

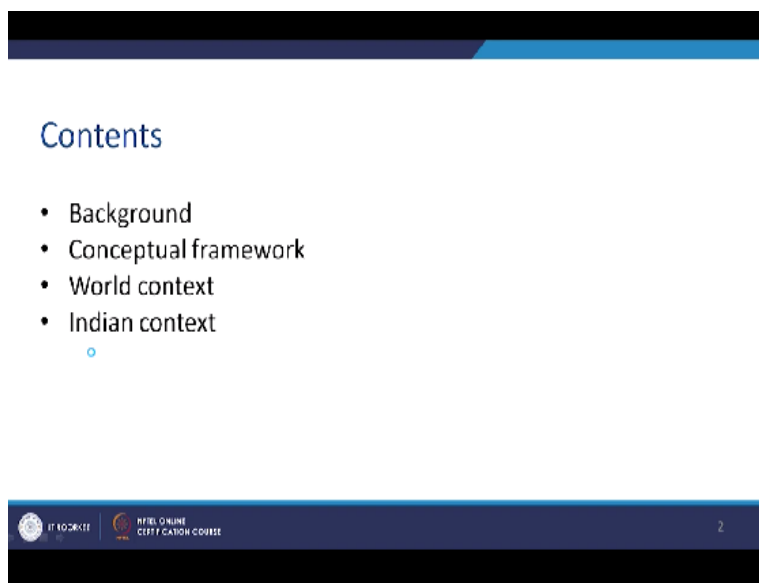
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Lecture – 43
Smart City: Concept and Mission

Welcome to the lecture 43. In the last lecture, we discussed the evolution of the urban development programs in India and key lessons what we have learnt in last few decades. And we introduced the current ongoing development programs. So then we discussed the main program which is AMRUT in last lecture also in continuation of that.

And we have seen that most of the cities in India, they are covered under this AMRUT which is a reformed linked program like JNNURM which started in 2004 and AMRUT started in 2014-2015. And today, we are going to discuss another very important urban mission which is called smart city mission. So we will see first the smart city mission, its background, the concept.

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We will see some world context, how the world cities are doing and then Indian context, what is the provision of the smart cities. And few important information so that if you work in a smart city or related organisation, you can contribute.

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Background of a Smart City

- World Forum on Smart Cities, 1997, suggested smart initiatives to be developed for 50,000 cities and towns around the globe.
- Many countries adopted the concepts in their own way resulting multiple manifestations
- India wish to develop 100 smart cities and another 500 cities as future smart cities 2014

So background of the smart cities goes back to 1997 when the smart city, the World Forum on smart cities, they suggested smart initiatives as a main agenda of the development of the cities, about 40,000 cities in 1997. And then many countries, they adopted the suggestion and the policies about the smart city and they tried to improve their city or develop their city in terms of the concept of the smart city. Similarly in India, in 2014, India took a very ambitious project of developing 100 smart cities in the beginning and then 500 another cities as future smart cities. So we will see that in details.

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What is a smart city? 6

-  Economic activities
-  Employment opportunities
-  Investment opportunities
-  High quality of life



So before that let us discuss that what is a smart city. Now the smart, this term is always sometimes confusing and we do not understand and sometimes we confuse with other similar

terms. Now there are differences of the opinions and the meanings also. But for our understanding, we must understand the basic concept so that we can apply the concept in our practice.

So smart city have 6 major dimensions. One is smart governance. Now when we say smart governance, that means it needs a definition and it needs a dimension. So basically here the smart governance is basically meaning effective governance which can deliver the services and the development as per the committed manner. Similarly the smart people means the people or the people's organisation or the public organisation or the people organisation, community based organisations, whether they can interact with the public agency or they can take their own decision.

