Introduction to Urban Planning
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Lecture - 26
Public Health and Urban Planning – IV

Welcome to the course introduction to Urban Planning. In this session today, we are going to cover public health and urban planning and specifically related with COVID-19. And this would be our last lecture in the series of public health and urban planning. Currently, we are going through COVID-19. And as we had said before, this is not the first time and several public health emergencies have occurred in cities around the world, like we have been seeing in our previous lectures.

Looking at the historic public health crisis and related urban reforms, we find that prime focus was health and accordingly, we reorganize the way we planned our cities.

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So, today, our coverage would include interaction of cities with infectious disease COVID-19 and its urban implications. We will look at various responses, how urban areas responded to this crisis and its impact and the pattern, we see within those responses. Further, we will look at the government intervention what initiative did government take. We will further see issues and opportunities in the time of COVID.

Further, we will look at the initiatives and advancements in the education sector. In particular, we will further look at the impact of city density to COVID-19 spread. In the last session, we did and I think, we promoted high density and today, we are questioning density. So, we will look at the research, which talks about these relationships. And we will look at various answers which we get through this research.

Lastly, we will look at the frontier technology as shaping force to the economics, the new economics which we have been seeing in the series of lecture. Accordingly, the learning outcomes which we expect, after completion of this session, that you should be able to describe the relationship between pandemic and the cities. You should be able to review the implications of COVID-19 in the urban areas.

Further, you should be able to describe various responses impact and patterns which you see. Furthermore, you should be able to explain unless the government interventions for the pandemic. Furthermore, you should be able to identify issues and opportunities which you have seen through examples. Furthermore, you should be able to elaborate on the new initiatives in the education sector.

Likewise, you should be able to describe the relationship or analyses or review or synthesize the relationship between city density and spread of COVID-19. Further, you should be able to define and discuss on the frontier technology and their implication or our ability to fight such pandemic.

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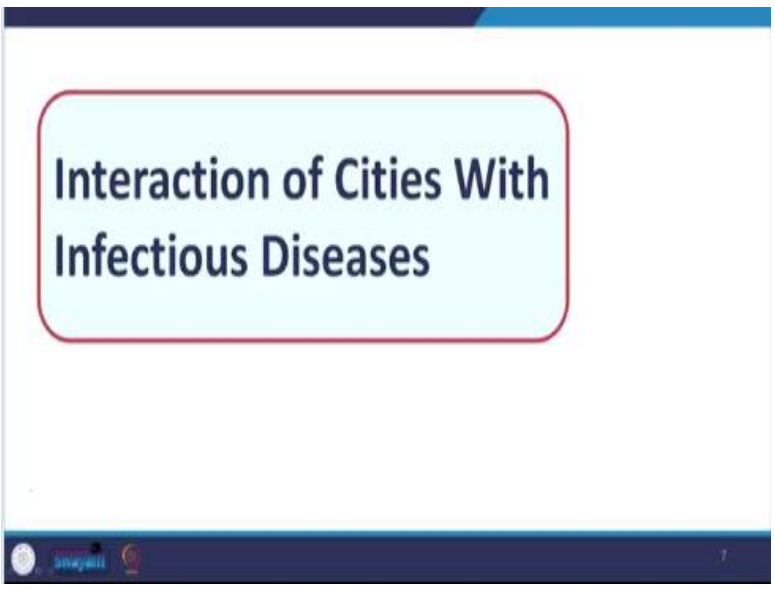

Looking into the interaction of cities with infectious disease. We have seen in previous lectures that cities have been hotspot for emerging infectious disease.

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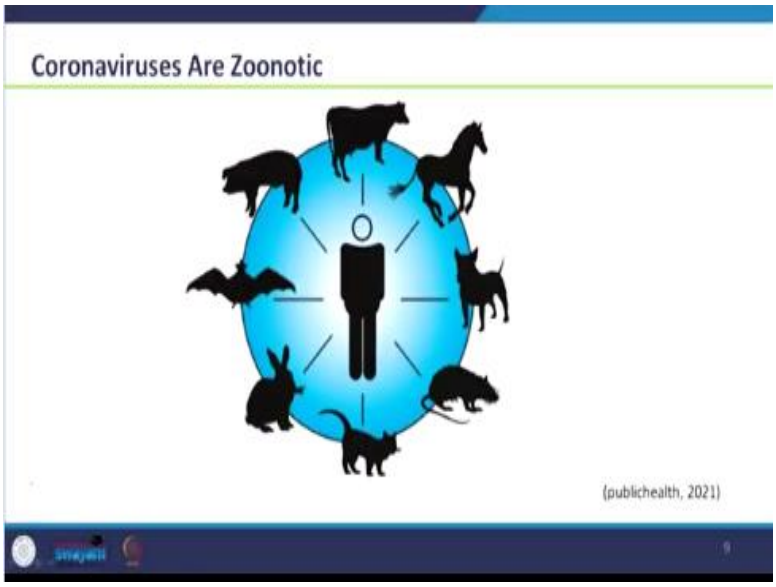

Coronavirus are zoonotic meaning they are transmitted between animals and people. And why cities are hotspot for such transmission? First, we see that urbanization leads to land conversion of wild lands into farmland, pasture and urban areas. We also see deforestation, habitat loss change in wildlife diversity.

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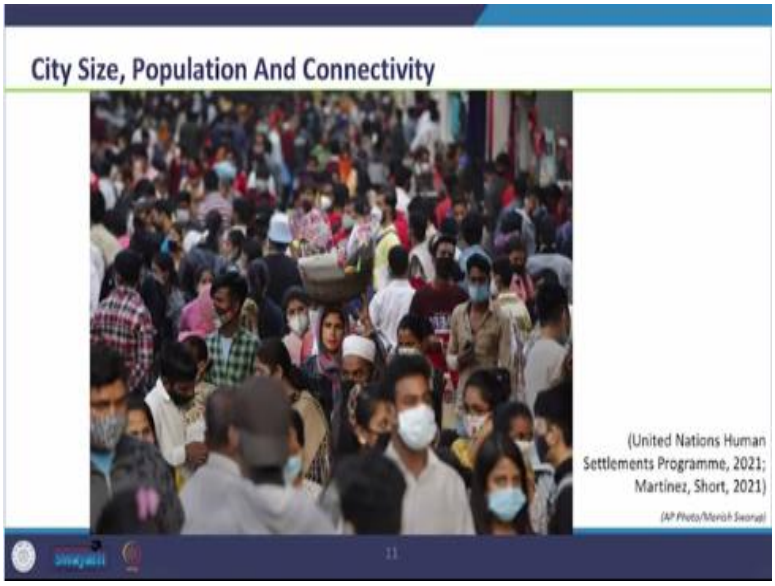

The conversion of wild places destroys the large species, allowing more of the smaller animals such as bats and rats that carry the most pathogens.

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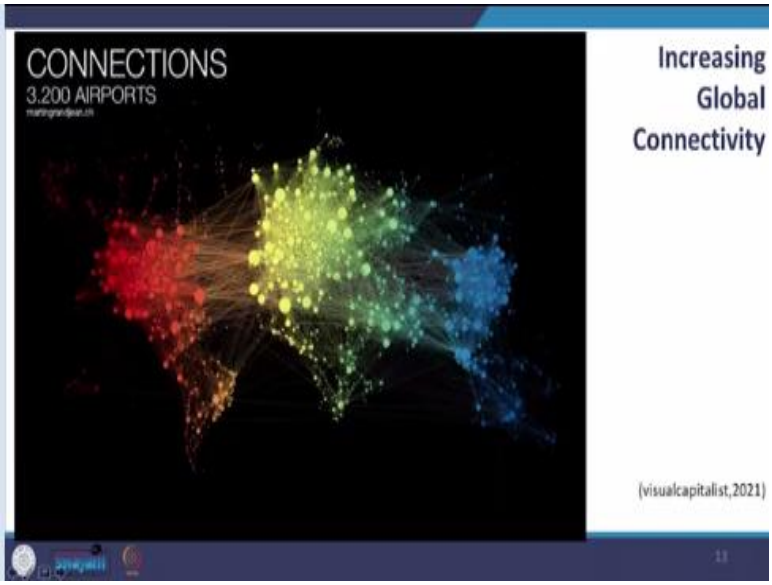

We also see increasing global connectivity. The intercontinental travel have made cities more vulnerable than ever to the pandemics therefore, pandemic like COVID-19 are no more geographically distinct. Third, we see that in the Anthropocene, which captures the current time period in which human activity has been dominant in influencing the climate and the environment.

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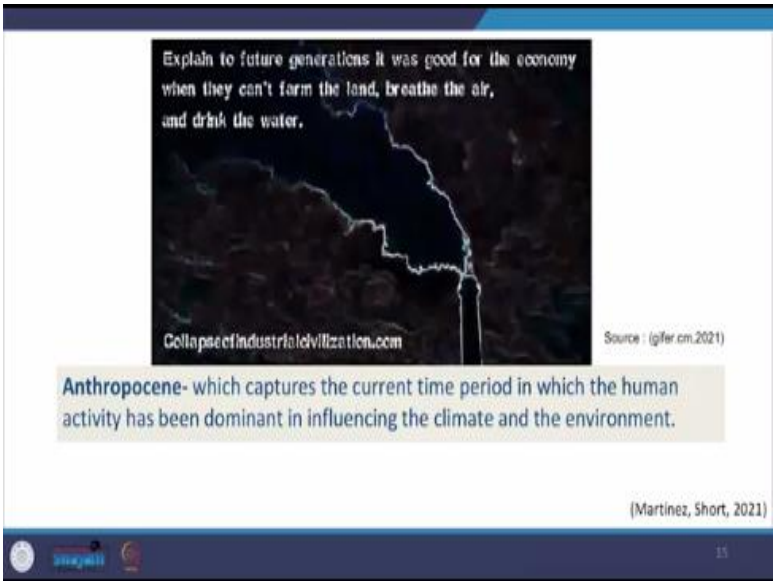

We are observing climate change. Due to land conversion and encroachment, we are exposed to more human pathogen interaction and more cross species spillovers.

