Urban Governance and Development Management (UGHM)
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Lecture - 24
Urban Infrastructure and Services - 1

Welcome to the lecture 24. In this lecture we will discuss the basics of Urban Infrastructures and Services. In this week in last 2-3 lectures we have started discussion on the various aspects of urban and regional planning so that you get some idea that how a plan is made and how that plan is executed. Out of the plan we, very important part is urban infrastructure and services. Because, after all at the end of the day as an outcome of that planning people will expect to better infrastructure, better services.

So let us discuss the, what are the elements of the infrastructure and services and little bit more details so that you can plan and you can work on the areas.

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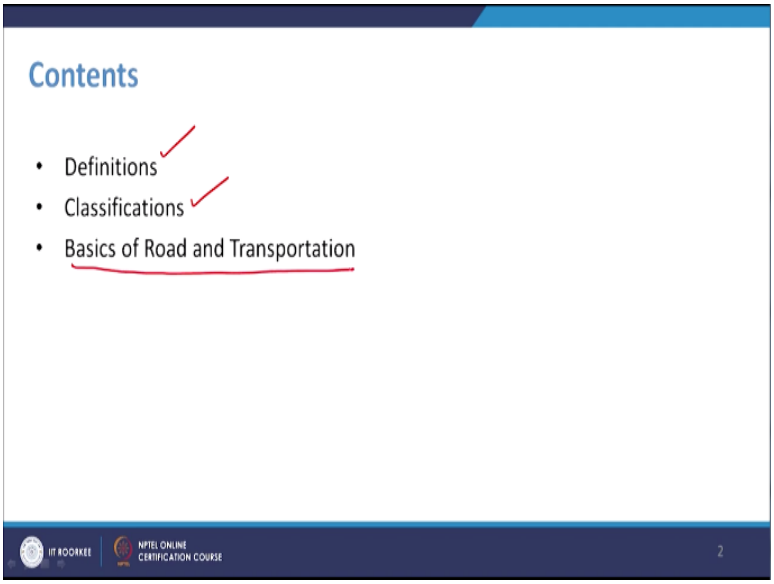

So today we will discuss on the some definitions of the infrastructure and the services. Classifications of infrastructure and services, and out of all the infrastructures today we will only touch few basic point on the road and transportation and next day we will discuss the various other elements of the other infrastructure and the implications for the Urban Governance.

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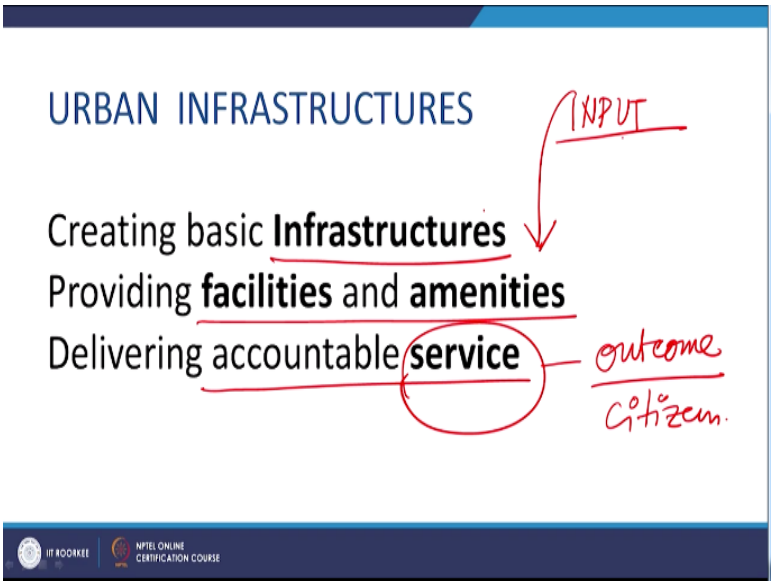

So basically, urban infrastructures objective of urban infrastructure is creating basic infrastructure for providing facilities and amenities for delivering accountable service. I request you to read this line ones more. So we create infrastructure, the objective of creating infrastructure to provide better facilities and amenities so that people get the accountable service. So service is the end outcome which citizens get. And infrastructure facilities, amenities are our input or what you do and because of that input the output come is the better services.

