

Urbanization and Environment
Prof. Jenia Mukherjee
Department of Humanities and Social Sciences
Indian Institute of Technology, Kharagpur

Module - 01
The Urban and the Environment during the Era of the “Overlapping Cenoses”
Lecture - 04
The “Capitalocene”

So, this lecture is on the Capitalocene.

(Refer Slide Time: 00:18)

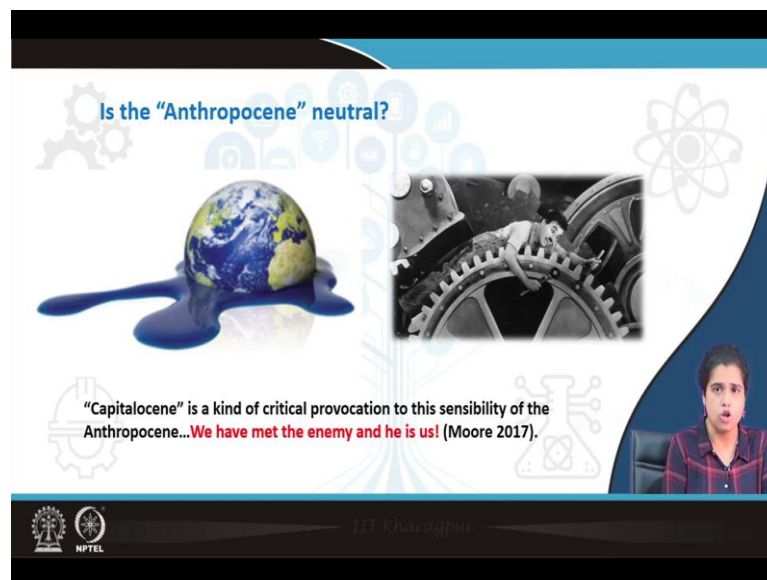


And here, we are going to cover concepts like the Capitalocene itself. And you know the relationship between COVID and Capitalocene. So, my argument would be you know is covid a Capitalocene crisis? So, this is the question which I will ask. And then, we would be talking about you know the circuits of capital to understand the present planetary crisis.

And also, we will be focusing on the multiple entanglements between human and non-human world. So, this is the frame this is the lens of analysis that we really need to apply when we try to kind of understand complex socio-ecological problems. So, it is important for us to understand interspecies intersectionality or the multiple entanglements between human non-human world in order to collectively understand complex systems.

And finally, I would argue that why you know the different boundaries between nature culture, city nature, urban nature should be blurred and maybe, you know to an extent dismantled in order to have a more comprehensive collaborative and collective understanding of you know contemporary challenges and constraints.

(Refer Slide Time: 01:36)



So, then we had covered Anthropocene and we now know that what Anthropocene is all about and how the planet is actually changing in terms of environment and like. So, we can also quantify you know these changes in the form of this planetary boundaries framework, which we had discussed extensively in the last topic.

But then, the question is the whole focus or the you know the emphasis on the Anthropocene concept can be little problematic in the sense; that you know, it does not enable us to understand the inequity or injustices that are so much there that are very much loaded within the concept of and within the context of the Anthropocene.

So, this question becomes I mean remains crucial within this context that, is the Anthropocene politically neutral? And I think Capitalocene is the framework or Capitalocene you know it is the as Moore there is Moore who conceptualized Capitalocene.

He says that it is a it is a kind of critical provocation to this sensibility of the Anthropocene and again there are criticisms of this Capitalocene framework as well. For

example, till date, I find the criticism by Ian Angus to be quite strong and you know quite meaningful.

But then, I must say that you know this is an important framework, because for example, when we discuss about ecological problems or we discuss about environmental transformations; you know the kind of suggestions or the kind of prescriptions that are imposed on us are that like; you fly less you use you do not buy you know you do not buy food from supermarket buy local foods and which are not shipped across miles you know you just fix a solar panel on your rooftop or you drive an electric car.