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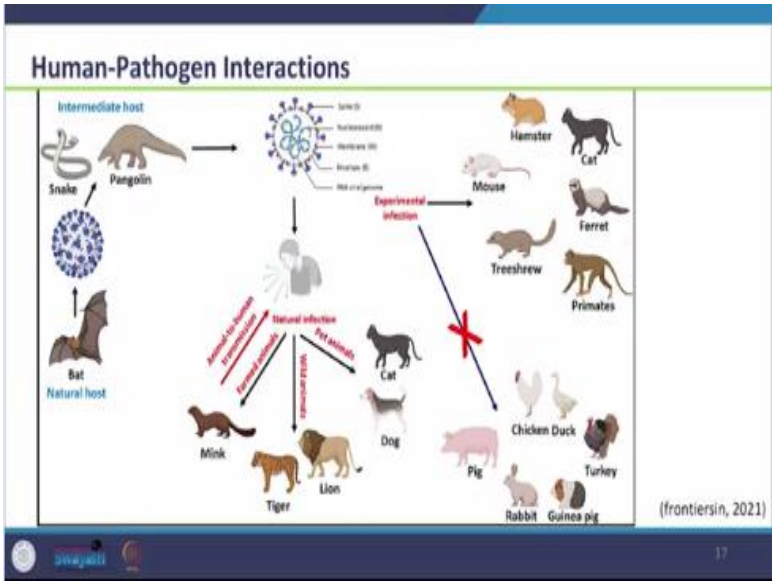

Over 60% of new infectious diseases come from wild animals. We further see this variation of accessibility to health care and people's humanity which also affects the spread of the disease. Likewise, we see the policy, we adopt for land conversion what use we put the land into effect the nature of the disease.

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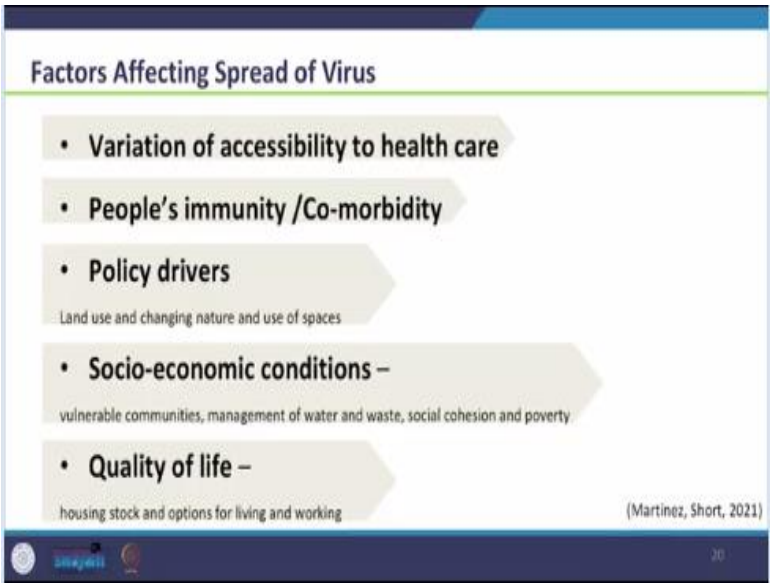

We further see that also the socio-economic conditions such as responding to one notable communities, management of water and waste, social cohesion and poverty also influences the spread and impact of any pandemic. Studies also show that quality of life. Quality of life such as housing stock and option for living and working also influences the spread of the disease.

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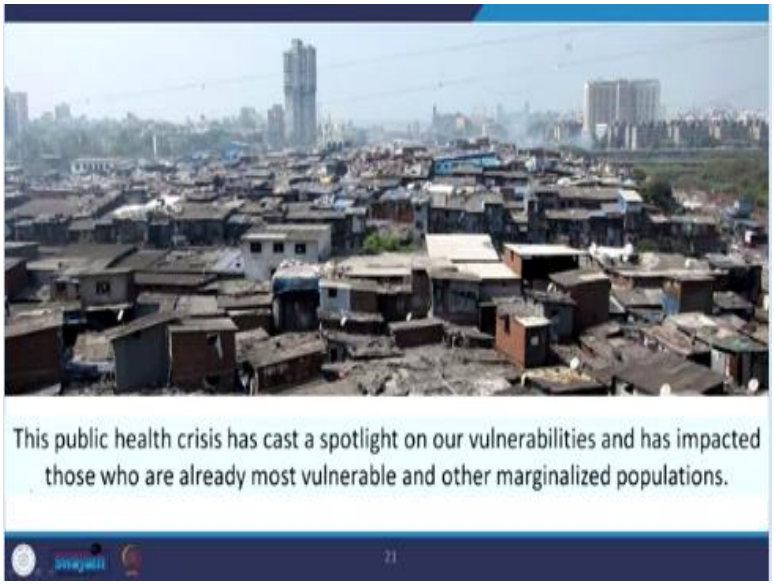

The public health crisis has laid in a spotlight on our vulnerability and has impacted those who are already most vulnerable and other marginalized populations. However, the cities are not only hotspot, but they play a key and central role in preparing for mitigating and adapting to pandemics. Today, the preparedness of cities varies around the world, their level of development and socio-economic determinants of their population play a big role.

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So, we see that not only they are the hotspot, but they also help us to counter the problem. Cities with a high concentration of urban poor and deep inequalities are potentially more vulnerable than those that are better resourced, less crowded and more inclusive. Looking into the origin of the COVID-19 and its urban implications, we see that the novel respiratory disease was identified in the city of Wuhan in December 2019.

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It spread quickly and by January 2020, it had infected over 21 crores people and caused over 44 lakhs deads according to the worlddometres as on 20th August 2021. COVID-19 is one amongst the many pandemic in recent history. Pandemics are part of the modern world. By now, we are all well informed about this. The major concern of planning which come to surface includes existing inequalities and poverty, which is of concern to the urban planning.

The impact has been extremely different on different segments of population. The poor and the vulnerable, including migrant workers and urban poor suffered the loss of life, as well as loss of income.

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We also saw weak social protection coverage. There have been many questions about our approach to planning of cities, we saw through series of sessions and contextualizing cities,

how we arrived at making high density choices for our cities. How we lately until the pandemic made strong cases for public infrastructure and public transportation? How we plan our open spaces, works places, market areas, informal sectors?

And how we located our schools? How did we decide number of hospital, beds in a neighborhoods and the city? Now, all comes to a halt and we need to rethink or make the new beginning and new standards while planning our cities. It becomes even more important for us in India, because we still have dense areas. We lack basic services.

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We lack sanitation people live in crowded and small houses, even one funded and supported by ministries such as for the Pradanamantri Avasyojana. We see that in equal and it adequately distribution of health infrastructure is also prevalent in our place. Also the availability of open space as per the international norm is currently an issue.

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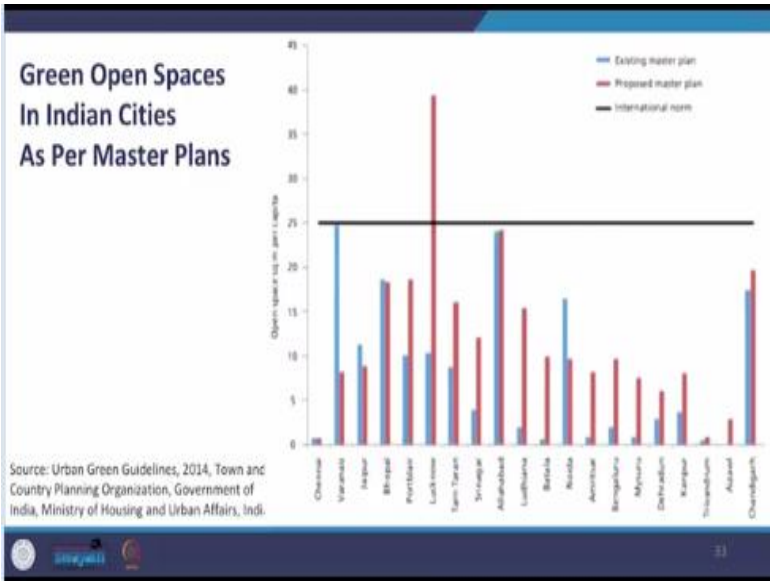

Physical isolation with absence of adequate open space is one of the major causes of discomfort and poor living standards.

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We still experience overcrowded public transportation system and pollution, the lack of coordination and data among relevant authorities and other key individuals are also factors that have exposed certain cities to the outbreak more than the others.

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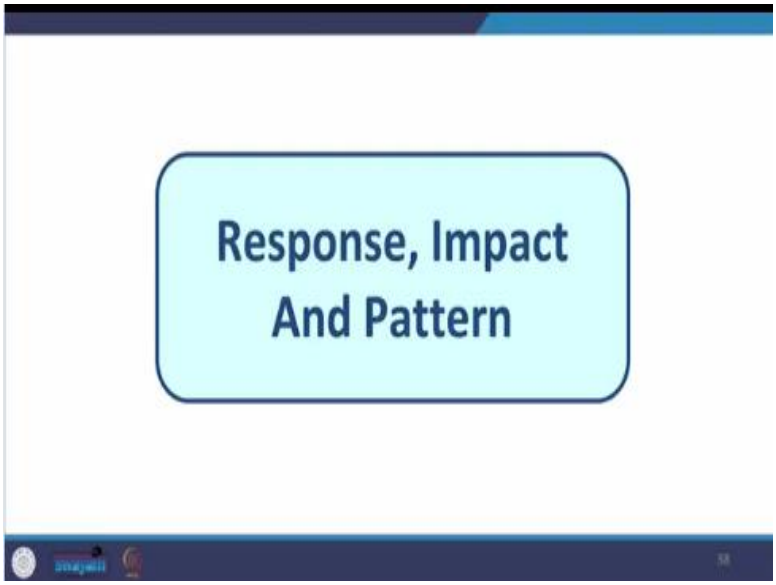

Now, let us see how different cities responded to the pandemic. Looking first at the open public spaces, public space is said to be an essential part of mental health and public health and economic stability and can be used to reduce the disparity of spaces as stated by James in 2021, Chair of block by block. During this pandemic, public spaces have played a vital role in the health and sustainability of urban communities around the world.