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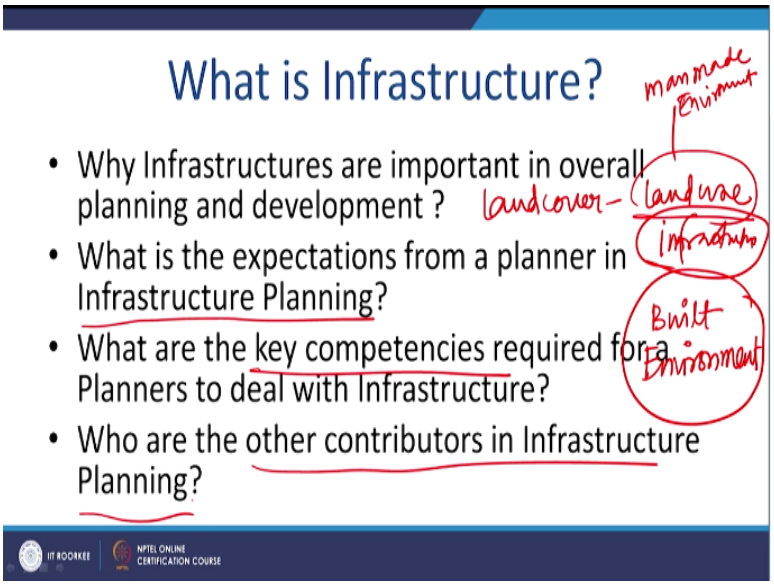

So let us know; now what are the key questions in understanding the infrastructure and services. Now you know that infrastructure is very important in planning and development. Basically, when we convert a existing natural land from land cover to land use we make the new land use

by creating better infrastructure, so quality of the infrastructures determine the quality of the land use and quality of the manmade environment which we call a Built Environment.

So please take note a mental term here about this term that is Built Environment. So Built Environment which is something which actually creates a long term impact in our physical and mental health. You must have seen that Delhi or various cities because of the pollution how much problem people face and it affects the children, the senior citizen people of all category and it affect their health.

So it is the infrastructure and services or their mistakes what we do in the planning because of that we ultimately feel a built environment or their affect. Then what is the expectations from a Planner or a City Manager for the infrastructure planning. As a City Manager, you have to plan the infrastructure. So what is the expectation from you to do on this regard?

Then what are the key competence is required for a Planner or a City Manager to deal with the infrastructure. Then, who are the other contributor in infrastructure planning. Because, you might be working with the state government department with the local governments, so you have to identify that who are the other stakeholder in the infrastructure planning and development.

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So, why service is required? Service is required for perform daily basic human physiological needs. For example, bathing, drinking water, taking food for everything you need basic infrastructure and services. To have basic elements to perform like say you want to go to the shop or health facility you want medical centre, you want hospital or to ensure safety and security of the people, you; we install CCTV system, security system.

We have mixed land use to enhance better interaction, barrier free design all these are aim to create safety and security. And we create a space for social need. For example, playing, parks, community spaces and community rooms, community halls these are all space for social interaction. And also we make service of infrastructure for physical comforts and easiness for self and family.

For example, we have home delivery, doctor on call, intercom, generator backup, definitely all the services and amenities Urban Local Government will not going to create and develop. But definitely it is their duty to have a overall control over the infrastructure services and the amenities. Now what is the difference? Infrastructure means the installation or the construction of basic element which we do as a part of manmade creature.

For example, road, for example, water treatment plant, water pipelines, sewerage pipelines, sewerage treatment plant, safety treatment; all these are infrastructure which we create.

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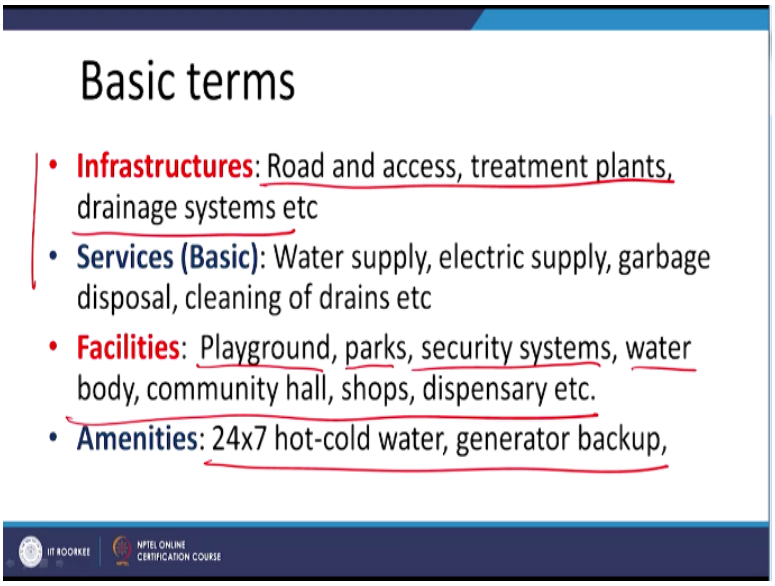