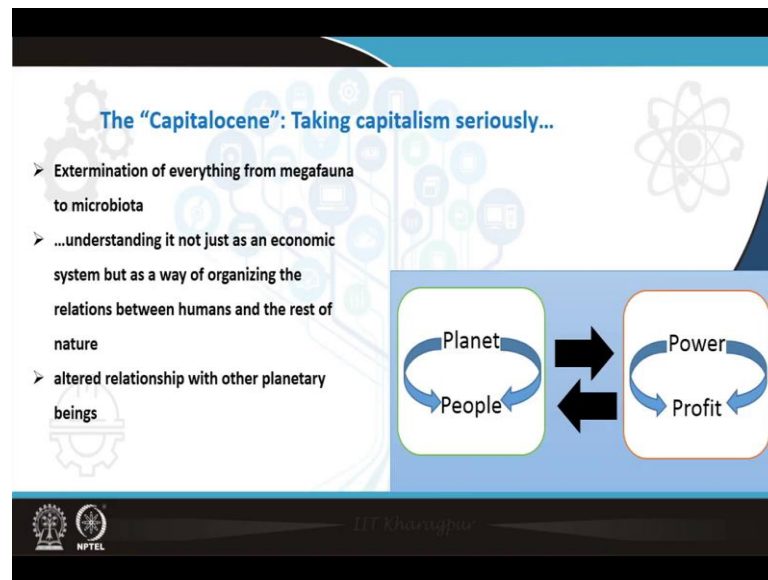
So, these are the kind of arguments which or the prescriptions which are laid out, but then the question is; with all these you know with all these suggestions with all these you know prescriptions being imposed on us and I must say that you know they make sense, but then the question is, are we not are we not vacillating from the root cause of the problem and what is the root or what is the source of the crisis?

Do not you think that the source of the crisis is rampant Capitalism? Because I think capital is Capitalocene is the framework, which enable us to understand that how capitalism it has stream rolled you know the planet earth. It has gorged out mountains, over exploiting it is over exploiting fish stock and the floral faunal avian diversity and like. So, through this fossil fuels are being burn to power the that maniacal pursuit of growth. And all these at the cost of or you know at the impact is enriching only a fraction of humanity.

So, if you see the data, you will find out that since 19 late 1980's or like more specifically since 1988 only 100 corporations in the world have been responsible for more than 70 percent of GAG emission.

So, we need to be we need to be aware of this information and we should be exposed you know to this kind of facts. So, I think Capitalocene; you know it signifies capitalism as a way of organizing nature multispecies situated and capitalist world ecology.

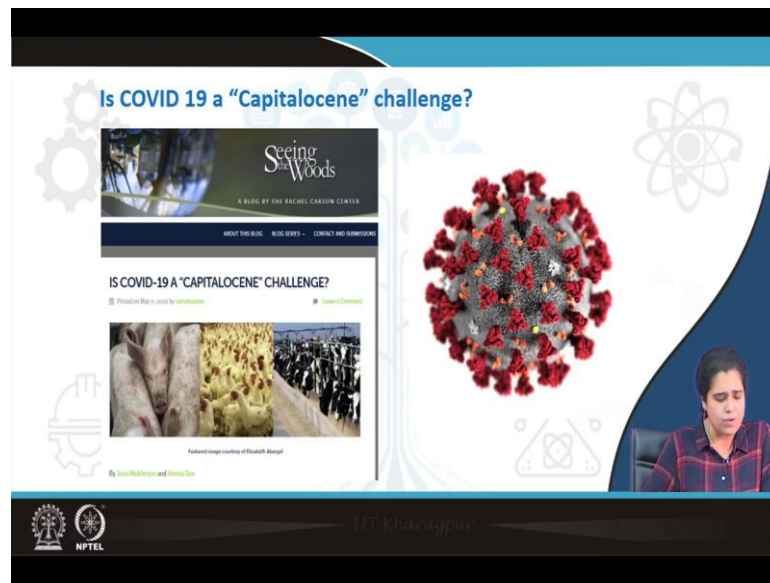
(Refer Slide Time: 05:40)



So, Moore says that you know capitalism is that framework Capitalocene is that framework which provoke us to take capitalism seriously, because we kind of we have exterminated everything from megafauna to microbiota. So, this taking capitalism seriously would also enable us to understand it not just as an economic system, but also as a way of organizing relations between humans and the rest of nature human and the non-human world.

So, it would help us to understand the kind of altered relationship that we have crafted with other planetary beings and why it is important for us to re-conceptualize and re-configure you know this altered relationship?

(Refer Slide Time: 06:27)



So, with this I would like to I mean draw attention to this particular question that; is COVID 19 a Capitalocene challenge? Now, you are going to ask that why are we discussing all these? We are not talking about environment we are not talking about urban. So, this course is on urban and environment. So, this course is on urbanization and environment.

But why are we discussing COVID? Why are we discussing you know Capitalocene or that matter Anthropocene? Because I think that you know these frameworks I mean they are crucial in terms of providing us with an entry plane to you know understand the relationship between nature and cities and relationship between urban and nature.

And why you know we are encountering challenges the kind of challenges what we are encountering these days and how can we really think about more sustainable resilient, meaningful, comprehensive, just democratic you know strategies or mechanisms through, which important I mean the challenge can be addressed from its root because these are weaker problems.

So, unless we address the crisis from its root unless we you know we do a kind of a sub surface level analysis we do a we plunge ourselves into in depth exploration to understand you know this long-term relationship between urbanization and nature. And how urban nature is produced manipulated, manufactured, etc.