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In fact, it is said that people need to go outside more, even more now than before. The usage of public space went drastically low as you can see in the image from Copenhagen, taken in 2018 and in 2020. We also see during this pandemic how our living conditions for many segments and locations are inadequate in our cities.

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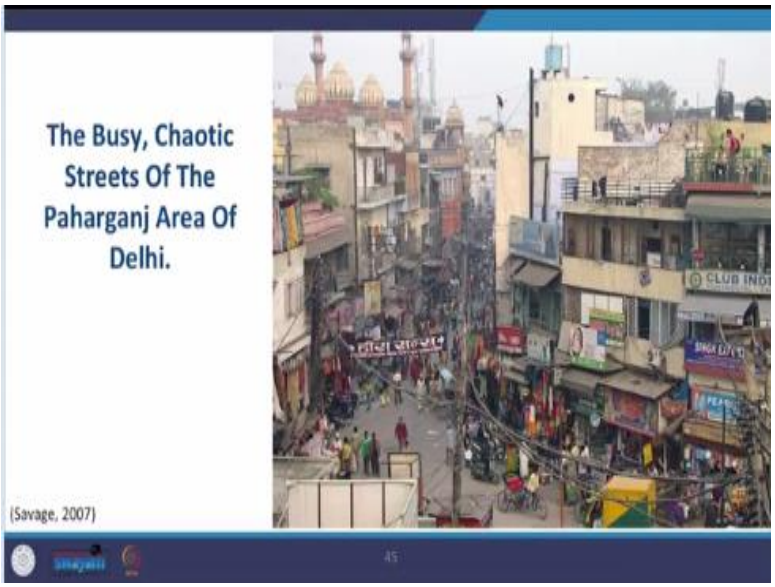

You can see in this picture from Paharganj area of Delhi. In order to equip these public spaces to face the challenges of COVID-19, UN-Habitat with block by block foundation has been supporting 10 cities throughout this past year. With the help of local governments and the community, the initiatives helped COVID proof, open urban entities especially in poor neighborhoods where there are fewer shared and green spaces.

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We also see many community based interventions such as creating mobile pop up playgrounds for children in Hanoi, Vietnam; improving livelihoods for street vendors in Taka and Kula, Bangladesh; to COVID proofing of public spaces in Bhopal informal settlements in India. These responses have provided help to those who needed it the most. If you see how countries responded and restrained the use of public spaces.

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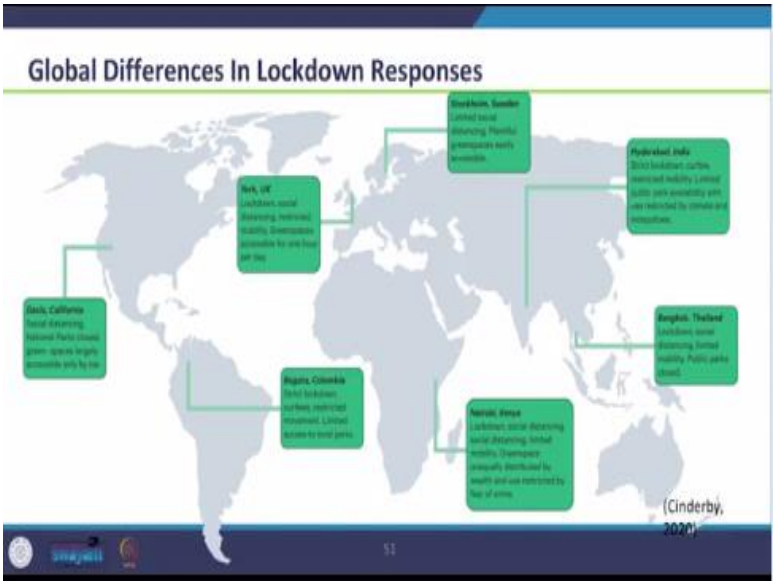

We see that in California, social distancing, norms were applied. National Park were closed and in York, UK, lockdown, social distancing and restrict mobility was adopted; green spaces were accessible for one hour per day. We see in Bogota, Colombia, there was strict lockdown and access to local park was also restricted. And Stockholm, Sweden, we see there was limited social distancing and plentiful green spaces were easily accessible to people.

Likewise, we see in Davis, California, social distancing was adopted. Likewise, we see in the other places as well. There was a difference in responses. In Nairobi, Kenya, also lockdown and social distancing norms were applied, which had restricted mobility. Green spaces are unequally distributed by wealth and use restricted by fear of crime. Further, we see in Hyderabad in our country also had strict lockdown along with curfew and restricted mobility.

There were limited availability of public parks with use of restrict dead by the climate and mosquitoes. Before see, Bangkok, Thailand also had locked down and social distancing norms were imposed. With limited mobility public parks were also closed. So, as for this study, we see every other place had different kinds of norms which were adopted for accessing the open spaces.

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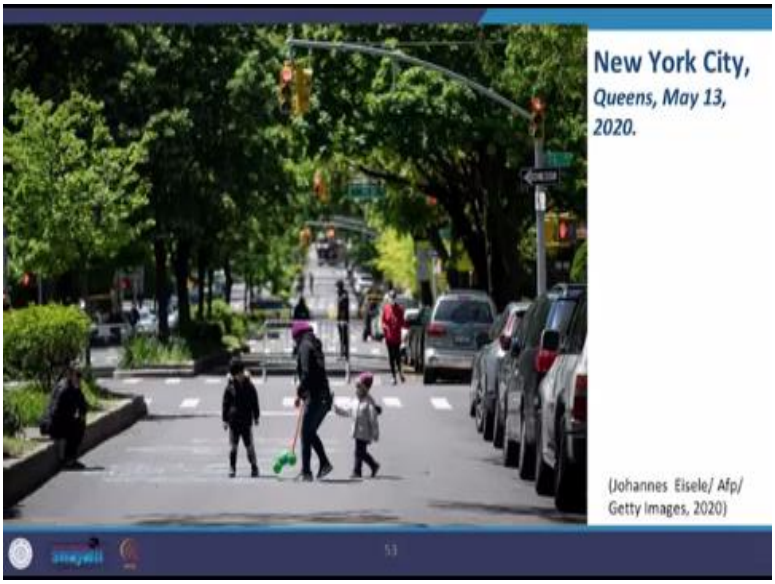

Before seen, the New York City has closed some streets to traffic to give residents space during the coronavirus pandemic.

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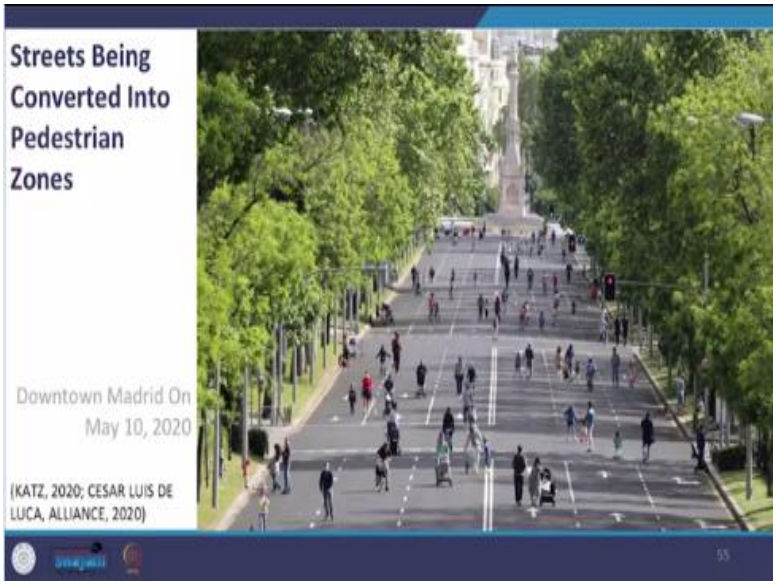

In the image, we can see Downtown Madrid road converted to pedestrian and by cyclists space.

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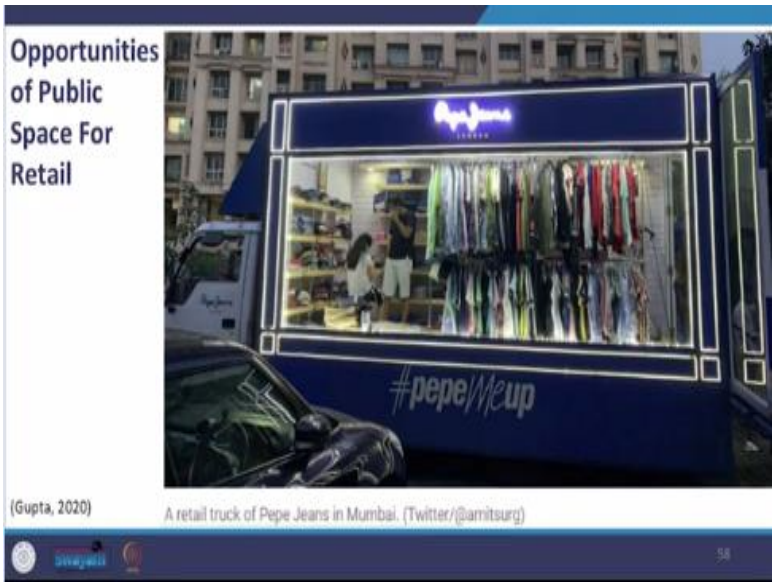

Now, looking at the retail service during pandemic, we see that retail businesses suffered a lot. At the same time, we see innovative solutions which came up. Some city streets became street eateries.

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The transformation of streets into pedestrianisation space allowed social distancing and looking into how the cities can be organized. Our cities look to ease the lockdown and provide safe, affordable and equitable modes of transport, while ensuring physical social distancing the need for pedestrianisation of market spaces through walking and cycling friendly cities is the foremost importance.