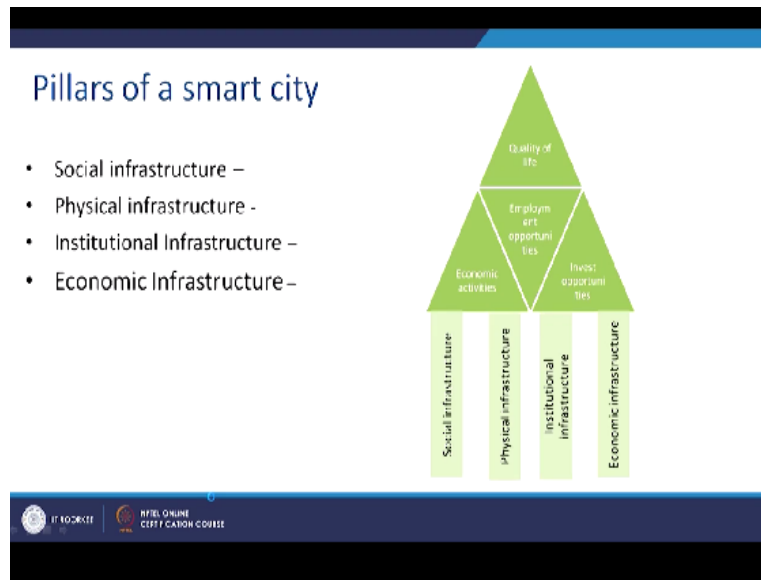
They can steer the development works which they need for their own. Then smart economy. The economy which creates required numbers of employment, required numbers of job for the people and it also offers the variety of jobs so that people get the variety and the better option. Smart living. Smart living basically ensures the optimization of your time as a resource, optimization your comfort and maximization of your happiness in your living, overall living for you and your family.

Smart environment which is sustainable. The environment does not make such action which creates barrier for the future development. So environment which allows the future development which is sustainable and also smart mobility. Smart mobility is basically which allows you to seamless connectivity with your work to home, home to education, education to work, like that. And with sustainable transport option, not the motorized option always.

So smart mobility, smart governance, smart people, smart economy, smart living, smart environment, even if you take out the word smart from it, the effective level, effective delivery, effective dimensions of all these elements makes a city smart. So is the smart city concept is something different than the earlier effective or the better managed cities? Basically, when we say good governance or a better governed city, it is that a city which can deliver their services in omitted manner.

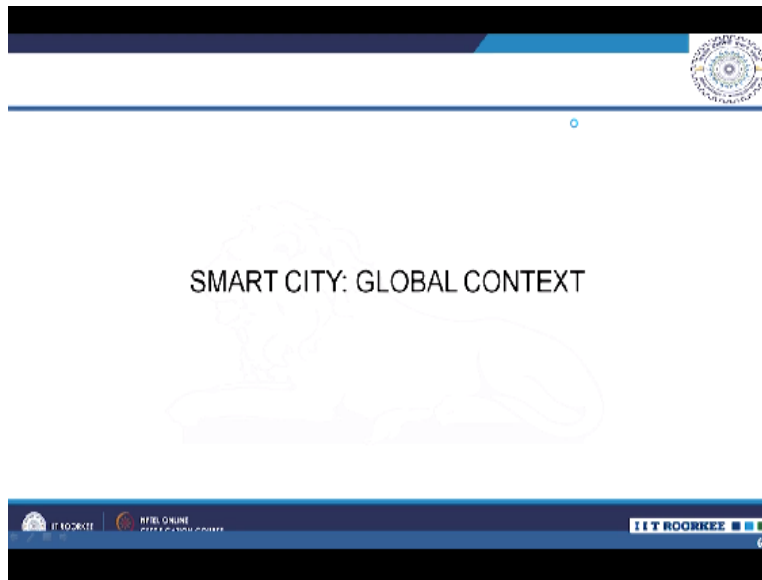
But in a smart city when we find that within their systems, within their components, there are few connections. There are integration and there are effectiveness in terms of integration of the all systems and are leading towards the better livelihood and better living quality of the people. I will come to the specific example. That time, it will be very much clear.