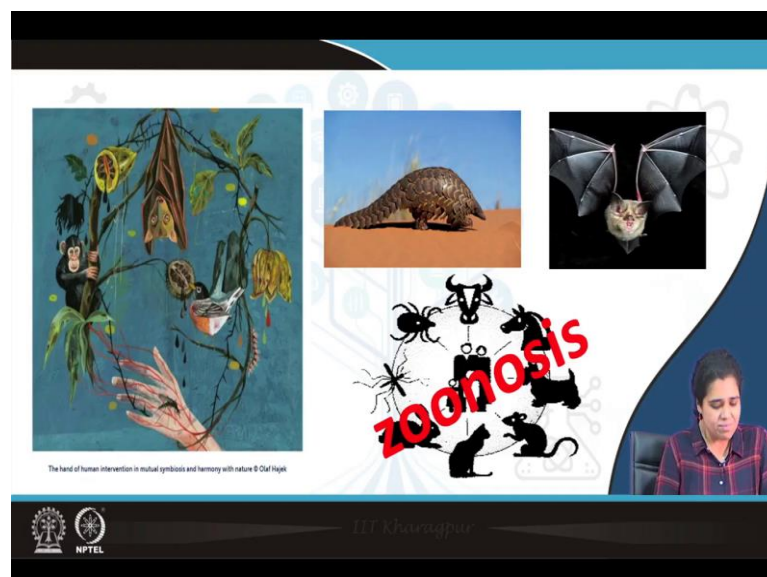
Then, we will not be in a position to address these environmental challenges within urban context in a systematic in a meaningful way. And our solutions unfortunately like several other solutions will remain constricted within the frame of ecology in which is the superficial you know level.

But not ecology of cities that enable us to understand the long-term relationship between cities and nature and you know that help us to contextualize the urban or cities as part and partial of its wider ecological surroundings. So, I think the cenese this Urbanocene, Anthropocene, Capitalocene; these are all very important they are fundamental frameworks to help us understand the relationship between urban and environment and you know several other variables that are at play.

So, this is an assemblage it is an assemblage of multi layered you know inter-dependent complexities. So, it is important for us to unravel this multi-layeredness of challenges in order to; in order to reconfigure the urban nature relationship. So, with this you know I wanted to talk about whether COVID 19 that.

So, the COVID 19 it is the it is the it is the greatest pandemic that modernity has been confronted with. And I think like to address this particular question that whether COVID-19 is a Capitalocene challenge or not? The environmental social scientists and the environmental humanities scholars can play a very important role. And why I say this?

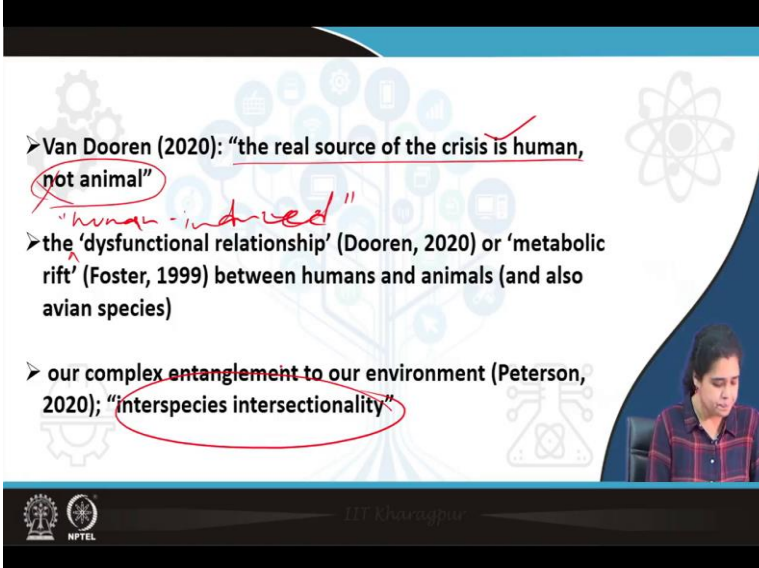
(Refer Slide Time: 09:58)



Because you know like most of the scientific works the scientific literature that I have accessed and the scientific works that I have accessed in the last few months, all these you know they categorize or they explain COVID as a zoonotic crisis. This corona as the corona disease as or the corona crisis as a zoonotic crisis; which means, that it has come to the human beings it has come down to us from animals, alright.

So, some literature attest that the bats; they are the they were the hosts they were the carriers. Some works confirmed that pangolins were the host careers, but there are other works which also talk about a more complex route. So, from bat to pangolin to human beings, but.