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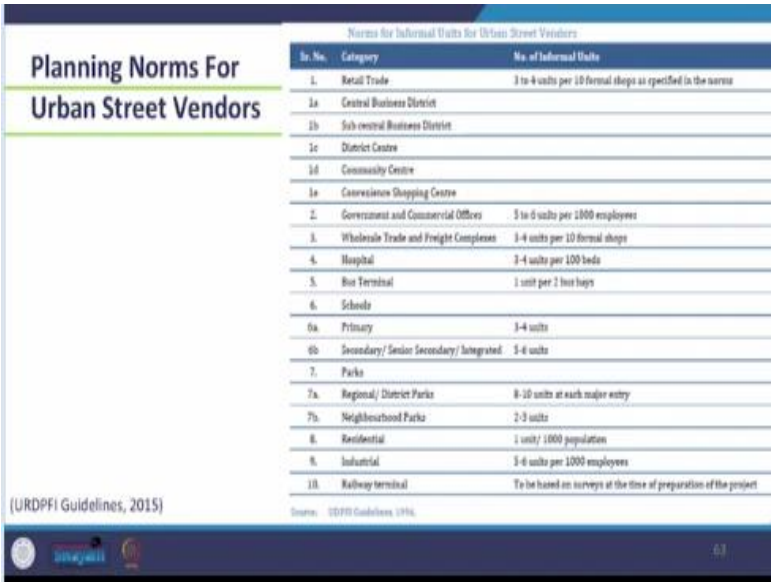

We further see that URDPFI guidelines also provide planning norms for urban street vendors, which further needs to be relooked into under such situation.

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Now, looking at the environment during pandemic, in the image from New Delhi gate, War Memorial, you can see the difference in the air quality from the picture taken in 2019 and the another picture taken in 2020. Likewise, we see many other cities having dangerous levels of pollution had considerably clean environment during the lockdown period.

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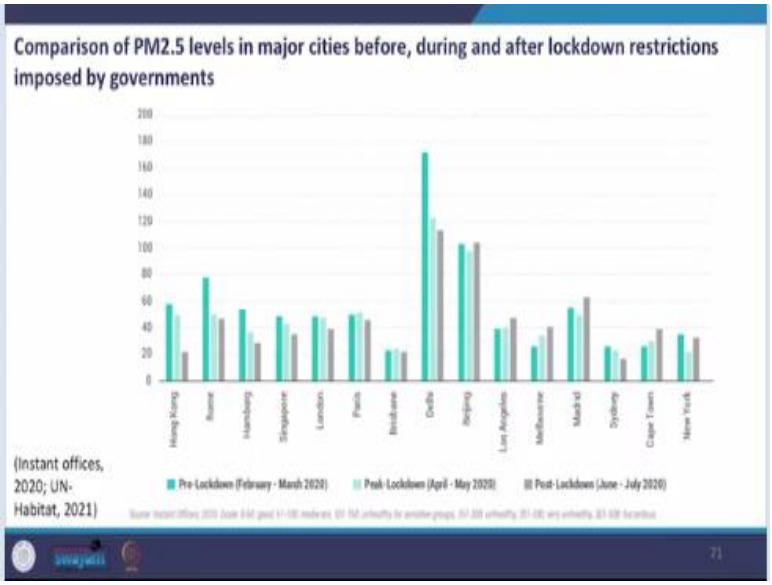

In the study here done in 2020 shows the PM 2.5 levels, which refer to the particles that have diameter less than 2.5 micrometers and remain suspended for longer. These particles are formed as a result of burning fuel and chemical reaction that take place in the atmosphere. And the dark green, you can see pre lockdown levels; in the light green, you can see peak lockdown levels and in the grey, you can see post lockdown levels of PM 2.5.

We also see the other pollutants also drastically declined in many cities like NO 2 and CO 2. Because of the clean air, clean water and the free movement of wild animals, humans started to sense the environmental recovery.

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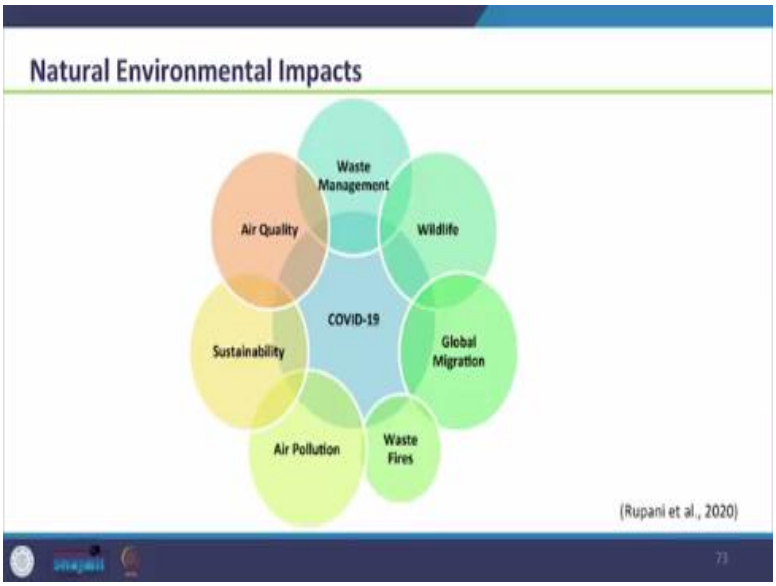

Because of the clean air, clean water and the free movement of the wild animals, human started to sense the environment recovery. Further, we see how it impacted the natural

environment as the lockdown forces a broad stop of public and private means of transportation. Animals are experiencing noise free areas and people dominated zones.

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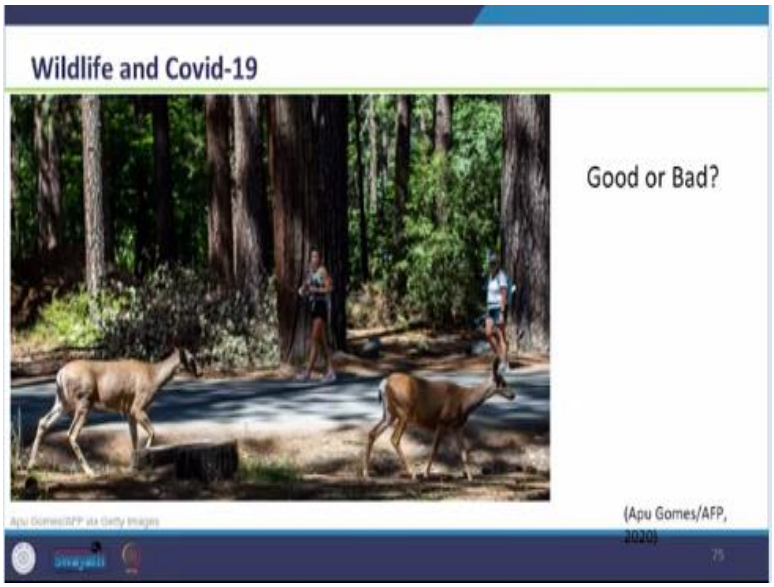

It is like that the globe is restoring its wellness rapidly, the health waste. Production grows rapidly during the crisis which was possessions a vital threat to both health workers and the public if gathered or managed in appropriately.

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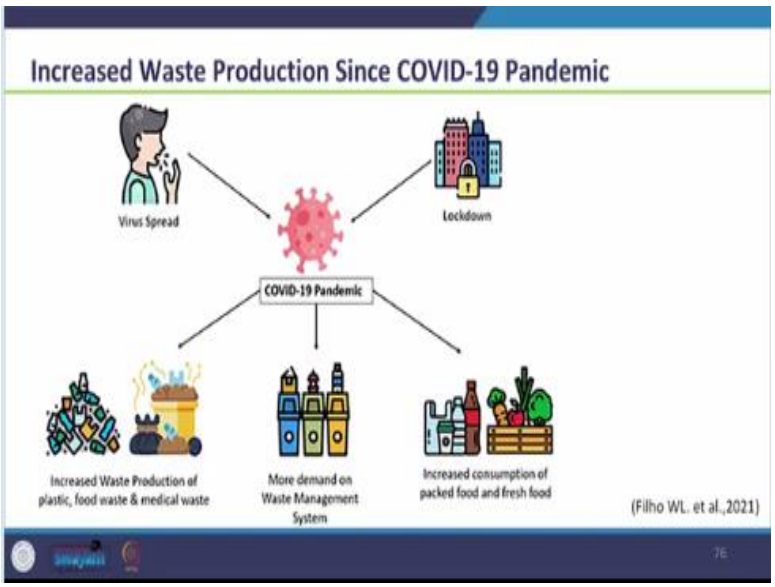

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On the other hand, the management of domestic waste during the pandemic has also raised potential environmental threats.

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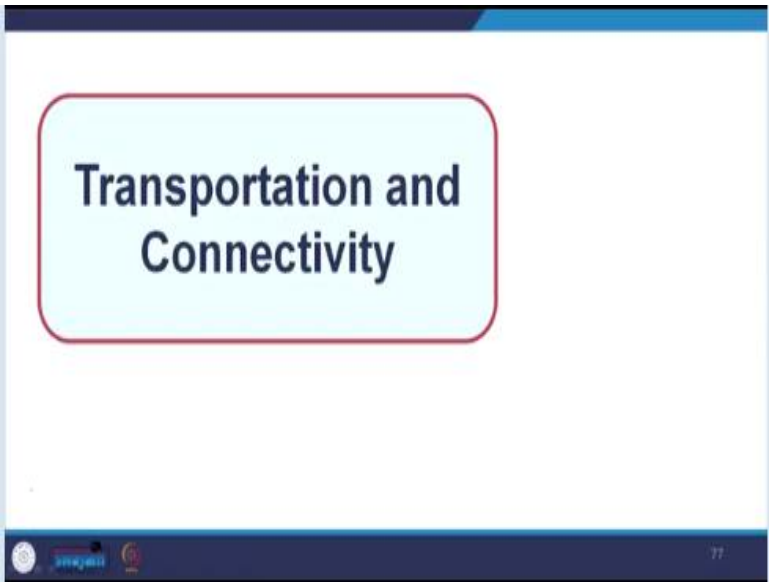

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Now, looking at the impact on transportation and connectivity during the pandemic time. We witnessed that with more and quicker global travel today between cities have caused the local outbreaks turn more easily into epidemics, then into global pandemic.

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Cities, 80% of world had either suspended or significantly reduce the public transport operation to limit the spread of the pandemic. As we have seen previously, we promoted the mass transit and public transportation.