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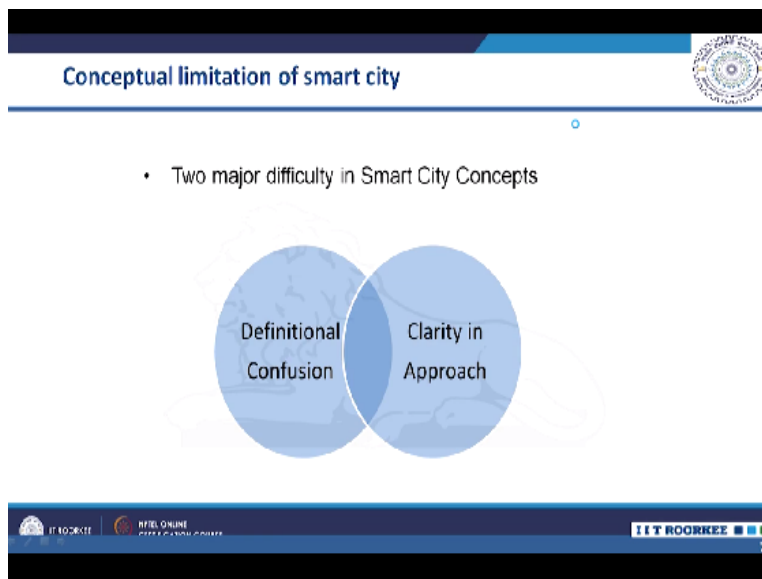
And if we come to the very specific element like economic, employment, investment and high quality of life, this is another way of seeing smart cities for our discussion. Now there are 4 basic pillars which is social infrastructure, physical infrastructure, institutional infrastructure and economic infrastructure. And if we can develop these 4 infrastructure in a better way, in a connected way, then we can develop economic activities, investment opportunities, employment opportunities and quality of life. These 4 which we mentioned earlier.

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Now let us see the concept at the global level.

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At the global level, there are some confusions in terms of the definition and their concept. So we find 2 types of confusions are there. Definition and the clarity in the approach.

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Definitional Confusion

- o Pluralism of adjectives in defining thematic cities
- o The adjective "smart" clearly implies some kind of positive urban-based technological innovation and change via ICTs
- o Which city, by definition, does not want to be smart creative and cultural?

Earlier we had various terminologies like digital cities, intelligent cities, ubiquitous cities, wired cities, hybrid cities, information city. So these terminologies are based on technology which is a driving force for the development of the city. Whereas if we see people as a driving force of the city, we have seen the term like creative city, learning city, humane city, knowledge city. If we say community as the driving force, then smart community.

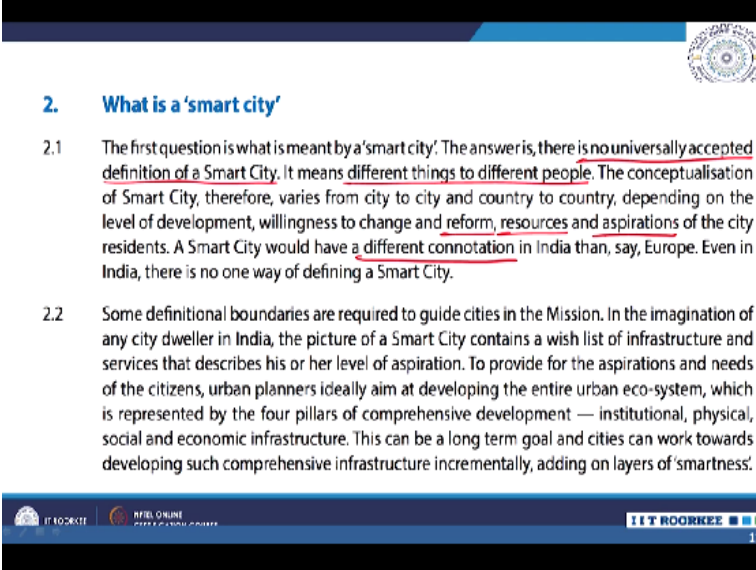
Now the challenge for our case or the smart cities, how to create a connection between technology and people and community. So if we can make a connection between people and technology, that is the desired objective of a smart city.

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Clarity in approach

And therefore, in smart city, there are basic 3 factors. One is technological factor. I have already mentioned the terminologies. Second is the humane factor and third is the institutional factor which we are discussing in this course in larger detail, that is the governance factor. So technology can drive the development through the people and that whole thing can be governed by the institutional factor or a better government, that is the another approach to identify or to analyze the city. Now let us come to the Indian context.

