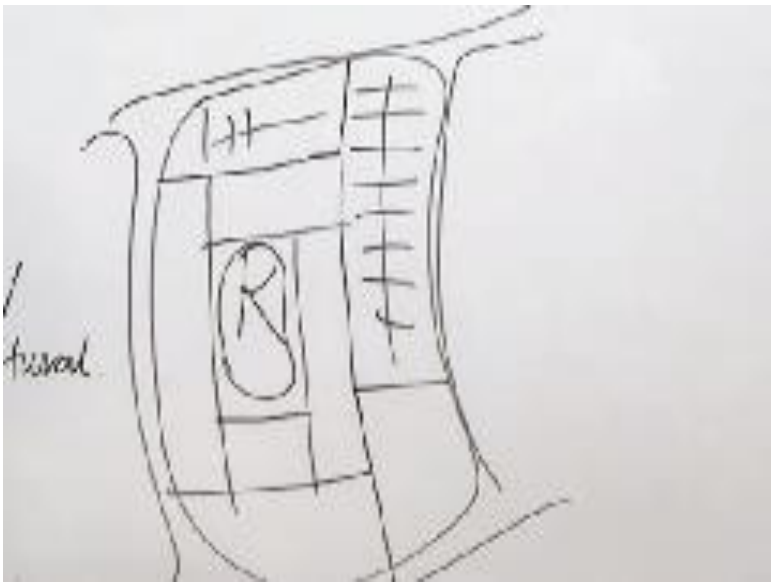

So that each and every parcel, we can develop as per the requirement or as per the competition. So that particular exercise, where we subdivide the whole land we call it as a land subdivision because finally for any type of development including housing, we need the final plots of housing if this is a plot for housing where you have to develop any kind of plot that we need at the end of the planning parcel that which plot need to require, need to develop for what type of development.

So land subdivision, when we discuss about the gross land use. Then you do the land subdivision, and then what we get is basically net land use. So net land use is basically the exactly the use of the each and every plot. For example if this is the residential plots, so net land use or residential plot will residential only, that mean residential buildings will be constructed provided there could be some other use. Which can be mixed to the residential if the land use plan prescribe that maybe it is a 10t o 20% mixing of land use within the some other use can be allowed.

So at the net land use level your mixing of land use is exercised not only that at the net land use level the types of development like these are the types of development and within the residential

plot, we can go further details that what kind of residential plot, which types of housing as per our earlier discussion we can develop.

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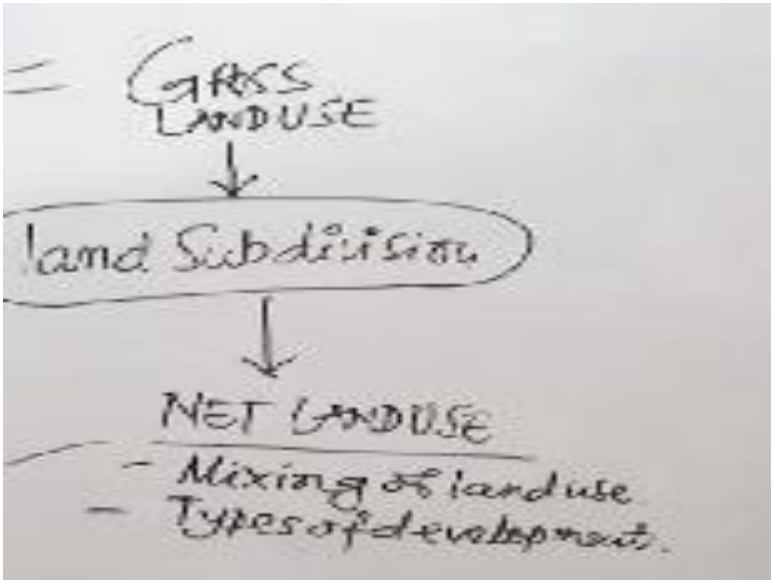

So this part will come later when we make detail plan of the residential area or housing that will come, but as of now we can understand that the gross land use plan leads to land subdivision then we can get the net land use. Net land use is nothing but the net indication of the net plots and the mixing of the land use and types of development.