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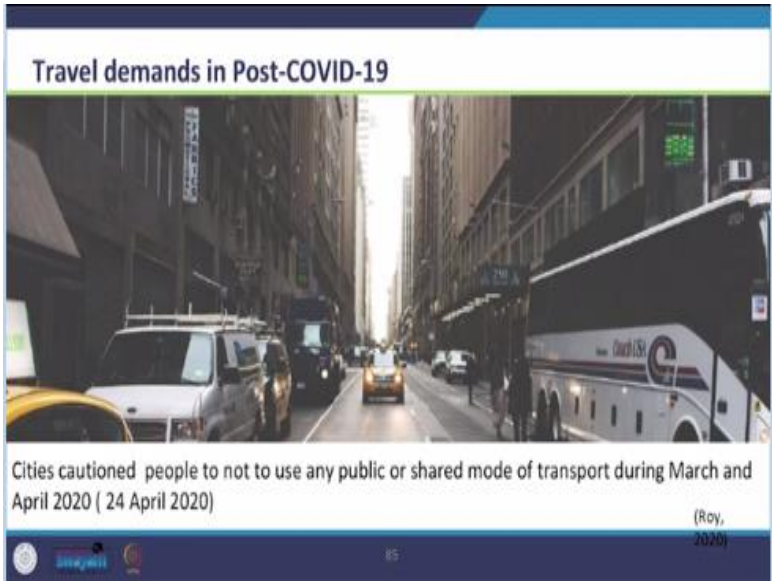

However, during the pandemic, we cautioned people to not to use any public or shared mode of transport. Public transit services suffered the most in this time. City authorities in India had suspended public transport with some including the Bangalore Metropolitan Transport Corporation, Brihan Mumbai electricity supply and transport in Mumbai Capital Region, urban transport in Bhuvaneshwari, providing limited services for emergency workers.

Almost, all cities cautioned people to not to use any public or shared mode of transport to enforce social distancing. There was massive decline in transit ridership across the world.

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Google mobility data of 2020 suggests downward changes as high as 80% in some of the countries compared to the normal situation in these countries related with mobility.

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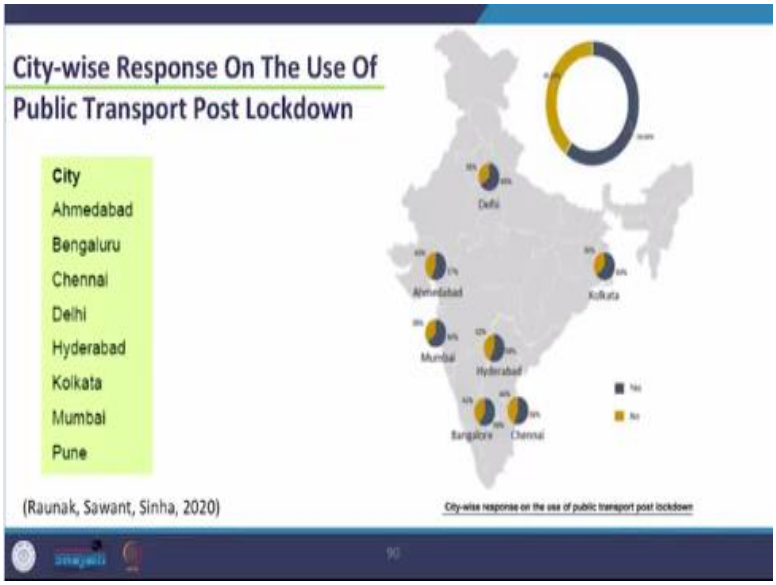

City wise analysis study by Raunak, Sawant's team in 2020 indicates that Ahmedabad, Hyderabad and Bangalore are likely to witness the maximum shift of public transport users to other modes as compared to Mumbai, Delhi and Kolkata. This is likely due to long trip plans increased congestion and high travel time in private vehicles in big cities.

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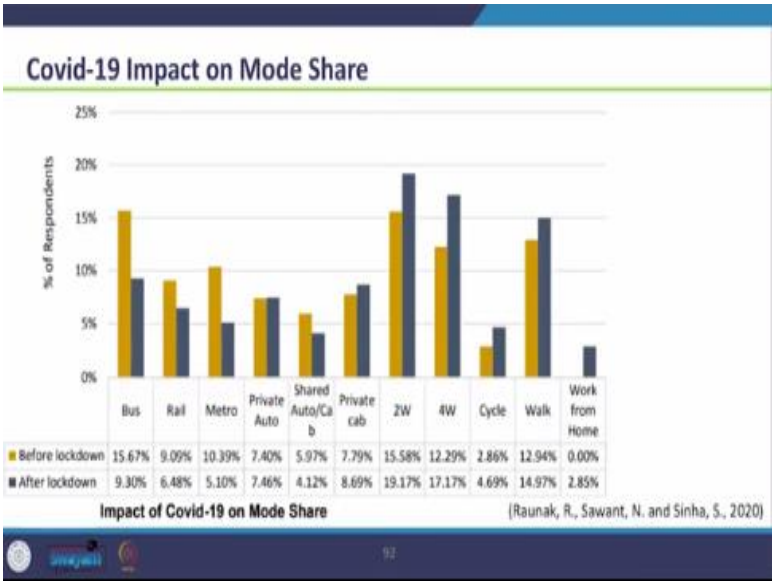

We further see through the sample survey suggested that all public transport modes will experience a drop in user demand.

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As cities gradually lift lockdowns, now we are almost in the period where the lockdowns are over. The private modes are becoming the preferred mode of travel for those who can afford.

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It is also anticipated that non-motorized modes are also going to be an increase. With COVID-19 lockdowns, vastly reducing the use of roads and public transport system. Many city authorities are taking advantage by closing streets to cars, opening others to bicycle and widening sidewalks to help residents, maintain the 6 foot distancing. Cities across the world such as Boston, Viana, Oakland, Mexico, Milan, Bogota are adding and widening bike lanes. This is a continuation of previous trend that encouraged walking and by-cycling.

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Further, we see that cities such as Milan, Paris, Borgata and Barcelona have implemented green mobility in their COVID-19 recovery plans, announcing that they will relocate miles of street space to cycling and walking to fend off resurgence in car traffic and pollution after their economy reopens. These measures are temporary. Nevertheless, they are expected to catalyze long term pro-climate behavioral change among the public.

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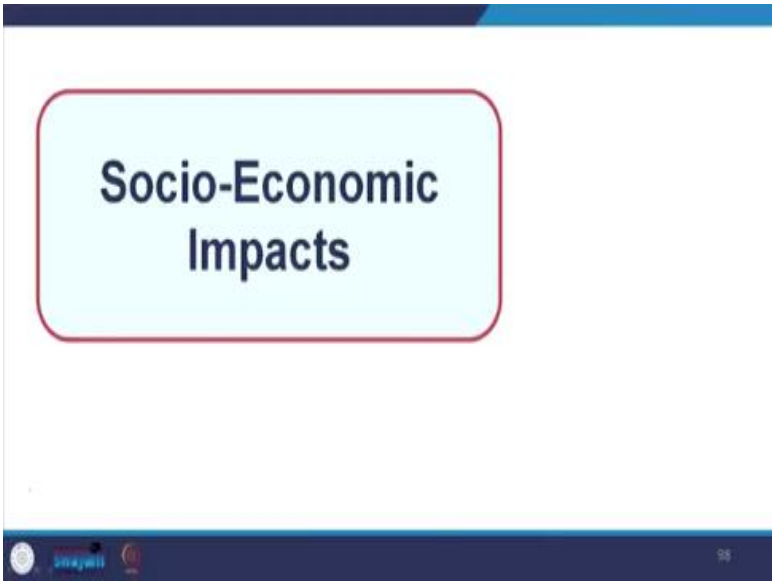

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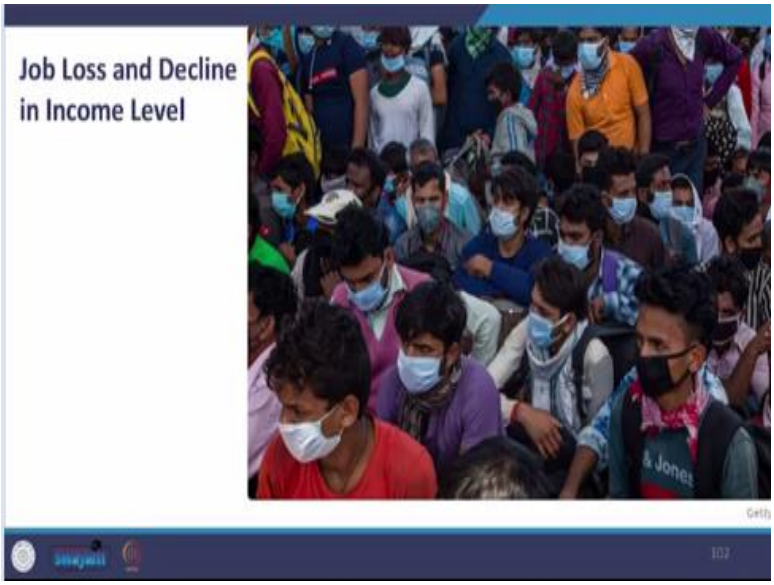

Now, looking at the socio-economic impact during this pandemic, we also witnessed economic impact on probably. We will experience it for a longer period of time, people lost jobs both informal and formal sector.

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Most evident of all was hit on the migrant workers in India. Migrant workers started returning to their native places due to fear, anxiety and hunger. Most of them were daily wages and did not maintain cash liquidity for this kind of uncertain situation. Reverse migration of these workers was set to adversely affect sectors including such as real estate, manufacturing, milling, textile, travel and tourism, ecommerce delivery, private security and facility management.