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The slide is titled "2. What is a 'smart city'". It contains two numbered points:

- 2.1 The first question is what is meant by a 'smart city'. The answer is, there is no universally accepted definition of a Smart City. It means different things to different people. The conceptualisation of Smart City, therefore, varies from city to city and country to country, depending on the level of development, willingness to change and reform, resources and aspirations of the city residents. A Smart City would have a different connotation in India than, say, Europe. Even in India, there is no one way of defining a Smart City.
- 2.2 Some definitional boundaries are required to guide cities in the Mission. In the imagination of any city dweller in India, the picture of a Smart City contains a wish list of infrastructure and services that describes his or her level of aspiration. To provide for the aspirations and needs of the citizens, urban planners ideally aim at developing the entire urban eco-system, which is represented by the four pillars of comprehensive development — institutional, physical, social and economic infrastructure. This can be a long term goal and cities can work towards developing such comprehensive infrastructure incrementally, adding on layers of 'smartness'.

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I have given some text from the guidelines of the smart city, guideline of the Government of India. I am not reading the whole document. I will share with you definitely but just observe few lines like, there is no universally accepted definition of a smart city. It means different things to different people. But here for our case, they are meaning that for India, there is a different connotation and in Europe, it can be different connotation but definitely, there are few parameters like reform, resources, aspirations of the city residents.

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- iv. efficient urban mobility and public transport,
- v. affordable housing, especially for the poor,
- vi. robust IT connectivity and digitalization,
- vii. good governance, especially e-Governance and citizen participation,
- viii. sustainable environment,
- ix. safety and security of citizens, particularly women, children and the elderly, and
- x. health and education.

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And based on this, our Government of India, they have defined smart cities into various elements. For example, for our case, the core infrastructure element in a smart city will include the water supply, electricity, solid waste management, mobility and the public transport, housing for the poor, IT connectivity and digitization. Then good governance and e-Governance, sustainable environment, safety and security, health and education.

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Smart Solutions (ILLUSTRATIVE LIST)

- E-Governance and Citizen Services**
 - 1 Public Information, Grievance Redressal
 - 2 Electronic Service Delivery
 - 3 Citizen Engagement
 - 4 Citizens - City's Eyes and Ears
 - 5 Video Crime Monitoring
- Waste Management**
 - 6 Waste to Energy & fuel
 - 7 Waste to Compost
 - 8 Waste Water to be treated
 - 9 Recycling and Reduction of CBD Waste
- Water Management**
 - 10 Smart Meters & Management
 - 11 Leakage Identification, Preventive Maint.
 - 12 Water Quality Monitoring
- Energy Management**
 - 13 Smart Meters & Management
 - 14 Renewable Sources of Energy
 - 15 Energy Efficient & Green Buildings
- Urban Mobility**
 - 16 Smart Parking
 - 17 Intelligent Traffic Management
 - 18 Integrated Multi-Modal Transport
- Others**
 - 19 Tele-Medicine & Tele Education
 - 20 Incubation/Trade Facilitation Centers
 - 21 Skill Development Centers

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So all these arrangement will target the smart solutions. Let me discuss one by one. So one is E-Governance. In some lectures, we have discussed E-Governance. In E-Governance, all the services will be delivered through online or through online transaction. For example, public information and grievance redressal, electronic service delivery, citizen's engagement, citizens to

city contacts, video recording and the crime monitoring. So these are all related to E-Governance.

Then waste management, waste to energy, waste to compost, waste to water and recycling. In water management, smart meters and management, leakage, water quality monitoring. In energy management, you can see the smart meter and management, renewable energy sources, energy efficiency and green building. In mobility, it is the smart parking, intelligent traffic management, intelligent integrated multi modal transport.

And apart from that, there are tele-medicine, tele education, facilitation centers, skill development center. Now in the last lecture, we have seen that in AMRUT which is basically targeted for the basic infrastructure, water supply, sanitation, all those and sewerage. Here you can see that the basic infrastructure is delivered in a more productive and more efficient way. Using sometimes technology, using sometimes better process and better systems.

That is the difference between a smart city and the other cities. So smart city essentially involves some different method, different approach, different systems to make a particular service or particular benefit for the people more effective, more meaningful.