(Refer Slide Time: 10:56)



- Van Dooren (2020): "the real source of the crisis is human, not animal" *"human-induced"*
- the 'dysfunctional relationship' (Dooren, 2020) or 'metabolic rift' (Foster, 1999) between humans and animals (and also avian species)
- our complex ~~entanglement~~ *"interspecies intersectionality"* to our environment (Peterson, 2020);

Then, I came across you know the an article by Thomas Van Dooren and Van Dooren is an environmental humanities scholar who is based in Australia. And here, Van Dooren makes a very significant remark, which is he says that the real. So, he wrote an which he wrote a small piece in Matilda and there he is on pandemics and pangolins.

And he says that the real source of the crisis is human and not animal, the real source of the crisis is human. So, and he points out that you know it is a dysfunctional relationship between the human non-human world this is that human it is a human induce I will add that it is.

Let me make my addition to this. So, I would say that it is human induced dysfunctional relationship human-induced dysfunctional relationship between the human and the non human world or the metabolic rift between humans and animals that has actually led to this mega crisis that we are facing today .

And there is a scholar there is a young researcher called Jesse Peterson and he Peterson also wrote piece in the KTH blog on transformative humanities and there Peterson talks about you know the that why it is important for us to focus on to explore the complex and intimate relationship between humans between ourselves as consumers, between human and animals; animals whom we consume and you know how together we co-habit in space and time?

So, all these varying dimensions or the relational aspects of this inter-relationship we need to be very careful about and we have to have a greater understanding about this you know complex entanglements. So, the you know the understanding is that you know in biological term, we have to keep this in mind we have to have this understanding the this dawn of realization is so very important within this planetary context that whether; it is pig or goat or pangolin or bat or civet etcetera.

You know I think that you know the socio-economic disruptions and the ecological transformations triggered by this corona crisis testify the fact that in biological terms, they are microbial their bodies as microbial ecosystems are part of the same multispecies environment which we inhabit.

So, these it is very important for us to concentrate on this notion of interspecies intersectionality, which is a budding concept a very useful a very useful theoretical attraction and we must acknowledge environmental humanities as an umbrella discipline so far as this conceptualization is concerned.

(Refer Slide Time: 14:20)



So, yes I am still talking about our dysfunctional relationship. And this wildlife trafficking is one major manifestation apart from several other manifestations. This is also one major outcome or one major manifestation of our dysfunctional relationship with the non human world.

So, what we are doing is that we are trafficking wildlife and also the body parts are traveling from one country to the other. And it is a lucrative multi-billion dollar business involving mafias, involving criminal cartels alright and. So, we must understand that when these body parts travel from one country to another, they also carry the virus the viruses or the pathogens with them.

I was very lucky to be part of the; I mean to be part of the program where the premier was. So, there was this premier program about this particular movie this documentary called Sea of Shadows directed by Richard Ladkani. So, this program the premier was organized by the RCC Rachel Carson Center for environment and society and I was there last year middle of last year.

And then Richard Ladkani and this whole I mean the whole team comprising with 10, 12 people came and they discussed about this documentary like it is a very lively and vibrant movie, which talks about the how vaquita, which is the smallest whale variety. So, how and it is almost like it is such a rare species and it is on the verge of extinction.

So, what is happening in the Mexican sea water? So, what is happening is that like how the. So, they showed. So, this documentary show that how these Chinese mafias in collaboration with this Mexican cartels, the they harvest vaquita or the swim bladder of this totoaba fish which is considered to be the cocaine of sea and how you know it is a very lucrative business here, in terms of harvesting the vaquita.

But then, the good news the good part of the story is that how media including you know Richard Ladkani's team. So, how media Mexican navy and undercover investigators now are fighting back and they are trying to you know kind of dismantle this illegal business or illegal harvesting of vaquita. So, this is a film on that which I wanted to mention.

(Refer Slide Time: 17:14)

Cities, consumption, cultural transformations

- dramatic rise in meat consumption; from eudemonic to hedonic notion of wellbeing
- cultural (and hence dietary) transformation
- 8–10 % annual growth (1990–2010) in the Indian poultry sector with an annual turnover of US\$7,500 million

The slide features a photograph of a large flock of white chickens in a farm setting. On the right side, there is a small inset video of a man in a red and black checkered shirt. The slide is branded with the NPTEL logo at the bottom left and the text 'IIT Kharyapur' at the bottom center.