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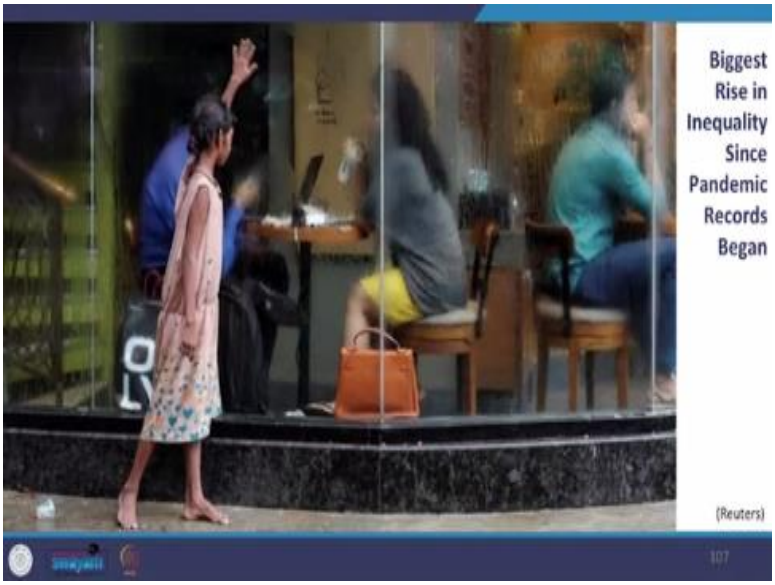

Impact on economy and the change in the pattern of the severe economic crisis triggered by the pandemic is expected to sharply increase income equality in India. It is said that the divide will increase where wealthy would face minor or temporary problems, but the poor would face economic collapse due to lack of accessibility and limited financial resources in addition to the increased vulnerability.

Further studies say that cities in lower income countries are less prepared to face the health crisis and economic aftermath of pandemic.

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Moreover, the population and lower income countries have higher malnutrition rates. It also shows higher rates of comorbidities and the health system does not receive the same level of resourcing. Study by Martinez and all in 2021 suggests that cities are the perfect mechanism

for finding out about new job opportunities and generating social ties. They continue to be the best platform to deal with range of problems from climate change to ensuring economic growth.

So, Centre for Monitoring Indian economies CEO Mahesh Vyas has said that over 10 million people lost their jobs because of the second wave of Coronavirus. He added that 97% of household incomes have declined since the beginning of pandemic last year.

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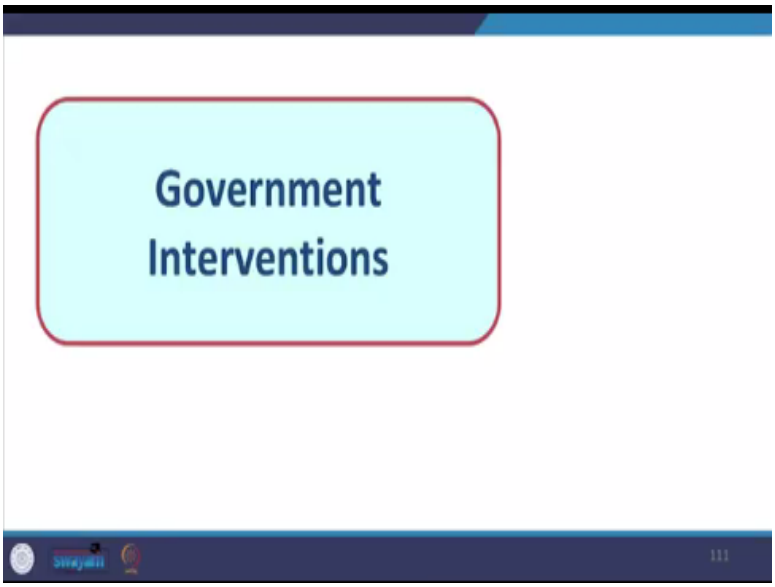

Now, we look into the government interventions. We see that government reached out to people through that public distribution system.

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As per the study of Sinha of 2029, the National Food Security Act and FSA provides 5 cages of food grains per head to 75% of the rural population and 55% of the urban population at the subsidized price at the given in the schedule of the Act.

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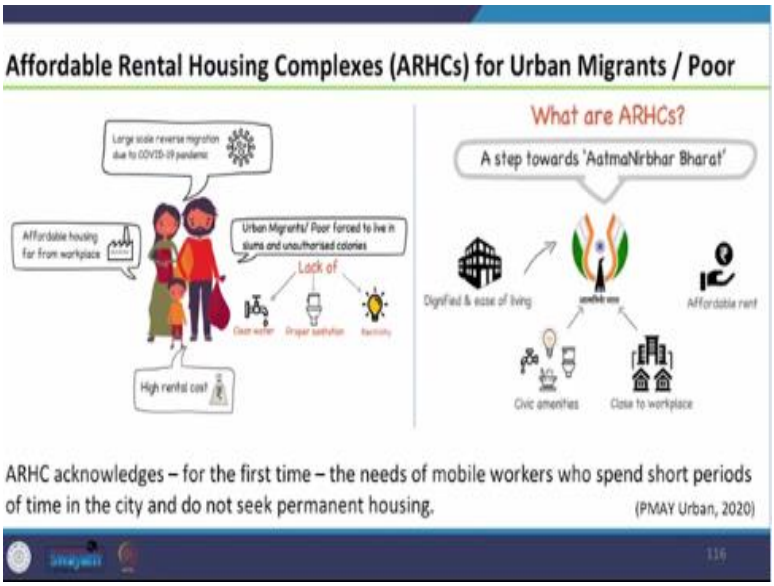

This will provide ease of living to urban migrants poor in industrial sectors as well as in non-formal urban economy to get access to dignified affordable rental housing close to their workplace. This particular initiative has been specifically initiated to address to the needs of migrants during the COVID-19 pandemic. Surat became the first city to finalize a project under the affordable rental housing scheme for migrant workers.

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Surat Muncipal Corporation had become the first city in the country to finalize this project with 399 one bedroom flats in cities, such an area. Within NULM, we see NULM has been

focusing on organizing urban poor in their strong grass-root level institutions creating opportunities for skill development, leading to market based employment and helping them to set up self-employment ventures by ensuring easy access to credit.

The mission is aimed at providing shelter equipped with essential services to the urban homeless in the faced manner. In addition, the mission would also address livelihood concerns of the urban street vendors.

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Further, we see per person health spending in low income countries. By 2017 per person health spending in low income countries was 41 US dollar. While in high income countries, the figure increased was up to 2937 US dollars. You can see the huge difference between the 2 figures.

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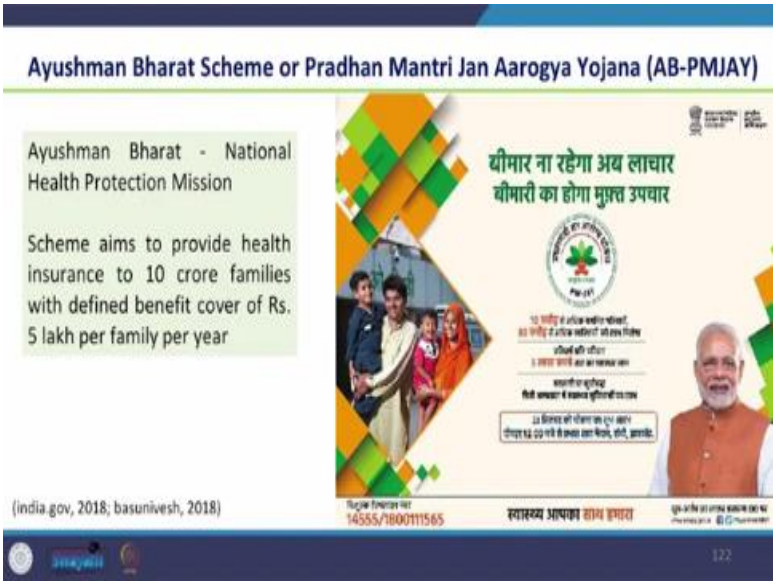

The increase in poverty with the result in negative impact on health, education and food security will be among the most pursing issues in the post COVID era.

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Before this, he studies highlight that despite the negative factors associated with the informal economy, the sector makes cities livable, more flexible and often is the only venue of an employment for large segments of the population and may be one of the sector that will allow the economic reactivation post COVID era.

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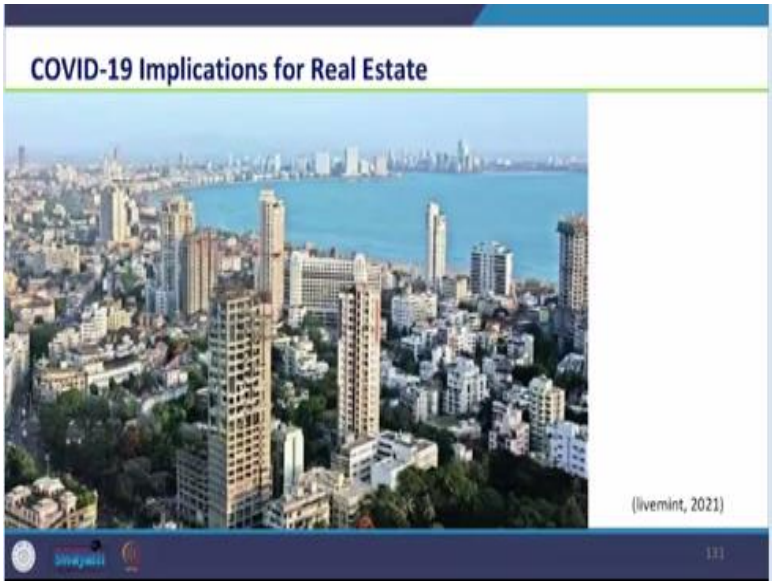

Further, we see that impact of economy had other trickle down impact like we see fall in values of houses and office space, these spaces became less expensive. Though, there are less reported instances but based on the psychological theories, a high degree of possibility exists to support the prediction of increased incidences of domestic violence, crimes against women left, theft, decoys and robbery etcetera, due to emotional and financial stress.

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So, we can see these kinds of impact as well. In this pandemic, compared to the previous pandemic and pandemic, we could reduce many of the damages due to use of IT and technology.

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We saw quick transfer to online education system. We saw many work and work meetings were moved to online more. We saw increase in e-commerce and automation, we also saw. More on tele-based health services tele-health in the period, with all these changes nearly 25% more workers shifted to the other occupation compared to the previous lower estimates of shift by the McKinsey Global Institute.