So this is the two fundamental concept that gross land use and net land use, which I wanted to convey and then we will discuss the concept of and the same concept is applicable not only for residential area. It is also applicable for each and every gross land use like commercial, institutional, industrial all the land use is which we have shown.

Everywhere you will find the net land use distribution like this. So this is the net land use distribution. So therefore to take a point learning point from this discussion is that in the land use plan, we are showing only the gross level land use prescription but when you do the actual development before that we have to go for land subdivision and come to a net land distribution

over the plots so we can take plot by plot, land by land, land parcel by land parcel and they develop as per the requirement.

Now let us talk about the concept of density. Now this density is a very important parameter will come to this point because, so for whatever we have discussed the land use gross or net land use. It is a qualitative parameter of a land which qualifies a land for a particular use but the density is the quantitative parameter which determined its build ability, its extend of buildings, extends of development in a particular plot and what type of development will be there in terms of quantity. So that we will come before that let us take an example of another land use planning exercise, so we can understand in a better way as a case study. So for this we have taken the case of the new town Kolkata.

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It is basically a new township, which is being developed at the city of the Kolkata. You know Kolkata is the one of the largest metropolitan city in the world. So to the centralized the congestion from the city of Kolkata several development objectives were considered like to generate new areas for observing future metropolitan areas about 7.5 lakhs of population, to

established new business district in the new town, to provide land for city of non polluting industries, to control and protect the newly grown and unplanned existing settlement.

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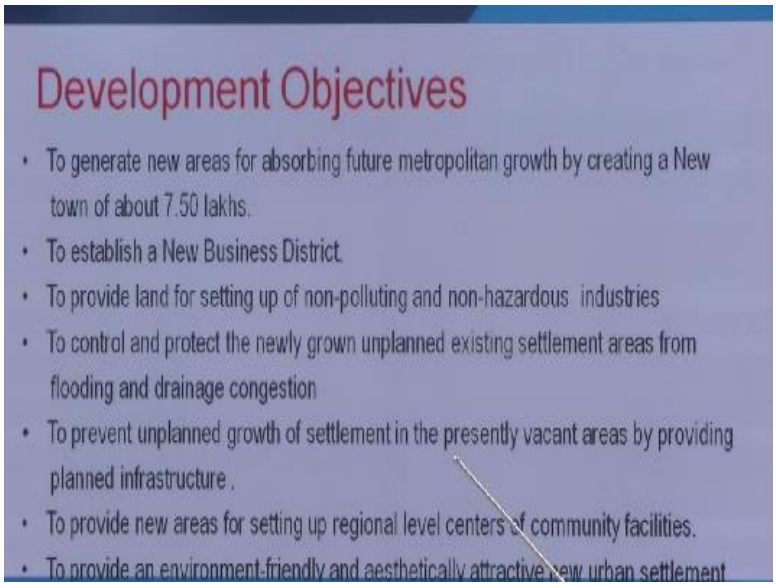

This is a very important phenomenal if you do not make a planning intervention for accommodating future population by giving their new housing. The houses as per the unplanned development will grow; it will grow like a slum settlement so to control that, to protect that new town was proposed, where the infrastructure is available for the people and to prevent unplanned growth of the settlement.

The vacant areas are converted for providing the plan infrastructure not only that to new areas for setting up regional level centre of community facilities. For example a stadium for example states level art galleries, which are basically, could not be possible that it could not be accommodated in them in city in the adequate numbers. It is there may be but it is not adequate. So to set up bigger facility, bigger industries, and bigger cultural facility you need bigger land.

So that is accommodated in this new town and to provide an environment friendly and ascetically attractive new urban settlement. So these are the development objective, so every urban planning or master planning exercise should have stated objective which it will fulfill.

So this is the city of Kolkata metropolitan area. You studied in last lecture, we discussed that the metropolitan planning committee. The metropolitan planning committee is the organizational unit which makes the plan for a metropolitan area and in metropolitan area it could consist the parts of multiple districts. For example this is the metropolitan area of the Kolkata.

