Disaster Recovery and Build Back Better
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Lecture – 19
Diffusion of Disaster Preparedness Technology: What Pioneers Contribute?

Welcome to the course, disaster recovery and build back better, my name is Ram Sateesh, I am an Assistant Professor in Department of Architecture and Planning, IIT Roorkee. Today, I am going to deliver a lecture which has actually been prepared by Dr. Subhajyoti Samaddar from Kyoto DPRI, Kyoto University. So, because of his non-availability, I am trying to learn from what he has worked.

And I am going to prepare, I mean present you about his work and Bangladesh and that is on diffusion of disaster preparedness technology and what pioneers contribute. So, this is what I am going to talk about.

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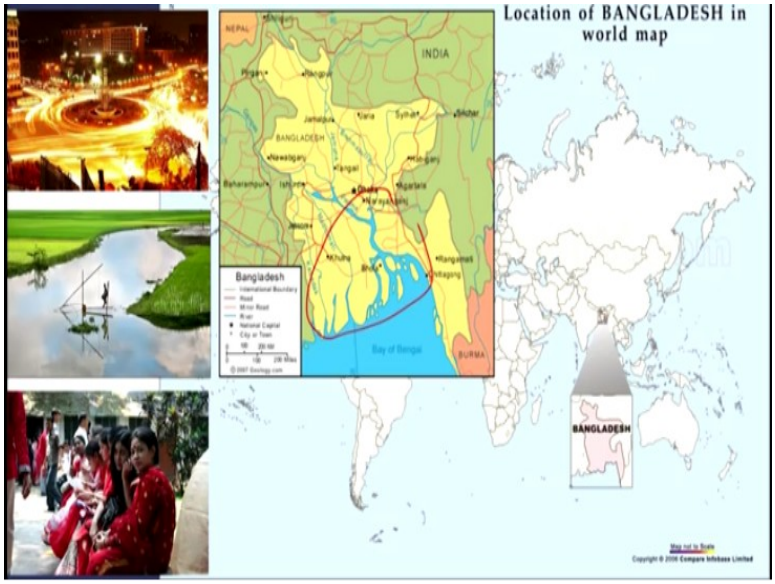

First of all today, we are going to talk about the Bangladesh, and many of you understand that you know in Bangladesh has been recently, not recently but at least from 1971, they got the independence from Pakistan and what you can see here is a heritage laid in a very rich ecosystem of the Sundarbans, and this whole part is you have all these backwaters, and much of this area has been prone to the floods, and part of it is on to the coastal side and as well as the backwater areas.

And it has a very rich cultural importance, one is being an Islamic nation and also partly it has some because it has been splitted from the Bengal; the larger part of the Bengal so, it has a very rich cultural traditions of both what you see in the West Bengal and at the same time as the Islamic as a nation.

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And this Bangladesh after becoming independent from 1971 and till 1980's, a lot of development programs has been worked, and UNICEF has been working with the Bangladesh government sector in order to promote various vulnerable situations in the flood-prone areas and as well as the disaster affected areas, and one of the major concern here is the water and the drinking water risks.

Because especially, in the coastal Bangladesh, the provision of drinking water because of its saline content and how various tribal communities and the coastal communities survive and what are the difficulties they face, so that is where many of the agencies and also different efforts have been kept forward in order to provide them the hand pumps, groundwater resources and as well as some kind of they rely on the surface water which is basically on the pond or river water resources.

But from 1980s, in the 1990's, due to various other factors with the climate change or the industrial aspects of it, this is where they have faced with 2 important problems, one is the arsenic contamination which is evident from the groundwater resources and the water salinity so, how the saline water is not you know, it is not good for consuming for a domestic purposes, okay.

It can be used for different purposes you know but for a daily needs, you know this is one of the important problem which the Bangladeshi community especially the people who are living in the coastal areas they have come across with this kind of problems. And that is where the thought of how we can address these vulnerable situations because these are going to have a long-term impacts both in terms of the physical and the mental health of the inhabitants.

One is; it can create a lot of chronic diseases, diarrhoea and you know it can have some kind of biological issues not only on the human habitation but also it can have on the flora and the fauna as well, so that is where there is a kind of innovation which came into the picture, and that is where Amamizu which is a kind of innovation as a Japanese technology, it is talks about rainwater harvesting.

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So, in Japanese Ama means river and mizu is water so, it talks about the river water harvesting. So, what they tried to do is; so they try to give this kind of tanks; water collection tanks and collecting the rainwater and they keep it for 6 months, they storage it for 6 months and then able to reuse so, this is a kind of technology which they have developed.