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The increasing dropout rate mainly of the students from the classes 6 to 10, is being blamed on worsening financial conditions of their parents due to the pandemic impact. The number of children in child labor has risen to 160 million worldwide, an increase of 8.4 million children in the last 4 years, with million more at rest due to the impact of COVID-19 as per the report of ILO of UNICEF. We further see shifts in the pattern of work.

As employers such as Twitter, Mondelez and nationwide prepared to make permanent switch to remote working. The pressure on urban transportation system and the overall environmental footprint associated with commuting will be significantly reduced. So, this has led to change in how we organize our land use and land use zoning; now, people can work from remote locations without regularly commuting.

So, this brings us to rethink our land use, zoning, the transit system, it is anticipated that work might further shift to different locations and cities with flexibility to work from any location.

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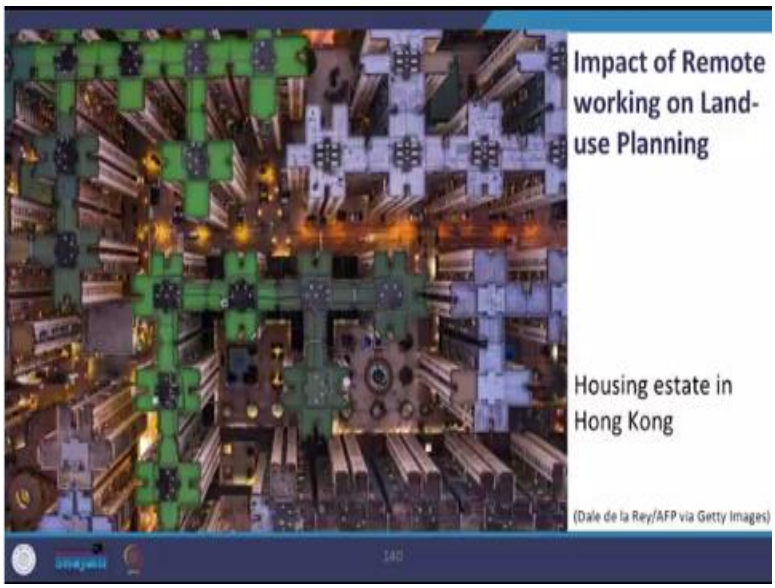

Further studies also put forward questions over high density planning if distance do not matter anymore for most of the jobs and mobility is not required for many jobs. So, is density really required? People might not need suburban and can work from new kinds of villages from remote locations. In the current context of pandemic, many questions have been raised regarding density.

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We see digital learning on rise initiatives like NPTEL, offering students flexible options for their education, satellite TV classroom to bridge learning gap during COVID-19 school closure.

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Further, we see higher education institutions converted into quarantined centers to facilitate the services to their cities with the local partnership.

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We see made in India interventions like ventilators and all these research component being provided by the institutions.

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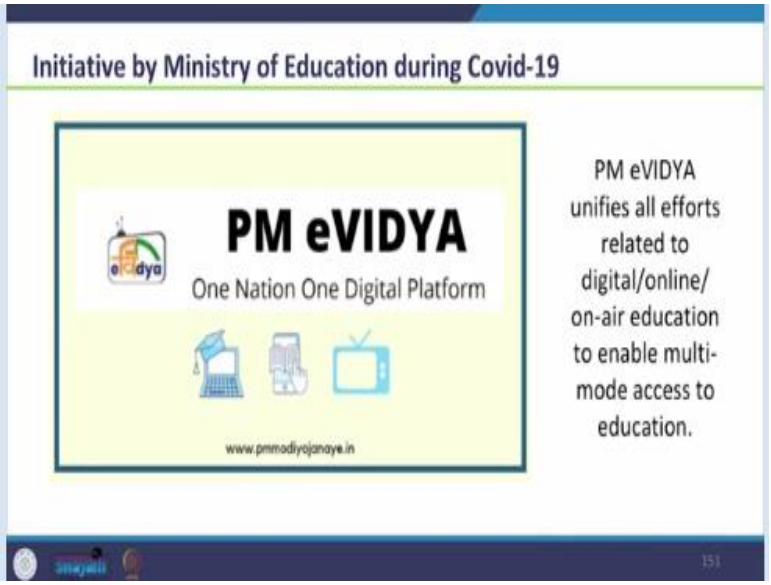

We further also see how Ministry of Education came up with new initiatives, new guidelines during the COVID-19 period or moving forward.

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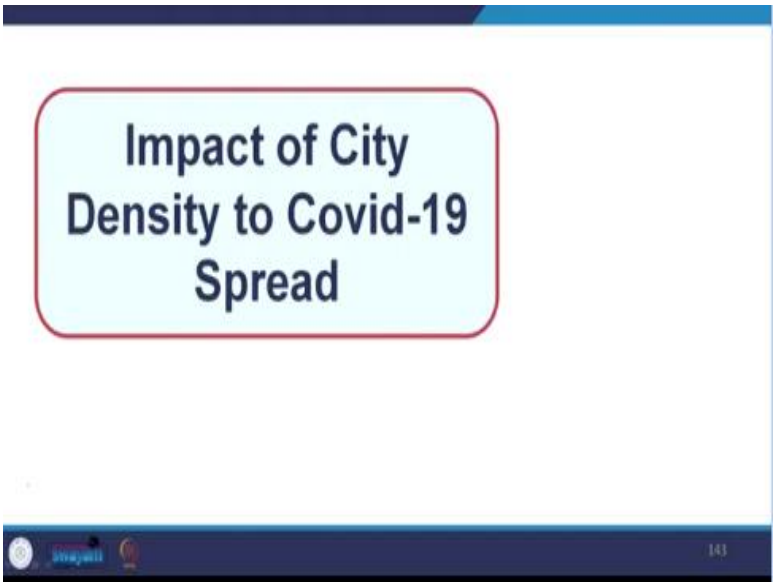

Now, we are going to look at the major discussion about relationship between density to the COVID-19 spread. Since, a lot of questions been raised and we will look into what researchers have found out. Regarding this, what the different findings are? So, coming on to the link between density and COVID-19 spread, urban planners have from motored the development of dense, walkable, mixed used and transit accessible community design in compact and polycentric regions because of many benefits.

As we have been discussing in our historic contextualizing series, high density development addresses problems of externalities such as traffic, travel time delays, economic productivity,

losses, air and water pollution and solid waste collection and disposal. The requirements for social distancing to avoid COVID-19 infection has sparked debate over whether pandemic are more likely to strike densely populated places.

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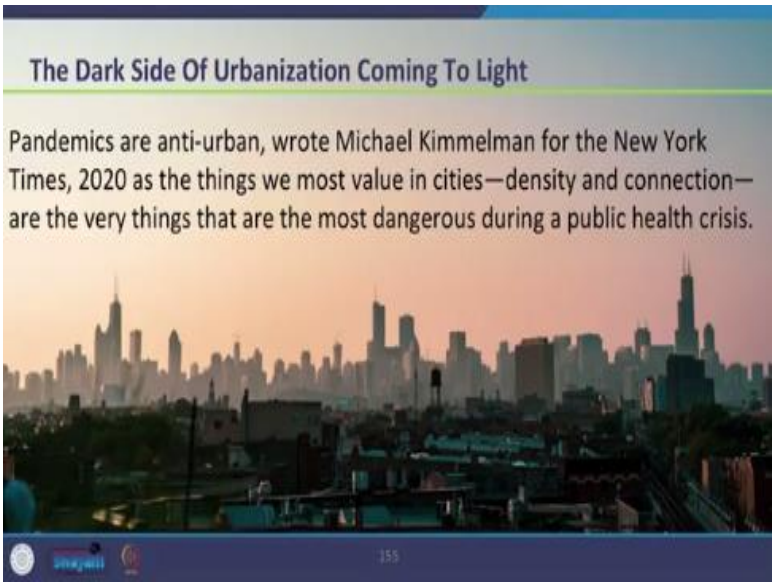

So, we see a study done in 2021 by Todd. In his report, in the context of the pandemic that many people may assume incorrectly that infectious disease risk increased with density, making cities dangerous and rural area safe. He says while city dwellers are more exposed to the infectious disease, rural residents are more likely to die if infected due to weaker healthcare system.

It is the density in the city that allows the planners and service providers to optimize the health care and range of community level services. By this density, we are able to protect the larger number of people. Few studies have analyzed the relationship between COVID-19 and density and their major findings are as follows.

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Study by Garmsir in 2021. Based on the case study from Tehran, Iran, where the general density range is off, 11800 residents per square kilometer argue that the COVID-19 density does not influence the transmission and mobile mortality rates. Residents can live safely with better and more effective urban infrastructure and services and densities if people make some lifestyle modification.

According to the study, it is the overcrowding that promotes the spread of infectious virus in different ways then the density.

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We further see in the another study by Hamidi in 2020, based on the study of more than 1000 Metropolitan counties in the United States. The findings indicate the negative relationship between infection rate and population density and employment. The size of metropolitan

region increases the number of interconnections and interaction. They also said, it is difficult to draw a broad conclusion about the association between density and COVID-19 spread.

In another study, according to Diao in 2021, based on the study of cities from China, Germany, England and Japan, we see that they also study the other parameters like temperature, population density and absolute humidity. They say that all this played a role in each of the country.

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The study indicates high population density results in longer spread and decay time as well as less connections with demographic and metrological parameters. The population density contribution rate for multivariate is in the range of 30 to 50% in each country.