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Smart City Features

- Mixed land use ✓
- Housing and inclusiveness
- Walkable community
- Open spaces
- Variety of Transport options
- Citizen friendly government
- Identity to the city
- Smart solutions

Accommodate All

*MM Transport
walkable tracks
cycle tracks*

lung

*MRTS
LRTS
Suburban Rail
Bus*

*Cycle
Rickshaw
Walk*

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So in the smart city feature, there are few features, let us see. One is mixed land use. When we

discussed land use in our planning lectures, there we discussed about it. Now mixed land use enhances the compactness and it enhances the social interactions and there are lot of advantage in it. So smart city enhances or encourages the mixed land use. Housing and inclusiveness so that it can accommodate all category of people.

Walkable community, so the community will be mixing of non-motorized transport, walkable tracks and cycle tracks. So these together, it will make an alternative to the motorable transport and motorable means of transport. Then open space, how an open space can create like a lung of a city and this is connected with the walkable tracks and the non-motorized transportation. Similarly, there should be variety of transport options.

For example, there could be MRTS; LRTS, light rail transit system; suburban rail; bus; cycle; rickshaw; walk. So many varieties of the transport option will be available. Then citizen's friendly government. We have discussed in the citizen's charter and the transparency accountability lecture that a government is a good government when it interacts with the citizen in an effective manner.

And citizen's get the services within the stipulated timeframe. So through the conduct with the government and with the local government, the citizen's friendly government can be made effective in terms of their service delivery and timely delivery. That is what is intended. Identity to the city. Most of our Indian cities have their own identity in terms of their culture, heritage and the local context.

So if you make your own smart city, do not forget that what is your local context, local culture, or local strength or potential element which is inherent in your city or in city population. So emphasizes on that and strengthen on that and then develop. And smart solution. When we say smart solution, the smart solution could be in terms of traffic and transportation, that you do not have to buy every, each and every time tickets.


You just take, purchase one-time card and you can avail any service, any type of services. For example, smart solution can be a smart citizen's card. For example, for taking any citizen service,

that smart card can be utilized for any further purposes. So similarly based on your own situation, own context, you can design your smart solution and citizen's friendly solution for every services. So these are the coverage of the smart cities.

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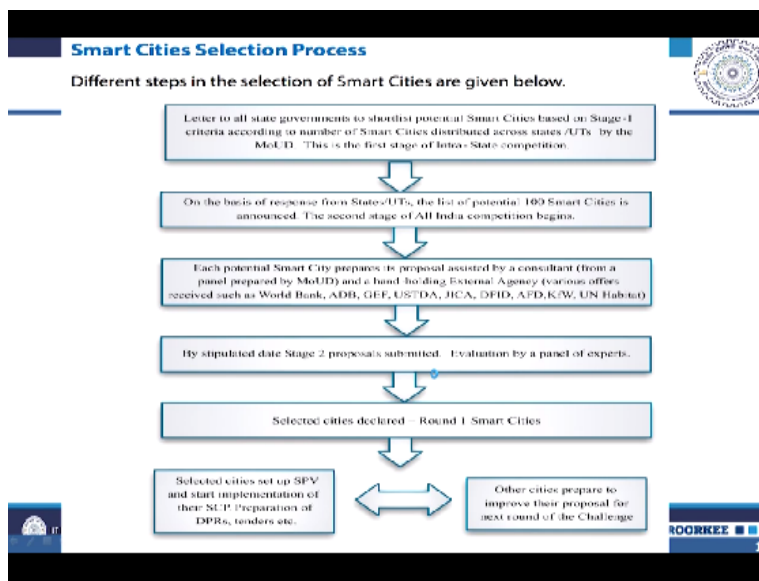
Identifying the Smart Cities

- One satellite city of each of the cities with a population of 4 million people or more (9 cities)
- Most of the cities in the population range of 1 – 4 million people (about 35 out of 44 cities)
- All State/UT Capitals, even if they have a population of less than one million (17 cities)
- Cities of tourist, religious and economic importance not included in above (10 cities)
- Cities in the 0.2 to 1.0 million population range (25 cities)



You can see that satellite cities and most of the capital cities in the population range of the 1 to 4 million. And some capital areas, then some cities with importance of tourist and religious importance and some other cities are selected.

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But these will be selected through a competition mode. So it is not like other mission like AMRUT or any other mission that all the cities will be covered. So smart cities is an opportunity

but is a competitive opportunity. Any city if they wishes to beat for the smart city, they have to make the smart city plan document in such a way so that it can win the competition. So based on the competition, this smart city will be allotted and the allocation from the central government will be provided.