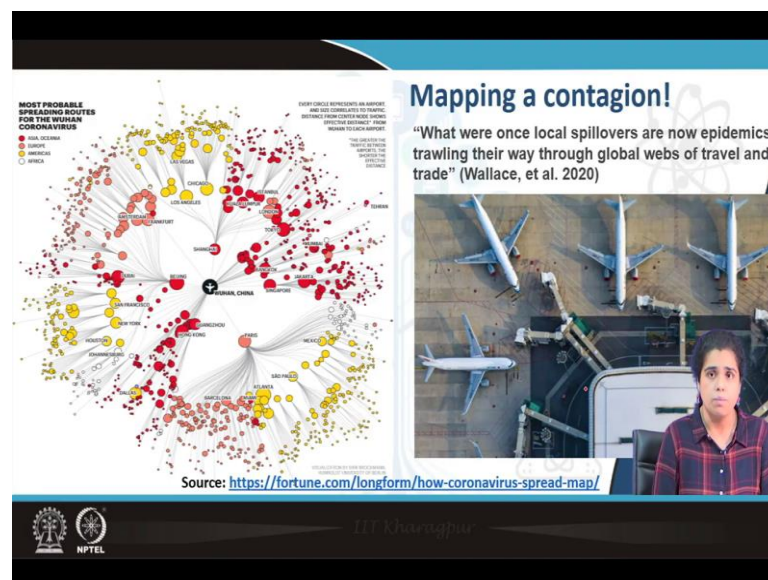
So, it is not only about wildlife trafficking, but is also about it is also about like capitalist life farm production, industrial production. And like for example, if you take the data in. So, far as a rise of the poultry industry in India is concerned, you will be you will see that you know in the last few decades two three decades that is specifically you know between 1990 and 2010; how there has been an 8 to 10 percent annual growth in the Indian poultry sector with an annual turnover of you know US dollar 7500 million.

So, it is quite huge. And I think if I discuss this definitely I will draw some criticisms and I will be part of a big debate about like vegetarianism or non vegetarianism or even veganism or not, but that is the different question, but I mean we can be divided on our opinions about you know whether being a vegan would be the ideal situation or not.

But we cannot deny the fact and I think we are unanimous. We are unanimous for the fact that the cities these urban sites they the cities are not only you know consumption cities in terms of consuming in terms of consuming wetlands, arable lands, because through hyper urbanization these cities are sprawling in their hinterlands and they are expanding by kind of swallowing and engulfing the ecological I mean the agrarian pastures the water bodies wetlands etc.

But they are also consumerist cities in terms of you know dramatic and drastic rise in meat consumption etcetera. So, there is also the story of changing dietary practices and cultural transformation very much routed you know in this larger; in this larger in this larger story or narrative.

(Refer Slide Time: 19:27)



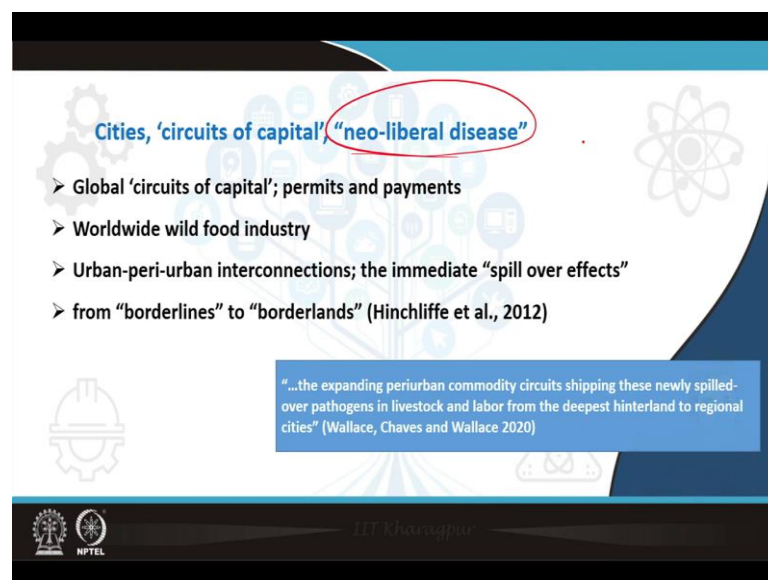
Yes, so, here, I think this map is very very important in terms of fleshing out this the international travel and in terms of fleshing out even the global circuits of capital. So, this is from. So, I take this quote from Wallace. We will discuss Wallace a little bit more in our next slide. And I read an article by Wallace, which came out 3, 4 months back in the monthly review journal.

And here, they kind of they asked us to contextualize the COVID crisis as part of the as part of you know the functioning of the capitalist engine and also, its deep-rooted impact on planetary boundaries and planetary processes at large. So, what is happening is that you know like the virus, it emerged just in one terminus in the regional supply line in

exotic food. And from there like it set off to the chain of human-to-human infection and then, moved to the other end of the city of Wuhan.

And then, it diffused both locally and globally through movements along trains, planes and which you know which also provides a whole lot of information about the web structure of you know of travel and also, down a hierarchy from larger to smaller cities. So, these interconnections this mapping the contagion remains such an important exercise for us to map you know the movement of the virus, which is directly correlated to our own mobility.