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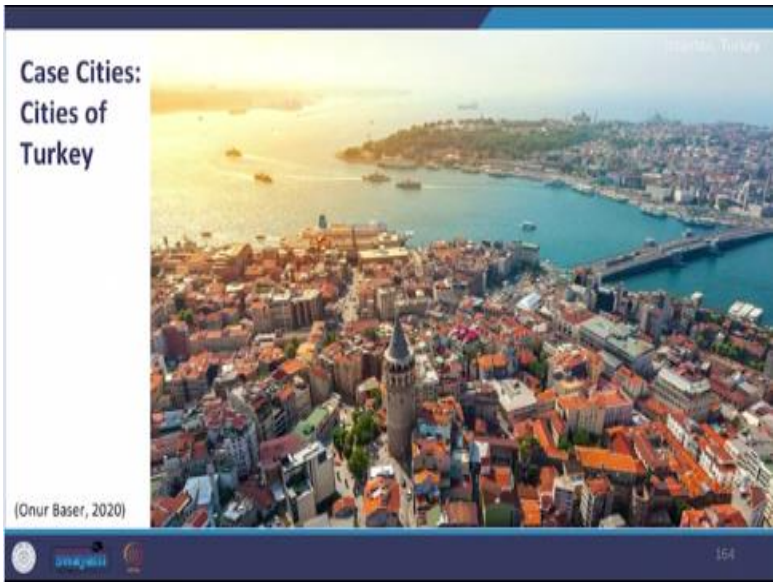

Another study by Baser in year 2020, based on this study from Turkey, find significant link between socio-economic conditions and the virus spread. Further, we see one study from India which shows based on Kolkata.

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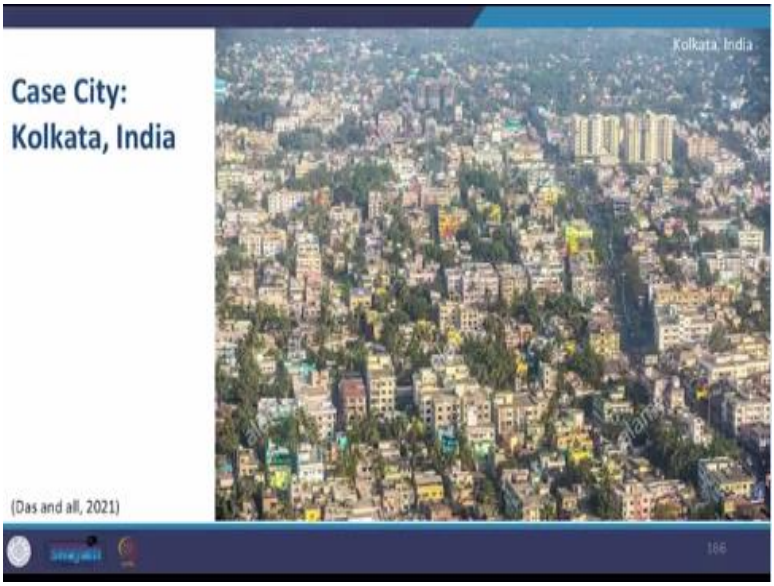

According to the study, done in year 2021, COVID-19 outbreak in Kolkata have a significant favourable correlation with the low quality living environments. It is not really indicates the relationship between the density and the spread of COVID-19 but the low quality living environment. COVID-19 spread is heavily influenced by socio-economic disadvantages and inequality.

The transmission of COVID-19 is highly linked to the living conditions or the living environment. Coming to the last part of our session, we see the frontier technology or the Industrial Revolution 4.0. As a shaping force to the economic, frontier technologies are defined as potentially disruptive technologies that can address large scale challenges or opportunities.

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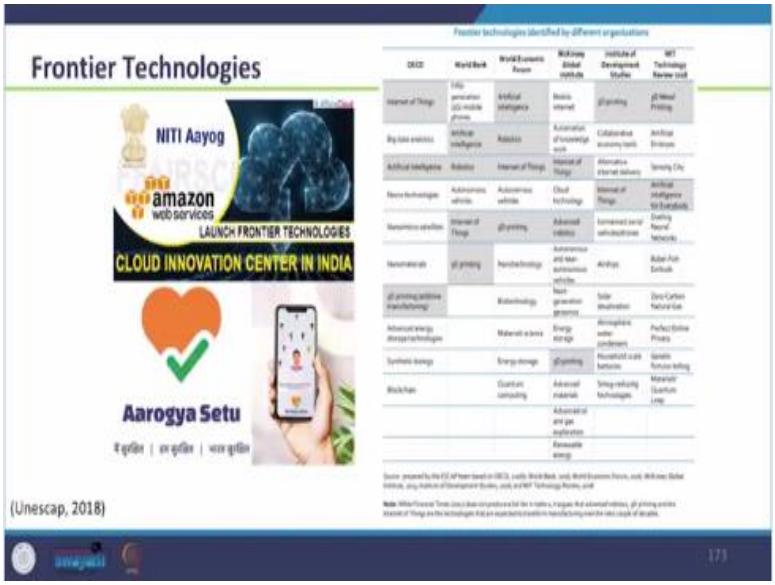

Frontier technology is the next phase in evolution of modern technology. It is the intersection where radical forward thinking and real world implementation meet, for example, AI robotics, 3D printing and the Internet of Things and so on. They have unlocked new routes to prosperity through agriculture, manufacturing, trade and service, the linking of informal and formal sector and domestic interconnectivity.

Frontier technologies are now a central shaping force to economies and societies worldwide, while bringing prosperity to some in certain locations. New technologies also increase inequality to others elsewhere and can provoke social unrest due to mass unemployment and job losses in sectors such as manufacturing.

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So, summarizing in today's session, we discussed upon the relationship between pandemic and cities. We also reviewed the implication of COVID-19 the urban areas. We saw the responses, impact and pattern, how different cities responded to the pandemic. We also looked into different interventions by the government. We also looked into issues and opportunities during the COVID time.

Furthermore, we looked into new initiatives in the education sector. We also looked into relationship between city density and COVID-19 because there was a lot of debate and questioning about the relationship between the two. Finally, we looked at a new technologies which are which helped us to cope up this situation as well as the other challenges which are in front of us.

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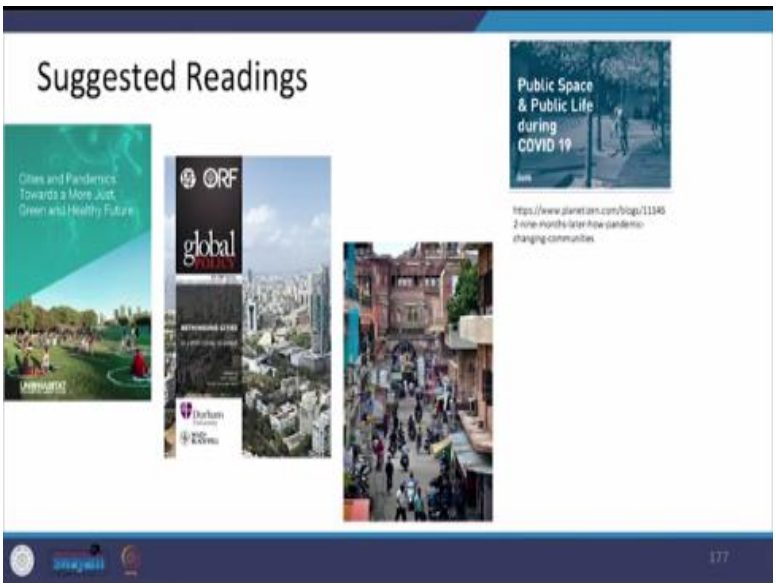

Our coverage was limited with the scope to make you aware of the topic. There are enormous readings and movies available to explore.

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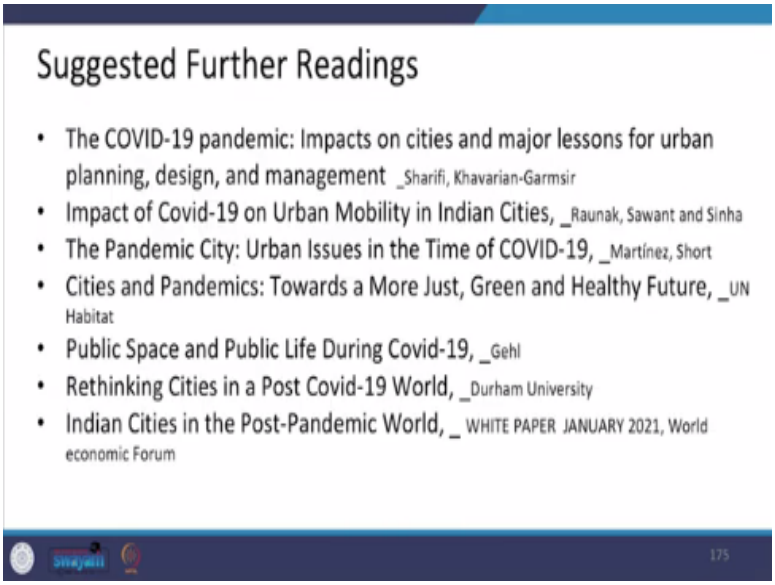

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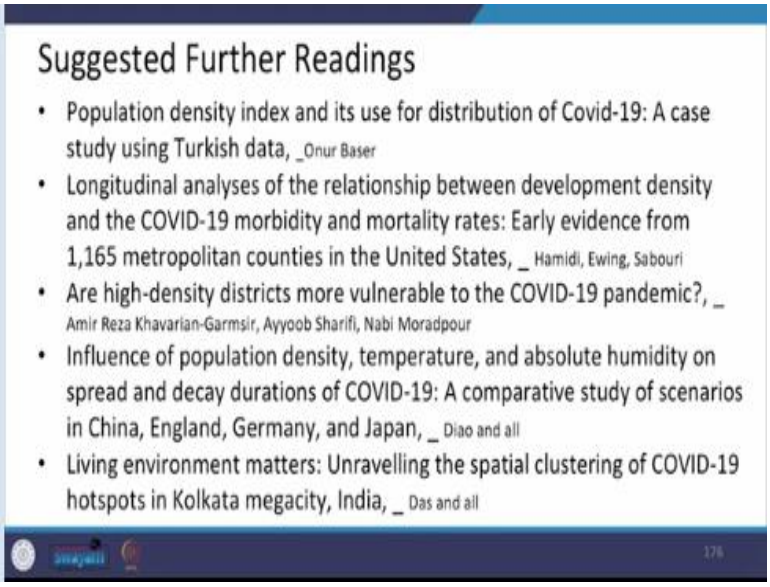

Few are suggested here. This is not an extensive list. You may feel free to suggest more from your experience.

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Please feel free to ask questions. Let us know about your concerns. You have to share your opinion, experiences and suggestions, looking forward to interacting and co-learning with you while exploring cities and urban planning. So, that is all for today. Thank you.