So you see the examples like road and accessibility, treatment plants, drainage systems all these are physical installation, second is services. Now road and transportation system will not be successful if you do not provide a fantastic public transportation system, fantastic bus system or trans system or MRTS system. A water supply network and water treatment plant is not successful or is not effective unless you provide a better or better quality of the water in the system. So the end product is the water as a service.

So there is a fine difference between the infrastructure and the service. So infrastructure is the cause or creation or the input and service is the output or the outcome what we get from the infrastructure. And sometimes infrastructure is visible it is physical, it can be; it is tangible element, but service may not be tangible sometimes. Sometimes you meet to some person you get a good service so it can be; it may not be a physical construction or physical installation, so service is sometimes tangible and non-tangible together.

Then, facilities are very; facilities are local level infrastructure or installation like play ground, parks, security systems, water body, community hall, shops and dispensary which mix your life easier at the local level at the neighborhood level at the block level or sector level. And then we have another term like Amenities, amenities are basically aim to have some elements which is required at the within the room within the indoor level to enhance the comfort level and the convenience level at the indoor, indoor functioning.

So infrastructure and services are done at the city level to infrastructures and the creation of the physical installation and services is the outcome of that, facilities are done at the local level, a small installation or small creation of the some special facilities and amenities are the some advantages and some convenient elements or convenient services which is done at the indoor level or within the campus level, that is the difference.

So with this things please have a note that in Municipal Governance or Urban Governance we basically provide infrastructure and service whereas the facility also facilities and amenities usually it is done by the developer or the housing or the respective plot owner, they can have their own amenities at their own plots. So this is the basic terms what we need to know.

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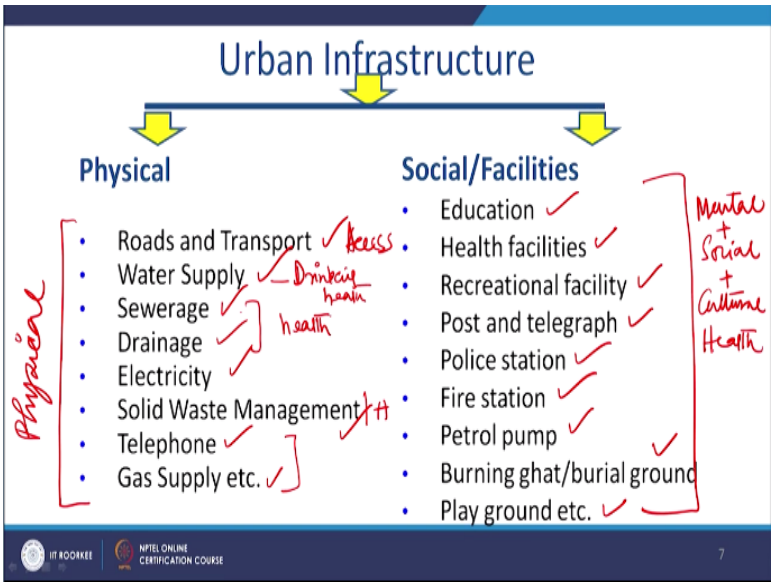

Now let us have a discussion on the classifications. We classify the Urban Infrastructure into two categories. One is Physical, one is Social. The objective of the Physical Infrastructure is that which is installed physically which we can see, we can touch, you need significant capital investment to have a physical infrastructure and social infrastructure is that yes it can be seen and touched the physical installation but its outcome is mostly social, mostly predominantly it is social outcome or social benefit we get out of those infrastructures.

Now let us see some examples. Out of the physical infrastructure the basic infrastructure like Road and Transport, Water Supply, Sewerage, Drainage, Electricity, Solid Waste Management and Liquid Waste Management, Telephone and the Telecommunication, Gas Supply. So for all these infrastructure we need; its predominant affect is physical like for road and transport you get some physical advantage for access. For water supply it enhance drinking and health.