(Refer Slide Time: 21:40)



So, yes again, to continue the same discussion, that we these are crucial aspects, which have to be incorporated within any discussion surrounding this global pandemic cities circuits of capital and even I was talking about the article by Wallace and they and I find it quite provocative.

So, they have kind of castigated corona or COVID as the neo-liberal disease alright. So, for example, let me explain how can we or why should we really castigate corona as a neo-liberal disease, because I think that you know we must understand that the animals were not sold off from the back of the truck or in alleyways.

So, what happened is that you know that this that there are stories of permits payments even deregulation very much ingrained in this whole narrative. So, it is all about the rise

of this worldwide wild food industry as a formalized sector capitalist by the same sources, which actually back industrial production.

And the urban peri-urban interconnections also remain so important in this discussion, because we must understand that pathogens they are they do not remain contained or constricted within hinterlands alone. So, and there is this immediate spillover effects of this pathogens immediately you know spreading or moving from these hinterlands or the countryside to cities.

So, for example, the Hubei province which is located in Wang Dang where Wuhan the city of Wuhan is located one was understand that you know Wuhan started developing as a very important manufacturing sector as a manufacturing city. And then, in the last two three decades it has like grown exponentially it has expanded by swallowing you know the forest areas.

And what has happened is that the forest people they were they had been compelled to kind of move from the forest to the city inhabiting the city slums. So, the slums can also be it will not be an exaggeration to consider the slums as bridge between wild and you know the urban and so, these this people they often like they go back to the forest and they raise, they trap, they cage, they breed pangolins, bats, seaweeds, wild boars, etcetera.

And we can very much understand that how the pathogens they are flushed out from the forest and then, they spread in thriving cities like Wuhan, which is just a flight away from Singapore or Sydney alright. So, and I also managed to read this article by Hinchliffe.

So, they have a like I think medical or virology background. So, Hinchliffe asked us to concentrate more on borderlands than borderlines. So, till date. So, he says you know this method to kind of contain diseases by crafting a borderline between healthy bodies and disease bodies right.

And the attempts to kind of attempts to kind of not make the healthy bodies get in touch with disease bodies to control the spread of infection is a faulty attempt. So, he provokes us to kind of concentrate on an alternative topography of the spread of diseases and how

through that understanding we will be in a better position you know to understand and manage crisis.

(Refer Slide Time: 26:09)

The slide is titled "From virus to integral ecology". It features a list of bullet points on the left and a colorful illustration on the right. The bullet points are:

- The war is not between viruses and the vaccines.
- Blurring and breaking boundaries
 - interconnectedness
 - [nature society; urban rural; city nature, etc.]
- Multi-spatial interconnections; multispecies entanglements
- Integral ecology and wellbeing

The illustration on the right shows a globe with various animals (a bird, a fish, a rabbit, a pig, a cow, and a person) and the text "Wordly Togetherness?". The slide also includes the NPTEL logo and the name "IIT Kharagpur" at the bottom.

So, yes finally, what I would like to you know conclude with is the very fact that you know we have to understand we have no option, but to understand that this war is not between viruses and vaccines.

So, there are there I mean whole lot of discussion on this vaccine is going on even they gives vaccine would be good for us or not or whatever, because there is also some arguments about that how this virus is going to have an impact on our RNA composition etcetera.

But, what I finally, would like to argue is that we have to understand that this is not our between virus and vaccine, because it is it will be important for us to blur and break boundaries sacrosanct boundaries that are also there in our cognitive domain. So, we really need to understand the interconnectedness between nature society; urban rural; city nature, etcetera which would be I think I mean which would be dealt with in this course in great details.

And that would be the major agenda that is the overall agenda and objective of this course to try to understand these interconnections this intricately intertwined interconnections between urban rural, nature society, city nature. And you know I have

not even used any hyphen between this I have not used any hyphen and why I have not used any hyphen I why I have deliberately kept these words as non hyphenated to emphasize on their embeddedness and enmeshings.

So, I would like to you know kind of end this topic or this lecture with one or two stories maybe and at least one story yes. So, for example, you know what is health? So, this question also there is a virologist who is Ilaria Capua. So, she is based in Florida and she is also the architect she is the main person behind this one health center and this question that who is healthy; it also struck Ilaria Capua.

And then, she said that you know it is not about individual health whether we are healthy or not cannot be determined by our own health single handed health at all. Why? Because it is important and it remains very important for us to understand that you know healthiness or you know health good health we can be I mean good health can be assured upon through a continuous dialogue between different planetary species at both macro and micro levels right.

So, Capua says that you know health is a kind of conversation it has to be understood as a conversation among cells among molecules, proteins and all other tiny speakers in the enormous integrated system you know system inhabited by plants animals, birds, insects, etcetera. And we also cannot forget that we are ecosystems by ourselves.