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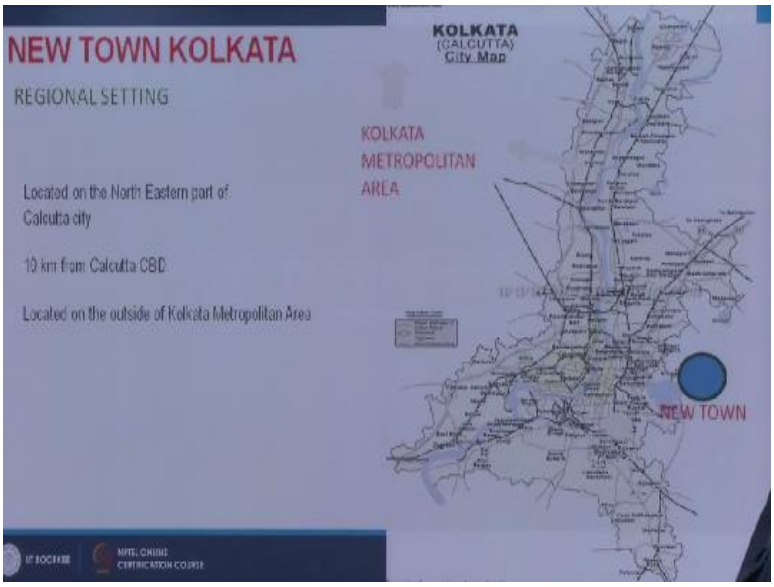

It includes 6 numbers of districts from south to north, so it is not only one district where one district plan could a plan of this city of Kolkata. The same phenomenal applies to each and every bigger city. So based on the metropolitan plan, the new town of this Kolkata is proposed here at this eastern part so this is the location in the detail plan.

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This is the river could be this is another new township which was developed in 60s and 70s. Right now it is a fully grown town ships and this is the new town Kolkata project.

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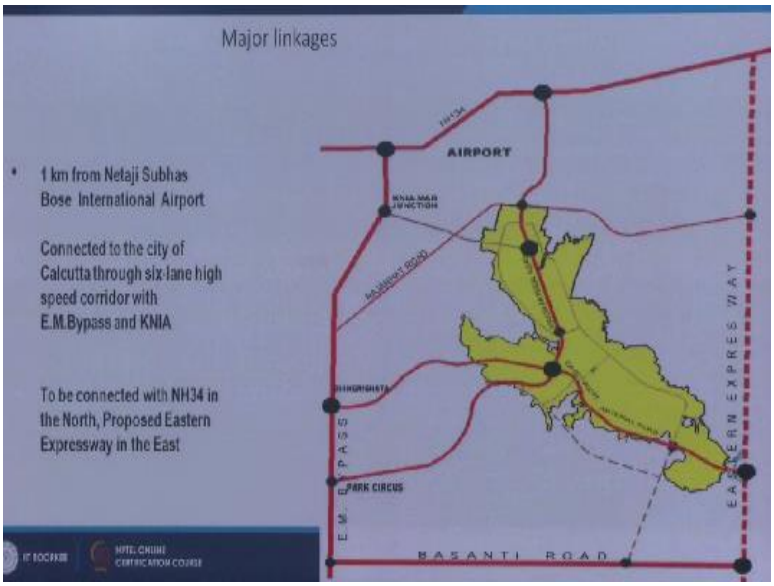

Here you can see the connectivity, the every master planning, every new township or futuristic development. The basic connectivity is absolutely essential and without that any development cannot be done. So for this project it is connected with the major eastern metropolitan by pass the NH 34 and the roads in the south and the eastern part, this part of the road is propose though it is not existing right now and then it is connected with one north south corridor and one east west major corridor and supplemented by few more internal major roads.

So you can see the land use distribution of the whole area. Here you can see the residential, industrial, commercial, cultural major roads and others including the open recreational area and utilities area.