Sewerage, drainage, electricity all these influences you are good health. Solid waste management as well, telephone and gas supply all these are improving you for your betterment of your life. At the same time, the social facilities or social infrastructures like Education, Health facilities at every level, Recreational facilities, Post and telegraph, Police station, Fire station, Petrol pump, Burning ghat or burial grounds, play grounds all these if you observe very carefully it helps your mental, social or cultural health.

But it is; we are just classifying for our convenience of the study and the convenience of the planning but please take a note that even in the physical infrastructure there could be some cultural component. For example, road and the transportation, sometimes it becomes a place for interaction and place for social interaction, so it is not that physical infrastructures are fully physical there are some social components as well and the social facilities and social infrastructure.

They also need some amount of capital investment and the physical installation, physical construction altogether.

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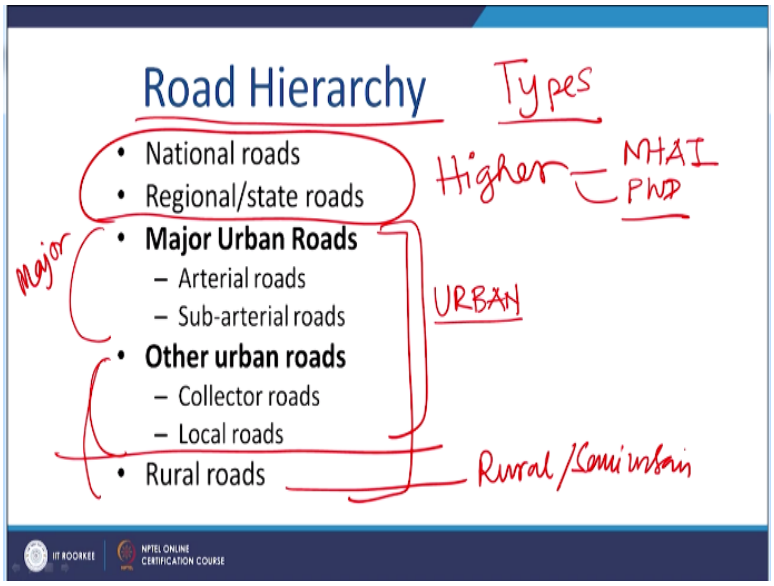

So after this today we will have a brief discussions of the road and transpiration because this is one very important problem and the aspect which you deal time to time. In every municipality, every cities what people complain about the road system that the conjunction, lack of road space, lack of the transpiration system because of that they cannot travel from one place to another place and it has been a grievance at the local level always.

So let us have a some idea of the road and transpiration so that we can understand the subject, if possible later on in the end part I will try to give you some case studies on the traffic and transpiration management. So let us see first the Road Hierarchy. That means that type of the road. So when you make a new roads there are various road, the National roads and Regional or state level roads at the higher category which is done by the specific organizations like National Highway Authority of India.

And the state level they have state PWD department okay who construct the Regional state level road. Now this roads are called as Urban Roads and this roads are basically constructed at the city level. We divide 2 categories one is major and another is other roads, other road. And apart from Urban road there are roads like Rural or Semi-urban.

Now under the major road there are two categories Arterial roads and Sub-arterial roads and on the other roads the minor roads there are Collector roads and Local roads. Now let us have a

brief discussion on the categories of the road. Arterial road and the Sub-arterial roads at the larger roads usually it is very wider road and objective of this road is to transport the people and the goods from one part of the city to another part.

The Arterial term came from the word Artery in our body. And the other roads like the Collector road and the Local road the main objective of the local road is to take your local traffic from your house from your premises to take you to the next level of road that is a Collector road. So Collector road they collect all the local traffic from the local streets and guide that local traffic and enhances or ensure that local traffic to come and reach and mix with the main traffic in the city which is there in the Arterial road or Sub-arterial road.

So this is the difference. Now in reality in your Urban Local Body or in your city you will find that the road may not be term like this but if you see the different kind of typologies please make your own typology based on some criteria. But here, it is very important to know what is the typologies as per the norms.

Other than that the rural roads also can be very important part because when you grow the city, city grows and beyond the municipal limit or sometimes you make a regional plan there are various kinds of rural roads which need to be integrated. Because some of the rural roads maybe enhance to urban road in higher road in future, so rural roads; so it is important to study the rural road also along with the urban road.