So, and our health will depend upon the richness and the balance of biodiversity dialoguing within our own bodies alright. So, I will end with a story and. So, there was a there was a British doctor; his name was Edward Jenner and Jenner in 18th century he is a he is a he was a doctor he was a British doctor of the 18th century and Jenner found out that he observed a phenomenon.

So, what he observed? He observed that in 18th century the I mean small pox was a big thing it was like it was an epidemic alright, killing lives and skyrocketing the mortality rates and figures in Europe. So, he observed that an interesting phenomenon that you know the milk maid who were exposed to cow pox. So, the cow pox was not that deadly.

So, but those milk maid who were getting affected with this cow pox, they were not getting affected with smallpox. Even when they were you know they were getting

exposed to the smallpox disease, but they were not falling sick they were not succumbing to smallpox.

So, he this question this phenomenon struck him and he then he did some investigations and he did some research on this. And finally, found out yes that you know that this cow pox actually offered some immunity to smallpox. And. So, the name vaccine itself has its origin from this phenomenon, because in Latin cow I think is known as vaccina.

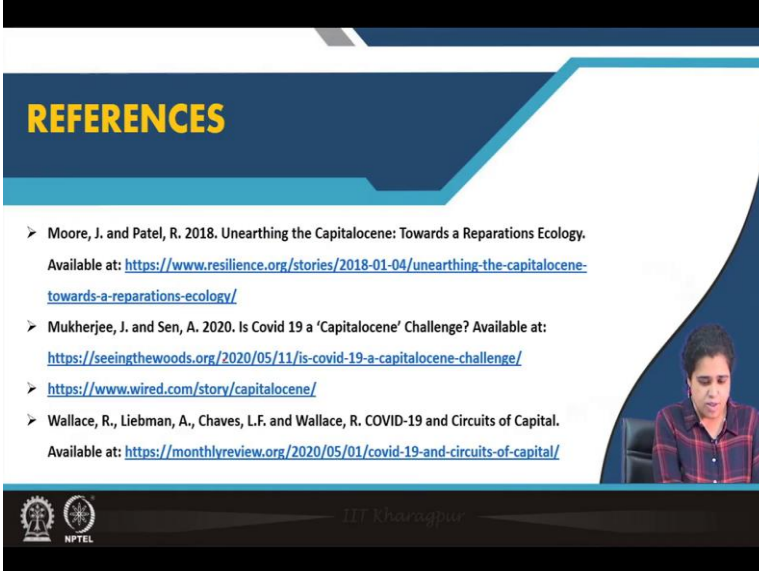
So, this in this way you know this vaccine for the small pox I mean. So, this is connected. So, the discovery of the vaccine or invention of the vaccine related to small poxes also as part of the part of the larger story of how they all invented a vaccine for a small pox and so, this is the story of vaccination.

And. So, I think it provides lot of clue about you know the cow pox how cowpox also kind of provided lot of immunity to the human bodies against smallpox. So, again it is part of the same story of multi species entanglement and you know inter species intersectionality.

So, it remains very very important for us to kind of understand and internalize multi spatial interconnections on one hand you know where I already discussed bleeding or dismantling of boundaries between sacrosanct categories like city nature, nature society etcetera. And also, we have to internalize understand explore and internalize multi species entanglements.

So, then you know this there we can transcend from this virus ecology to integral ecology and this integral ecology which remains crucial and which is so, very important for not only human well-being, but for the well-being of planet, which we co-habit together. So, for the integral ecology is important for the well-being of planet at large.

(Refer Slide Time: 33:33)