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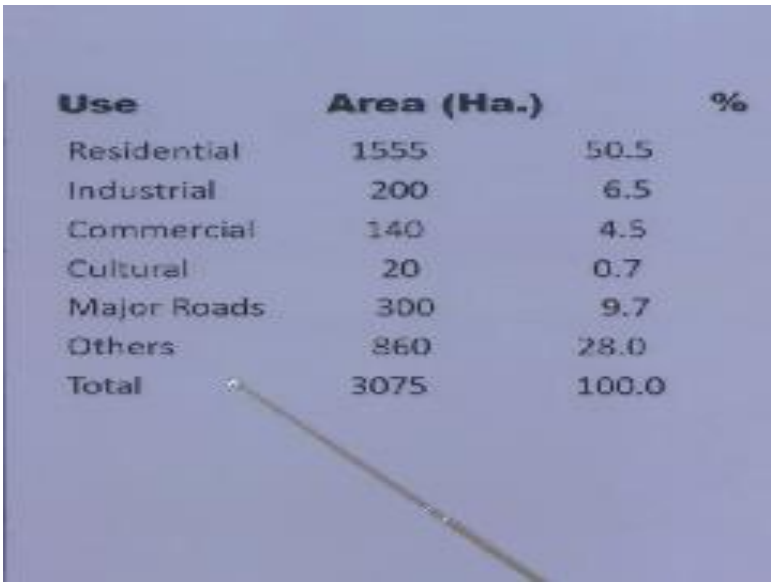

Use	Area (Ha.)	%
Residential	1555	50.5
Industrial	200	6.5
Commercial	140	4.5
Cultural	20	0.7
Major Roads	300	9.7
Others	860	28.0
Total	3075	100.0

So the land use distribution, what we discussed here you can see that it is reflected here also where residential in the predominant and the others including the green areas and the utilities are major part of the city 28%.

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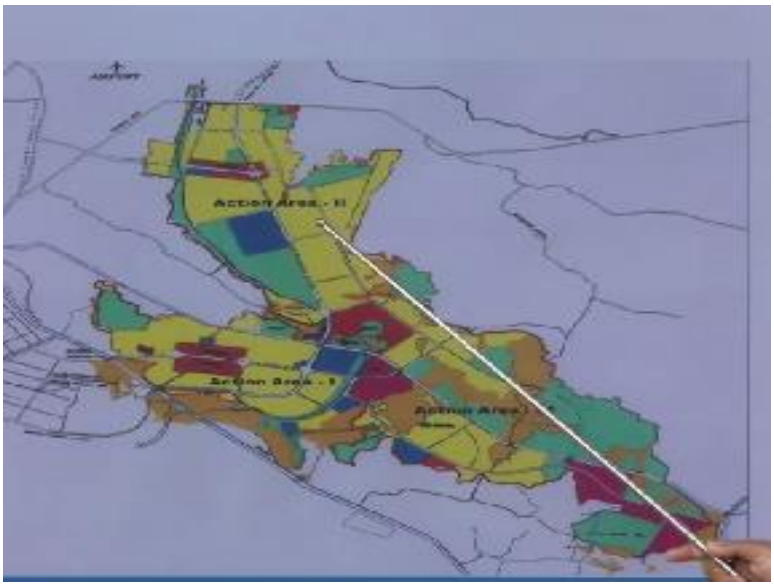

So this land use plan in this land use plan you can see the yellow as the residential, this is the central business district, which is another objective of this project to supplement the existing business district of the city of Kolkata to setup a new business district and these are few sub business district, which will compensate the overall commercial development. These are the green areas at the city level.

So this land use map is shown as the gross land use as we discussed and another thing you can see it will residential area, which is basically the existing residential area which is integrated in the new residential area like this is the new residential area in a fashion, so that the new residential area and the existing residential area both can be developed in a harmonious way in a better way.

So that is the another land use plan, you can say for a newly proposed town ship right now it is almost most of the more than 50% is development it is under developed. So this in this land use plan these are the areas for the future housing, the yellow colors future housing and the dark yellow colors which is the existing area but it is being consolidated for the future development. So that this partially developed areas which is basically by enlarged kind of rural settlement

those would be converted into more compact development. So that whole infrastructure development it is caused can be compensated through the population.

Now here one major point is very important you can understand that to develop a township like that or any development you need to have lot of investment in terms of land accusation in terms of development of the all the road, development of the all the land. Here the land was recovered from the adjoining low lying areas and this land was filled with maximum 5 feet level.