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Development Strategy

- **Retrofitting**- planning in an existing built up area
- **Redevelopment**- replacement and enable co creation
- **Greenfield**- vacant area's innovative planning
- **Pan city development**- application of selected smart solutions to the existing city wide infrastructure (Any one)
- All projects are to be implemented by **SPV** (Special Purpose Vehicle) and through the consultants

Core City

Pan city

Greenfield Area

New Urban Extension

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So there are few development strategy for developing the smart city. The first is the retrofitting. The existing cities, especially in the core areas and other areas that has to be retrofitted with the new infrastructure or the improved infrastructure, that is the retrofitting which is suggested here. Redevelopment, some of the old city areas, some plots can be redeveloped using the mixed community, mixed economy group housing and the commercial areas so that the older areas go away.

And for that, if required the city authorities, they can provide additional FAR, additional enhancement of the benefit in terms of the benefit to the developer so that the redevelopment can take place. Then Greenfield development, there is a provision that apart from the existing area where retrofitting and the redevelopment is taking place, any city authority can take any Greenfield area as an urban, new urban extension, they can acquire land, they can pull the land or they can make innovative land assembly and then they can develop that land.

So for those kind of development also, the Greenfield options can be taken as a strategy and that

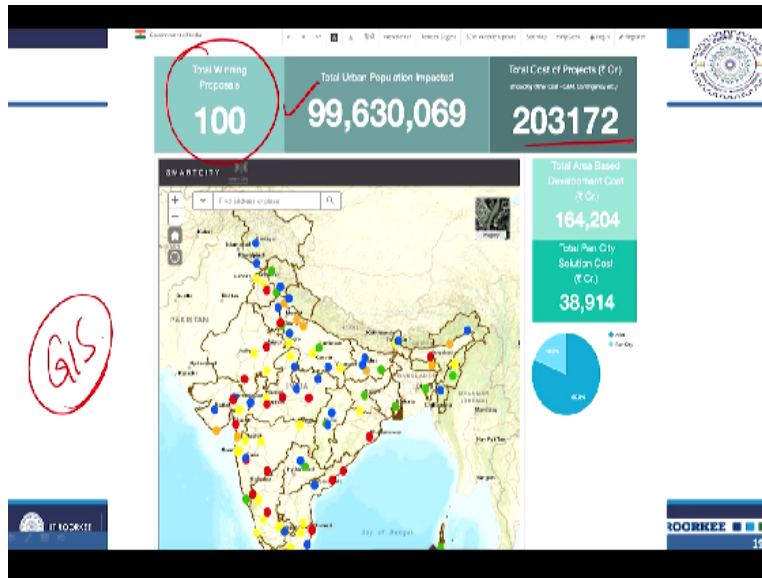
also is encouraged. And fourth is that a Pan city development. So in a city, if there is a core city area, basically core city is an already developed city which has the dense urban area which uses the retrofitting and redevelopment area.

And beyond the core city, you can understand that there are other area which we are identifying as the pan city where some amount of application in terms of the infrastructure and other application can be there in the pan city. And beyond that, there could be green area. So green area is basically new urban area, urban extension.

So core city, pan city and the new urban extension and green area, these 3 physical areas are making the whole coverage of the smart city as a development strategy. And another very important provision is that unlike the other programs, the smart cities will be implemented by a separate agency which will be created by the state government and that is in terms of the special purpose vehicle. They will be created and after the completion of the smart city project, that will be dissolved.

So this special purpose vehicle will be working in integration or in consultation with the local government that is the municipal corporation or the municipality so that there is integration between the smart city project and other projects like AMRUT and Swachh Bharat Mission project. So that is the, but you can understand that a specialized or a very much emphasis is given for the smart city and that is why a special purpose vehicle in terms of the other organisation has been created.

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Now I have shown as screenshot from the ministry of urban development website where you can see the winning proposal in terms of the smart city and the impacted population, cost of the project and a GIS based, application based representation of the smart city projects where you can just click and see in your city, what are the smart city projects, what are going there. What are the coverage and what are the current status?