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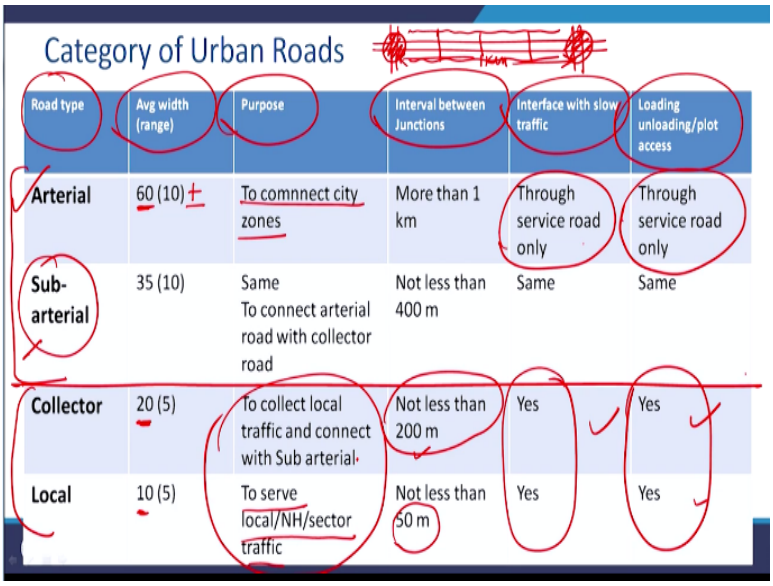

Now let us see the very distinctive difference of the various kinds of Urban Road. So in this chart, please see the chart very carefully. In the left side we have shown the road types then we are showing the average width then the purpose then the, the prescriptive interval between junctions and interface with slow traffic and whether the loading/unloading is allowed on that road or not. So let us take the case of arterial road.

The arterial road is 60 meter, it can be +- another 10 meters. The main purpose is to connect the city zones that I have already discussed. The ideal interval between two junctions is 1 kilometers. That means, if this is a road and there are two junctions of another road so minimum distance will be 1 kilometer. Why it is prescribed? Because in a major road if you find too many junctions within a short distance the road becomes a very accident road and a very risky road that is why it is a norms prescribed by the standards.

And interface with the slow traffic, the slow type traffic can merge with the arterial road either in the junction or in between the junction through a system of service road which is not touching the main road but going parallel with the road. And loading/unloading, that means you are coming down from the bus or getting on a bus or the another traffic that is or you are taking a taxi or the Paratransit it is possible only through the service road.

So from a arterial road and the service road and the sub-arterial road you cannot get down or you cannot drop or get down make an interface with the local traffic. So it is done only through service road and in the intersection. So arterial road and sub-arterial road by nature it is the same only there is a hierarchy if you do not get the very large amount of road width so you can have two; make this sub-arterial as well. The next level of road is a Collector and Local.

The average width maybe 20 meter or more for the collector road, for local road it is 10 meter or more or maybe little bit of less. In Municipalities it is very difficult to get local roads of 10 meters but it is the prescribed standard. The objective of the Collector and Local road is to collect local traffic and connect with the sub-arterial road and to serve the local and neighborhood level sector traffic.

The ideal junction between two ideal distance between 2 junction for collector road is not less than 200 meter and for local road it is not less than 50 meter. And the interface with slow traffic is with the slow traffic interface allowed for arterial road and sub-arterial road it is not allowed. And loading/unloading and dropping and interface with the other slow traffic is possible in collector road and the local road. So basically, the division between these two sets of road is to serve the purpose of the city level and the area level.

So the city level the main purpose is to take the major people from the residential area to commercial area, to industrial area to from industrial area to the other areas. But at the local level the objective of the local road the collector road to give them some accessibility some convenience so that they can go within the sector within the residential area and also they can come to the main traffic to go from one zone to another zone. So that is the more or less the, the structure of Urban Road.

But in your municipality as I was telling that please observe the categories in your municipality it is very important to categorize the roads in terms of the width and its function. And sometimes you will find that the maybe road is very narrow but it is arterial in nature. In your municipality maybe you will find that a 20 meter road is there or 15 meter road is there but it is arterial in nature.

So for those road please have the controls and the construction as per the arterial road. So avoid as far as possible the slow traffic or the interface with the plot in terms of the loading and unloading on those kind of arterial road. So it is just a indicative in nature. I understand that in existing cities this nature may not match, but it is important to know that because when you develop your new areas.