So that the area could be rest above the flat level, so all these involve so much capital investment so this capital investment is viable if only we can make a complex city so that the more people can leave there they can get their affordable house and the cost of the infrastructure can be compensated and can be own out of the sale of the residential development.

So here one concept comes very necessarily to understand that the concept of density, that how much density is viable, how much density is possible to compensate this type of big large level of investment and this is applicable for every town ship or any planning or urban planning exercise. So we will come later at the financial part of the master planning exercise but before that let us understand the concept of density and few development controls state by state.

So that we understand from the master planning exercise how we come to the few parameters like density, infrastructure and few more control parameters and then we come to the detail description, detail calculation of the housing demand, detail calculation of the infrastructure, cost everything. So from this land use plan we will go to the discussion of the density.

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We have discussed the land use matters after the discussion of the density; we will go to the discussion on the control parameter development control. So here we come to density theoretically density means anything unit area. For our case for the town planning case we consider density means basically population divided by unit area. So if the population is B and the area is A, so that becomes the so population divided by area that means it becomes the population per unit area.

So the unit of the area can be hectare of square kilometer, so that means the unit of the density will be people or hectare or acre or square kilometer. So this is generic description or representation of the concept of the density, but we consider density in different levels. So to understand in a better way let us discuss that.

Firstly density could be discussed at the overall city level. For example if you tell you that a city X is having area of say 300 acres or 300 hectares and it has a population of 2 lakhs, so the overall city level density so the concept of density, which is basically total population of the whole city and the total area.

So this total area consisting the residential, industrial, commercial every area. So if this is the a city area having all different kind of component or the land use area, here the overall city level density is the density is the total population divided by divided by total area that is the first level of density we calculate to understand the average density or average compactness of a city. For example some city could be compared with another city which is much more compact, but to work with the density at the ground level at the development level as we discussed at the net level this is not sufficient.

Then we calculate the density at the gross land use level, so gross density so gross density is the population divided by all the area allotted for the gross land use that particular land use. So you can understand that if the total area is a definitely the area given for the gross land use definitely it will be less if we considered AR, that means AR is less than A.

Therefore gross density is the population divided by gross area of that particular land use so you can understand seeing the population is the same. So gross area which is area for a particular land not the all land use so if the area is same that means the gross density will be more than the city level density.

So gross density is a very important parameter which is depicted which is indicated in the master planning level for example, today we showed you one master of Delhi master plan. In Delhi master plan or every master plan apart from the land use color code every sector, every block the density is write like 600 per hectare, 1000 per hectare or 800 per hectare. So that is the gross density, but for working in the ground at the plot level gross density does not help us.

We have to go into the net level so if we go to the net level, we consider this area as A, so you can understand the total area of the city is A and the total area of the only gross residential area is the AR, which is much less than the A it can be 50% it can be 60% and within the gross residential area the net residential plot which is A.

So net residential density, net residential density is population divided by net land use area which is A. So you can understand that population is same for all calculation and the net land use area even less than the gross area.

Therefore the net residential density will be always bigger or more than the gross residential density. So net residential density is required to indicate the density required to achieve at particular plot okay. So if this is the I go to the same example which I drew few minutes back to understand if this is a residential pocket shown in the master plan as a residential and we do the land sub division and make a neighborhood like or sector like this and we make the residential plots.

So net residential density is required to develop a particular plot of the residential or housing development and this residential density gives us that target that this density has to be achieved either in a plot or group of plots. Whereas the gross density which we discussed it gives us demanded that overall including the whole chunk of the residential plot, the access road, local facilities, green space we have to achieve the overall gross density of that.

So gross density is always less than the net density and the city level density which you already discussed that which is nothing but the population divided by the whole area of the city that is much less than that. So net density and gross density is very important parameter of any development, so with this part we will go to the next part of the discussion on the development control in the next lecture.

Where we will see that the land use prescription which is nothing but a quality deep prescription and density prescription which is a quantity deep prescription it can be 800 or 1000 people per hectare but how this is transferred to a plot, how we transfer to a plot using few more control parameter, which ultimately specifies the build ability of a plot the development build element of the plot like building or any structure that we will see in the next lecture in the development control and its relation with land use plan. So thank you for today.

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