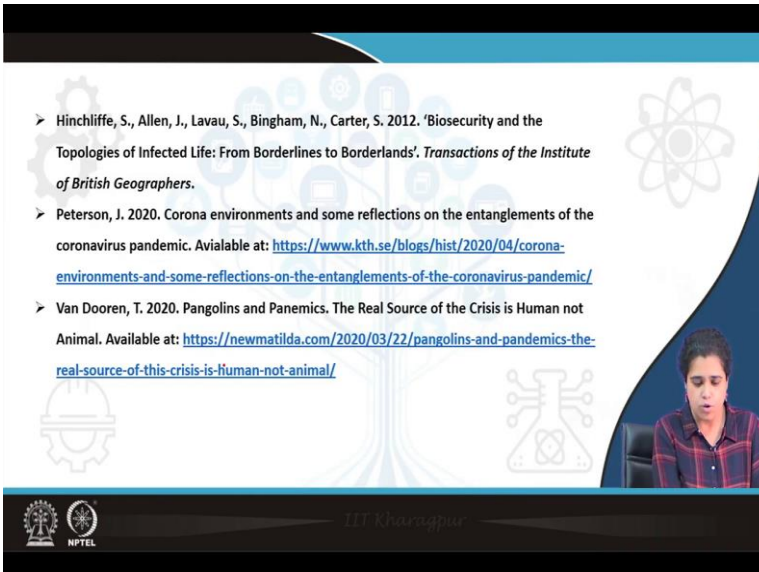


REFERENCES

- Moore, J. and Patel, R. 2018. Unearthing the Capitalocene: Towards a Reparations Ecology. Available at: <https://www.resilience.org/stories/2018-01-04/unearthing-the-capitalocene-towards-a-reparations-ecology/>
- Mukherjee, J. and Sen, A. 2020. Is Covid 19 a 'Capitalocene' Challenge? Available at: <https://seeingthewoods.org/2020/05/11/is-covid-19-a-capitalocene-challenge/>
- <https://www.wired.com/story/capitalocene/>
- Wallace, R., Liebman, A., Chaves, L.F. and Wallace, R. COVID-19 and Circuits of Capital. Available at: <https://monthlyreview.org/2020/05/01/covid-19-and-circuits-of-capital/>

IIT Kharagpur

(Refer Slide Time: 33:34)

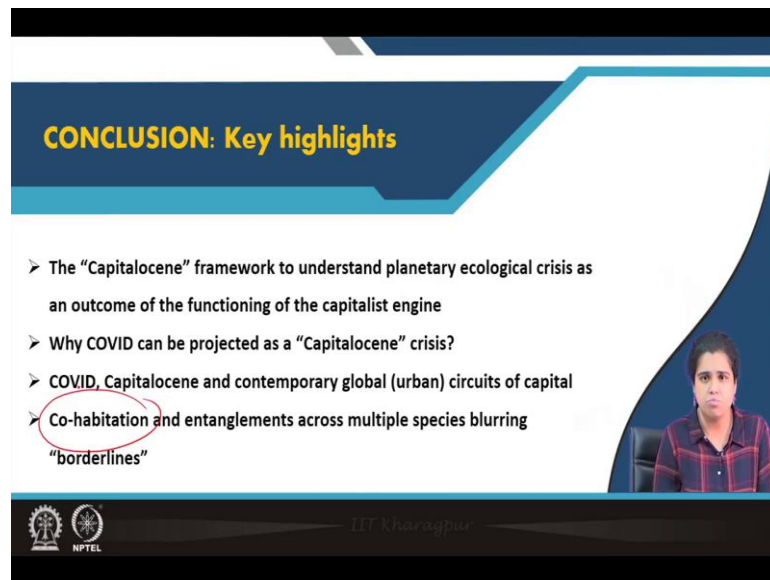


- Hinchliffe, S., Allen, J., Lavau, S., Bingham, N., Carter, S. 2012. 'Biosecurity and the Topologies of Infected Life: From Borderlines to Borderlands'. *Transactions of the Institute of British Geographers*.
- Peterson, J. 2020. Corona environments and some reflections on the entanglements of the coronavirus pandemic. Available at: <https://www.kth.se/blogs/hist/2020/04/corona-environments-and-some-reflections-on-the-entanglements-of-the-coronavirus-pandemic/>
- Van Dooren, T. 2020. Pangolins and Panemics. The Real Source of the Crisis is Human not Animal. Available at: <https://newmatilda.com/2020/03/22/pangolins-and-pandemics-the-real-source-of-this-crisis-is-human-not-animal/>

IIT Kharagpur

So, yes these are the references please go through theses references.

(Refer Slide Time: 33:36)



CONCLUSION: Key highlights

- The “Capitalocene” framework to understand planetary ecological crisis as an outcome of the functioning of the capitalist engine
- Why COVID can be projected as a “Capitalocene” crisis?
- COVID, Capitalocene and contemporary global (urban) circuits of capital
- Co-habitation and entanglements across multiple species blurring “borderlines”

NPTEL IIT Kharagpur

And yeah so, we had covered the Capitalocene framework and you know and we had talked about that why Capitalocene is important in terms of fleshing out the; fleshing out the connection between you know the economic activity the aggressive you know the rampant or aggressive capitalism of our times.

Or you know since the dawn of the capitalist mode of production and its impact on the earth system. Then, we also discussed COVID, we discussed why COVID should be understood or projected as the Capitalocene crisis we discussed the connections between COVID, Capitalocene and the contemporary global urban circuits of capital.

And finally, I tried to shed light on like why it is important for us to emphasize you know this very fact of cohabitation not inhabitation, but co-habitation. The way we are I mean we are part of the same multi species environment. So, it is important for us to understand interspecies, inter-sectionally and multi species entanglements you know blurring all sacrosanct, binaries, borderlines and boundaries.

Thank you.