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Issues

- Conceptualisation and adoption → *definition Difference*
- Implementation → *framework*
- Selection of smart cities
- Role of Local government

There are few issues we should discuss and we should think about it because we have just started, just 2 years back the smart city development. So in coming years, more and more issues will be coming up. In terms of the sustainable development, we should address in right time. That is why it is better to have some, address those issues. The first is the conceptualization and

adoption. It is important to understand the definition and difference between the other cities.

Then implementation framework. How it is being implemented. I have told you that it is being implemented in India through a special purpose vehicle which is non other, which is a dedicated another newly created organisation. So integration between that organisation and urban local bodies can be an issue. So a much more integration and much more coordination is required between the local government and the special purpose vehicle which is another organisation.

And selection of the smart cities. I have told you that selection of the smart cities in India is based on basically the competition and it is based on the technical quality of the document. So therefore, whenever you are applying for smart city or making the city document, it is better to have some international exposure, some international case studies and national case studies, then make the document and submit.

And role of local government, I have told that they need lot of coordination with the special purpose vehicle. Having said that, we will quickly summarize the today's lecture. Today, we have discussed the smart city concepts, some context, some examples from the international cases and some example from national cases. For international cases, we have taken some theoretical concepts and definition.

We have seen that basically smart city consist of smart mobility, smart people, community, economy, employment, infrastructure, all these. And by and large, basically it aims to provide effective services to the people and the services which is integrated in manner and which is better in terms of their quality and quantity. And in India, in world, we have seen that from 1997 various countries, they have started developing smart cities.

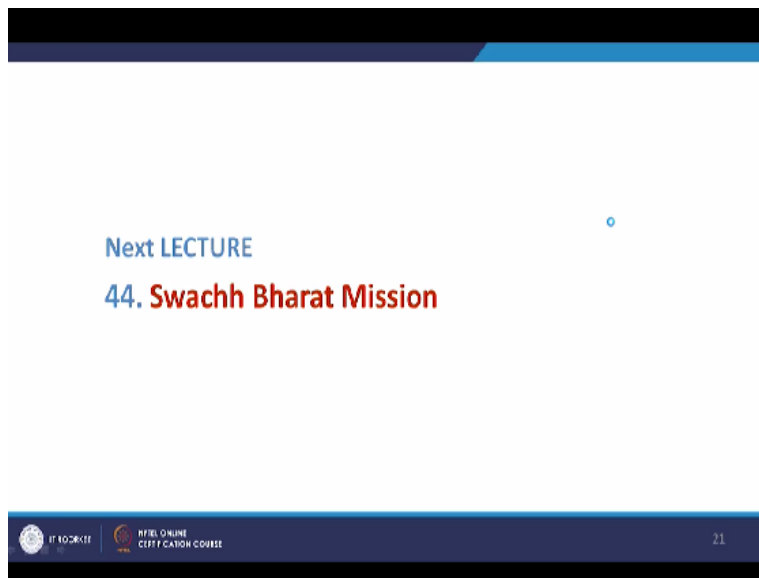
Some people are calling it is digital cities, some people are calling it as, separate names are there. So smart city can be conceptualized based on some technology or based on some people but the main challenge is to how to connect with the technology application, with the context or the requirement of the people. In India, 2014 Government of India, they have started discussing on the smart city and in 2015, they have launched the smart city mission.

And under this mission, they have selected about 100 smart cities based on the competition and under the smart cities, they have taken 4 main strategies. One is the area based development. Area based development is the detail development of the core area. Pan city development is the area, the development beyond the core area. And the Greenfield development is the development beyond the pan city development in the new areas.

And they have told that retrofitting and the redevelopment will be taken as a strategy in the core city area. And not only that, this development will be done by a special purpose vehicle which is another newly created organisation. The main issue which can arise here for the implementation is the integration between the special purpose vehicle and the urban local government and also the effectiveness of the special purpose vehicle because since it is a newly created organisation.

So lot of monitoring, lot of coordination, lot of supervision is required at the state level, at the local government level. So these have to be kept in mind while you will be working as a smart city project. So having said that we conclude this lecture today. Tomorrow we will discuss our next lecture.

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We will discuss the Swachh Bharat Mission in greater detail so that you can understand that what is the current focus on the sanitation and the Swachh Bharat. Thank you very much for attending

this lecture.