For example, you develop your new township or new urban extensions through by land acquisition or by land pulling then that time you should maintain the norms. But for the section typical section you can create your own section some sections I will show some case studies, so that you can develop your own section and you can construct. So it is important to know at this point.

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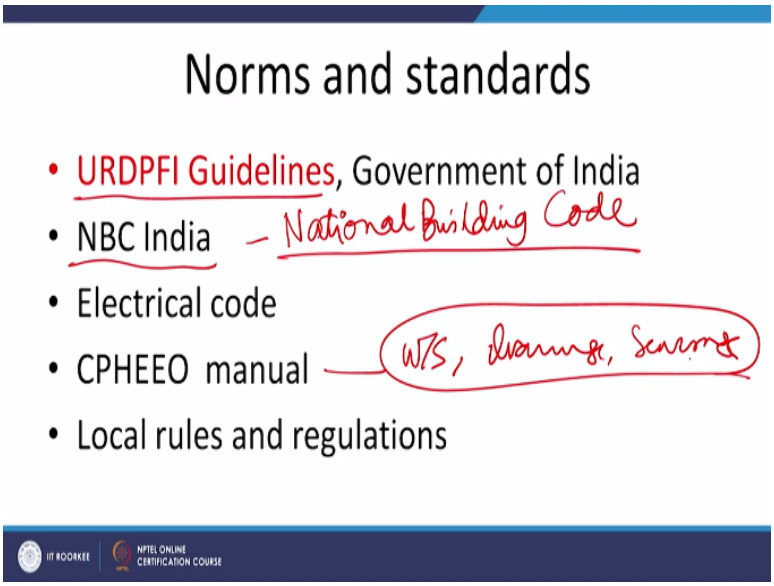

For making all kinds of planning and designing and execution of the urban infrastructure we follow some standards. So first norms and standards which we must follow that is URBPFI, I told earlier also. Urban and Regional Development Plan, Formulation and Implementation, second is the National Building Code which is the; which is the mother document which gives the guidelines for all construction in a municipality.

So even if you have the Building Byelaws or the Building Regulations or Development Control Regulation, if any element is not covered in the Development Control Regulations you can refer

that element as per the National Building Code and you can refer that. So National Building Code not only provides the elements of building it provides the elements of the infrastructures as well. Electrical code can be there.

Then CPHEEO, Center Public Health Engineering and Environmental Organization manual; this manual is for water supply, drainage and sewerage. So this manual is also to be referred time to time for planning and execution of the urban infrastructure. And also you can make your local rules and regulation for day-to-day functioning of your local infrastructure and services. So with this I conclude this lecture.

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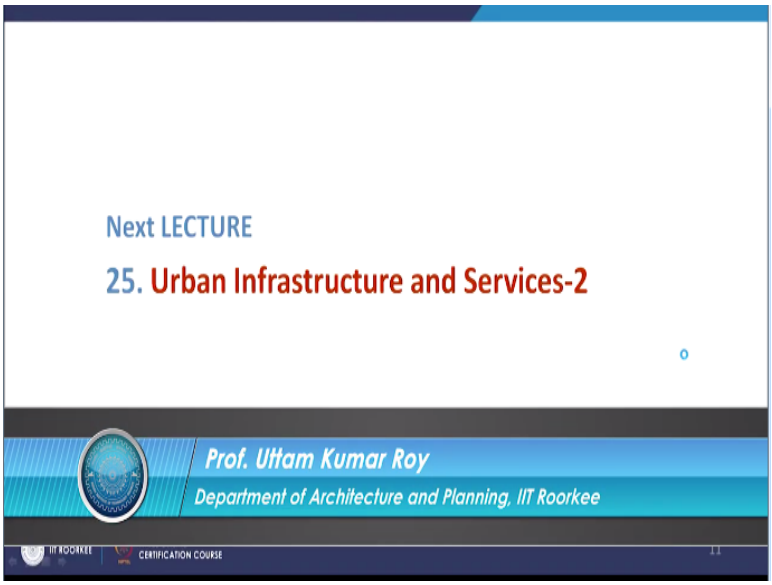

So in the next lecture, I will give an overview of other infrastructure and the services and then we will try to give some case study so that you can understand. So with this I thank you very much for attending this lecture.