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And this has been one of the innovation where it was needed for that particular geographic, and the climatic conditions and the vulnerable conditions and they have tried to install in various rural villages which are been in need of this kind of technology.

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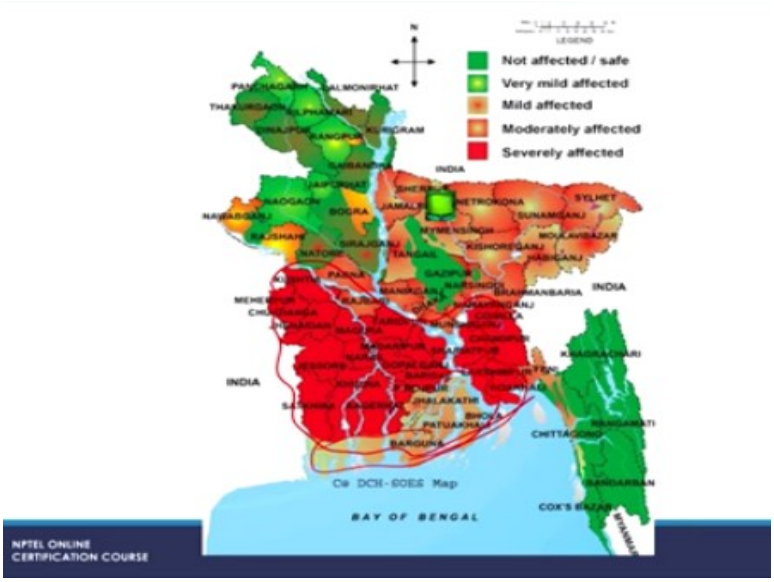

And now, if you look at the map and this whole region what you can see is, these are all the severely affected areas and the moderately affected areas and the mild affected areas and similarly, we have the mild affected and very mild affected and not affected the safe sites as well but then it started with it is not just the whole country but then the challenge is how to defuse this technology to a larger set up to a larger the whole nation.

So, it is; it might start everything will start with one and but it has to diffuse further and how, who will take this, who are these innovators, who are these pioneers, who is going to take this

particular transfer of technology to a wider community so, it has; this is one of the challenge because on one side, we are talking about capturing different groups of communities and making them use of this technology and realize them.

But the challenge is to bring in much bigger scale how we can diffuse this product so, in his previous classes also Dr. Subhajyoti Samaddar have also discussed about some issues with Bangladesh.

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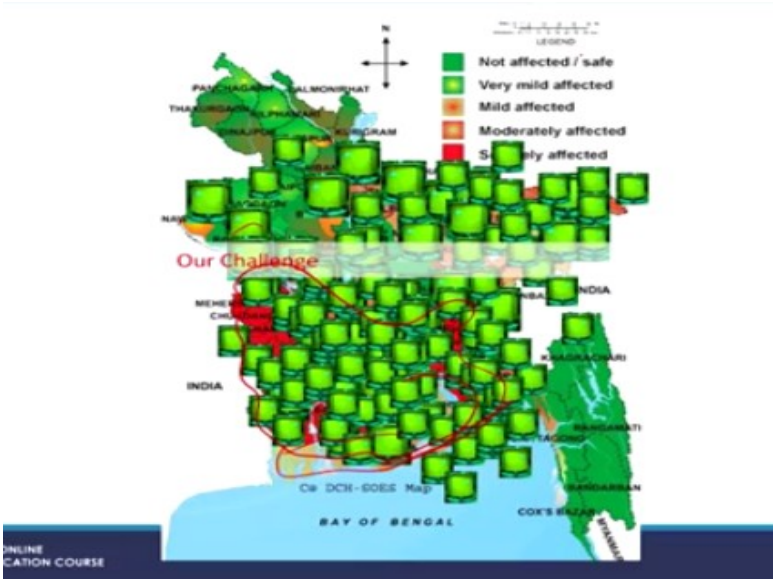

And this is also an another aspect of the arsenic content and how innovation could be diffused and what are the challenges and how one can assess it. So, in front of us, the biggest challenge is not just only an innovation but taking this innovation to the rural poor to the wider communities, okay so, how to take it further and how to diffuse this process? Now, any product whether it is a tank, whether it is an iPhone, whether it is any other remote driving car right, so any product which is coming into the society for the benefit of society, okay it is not just a tank which is collecting water.

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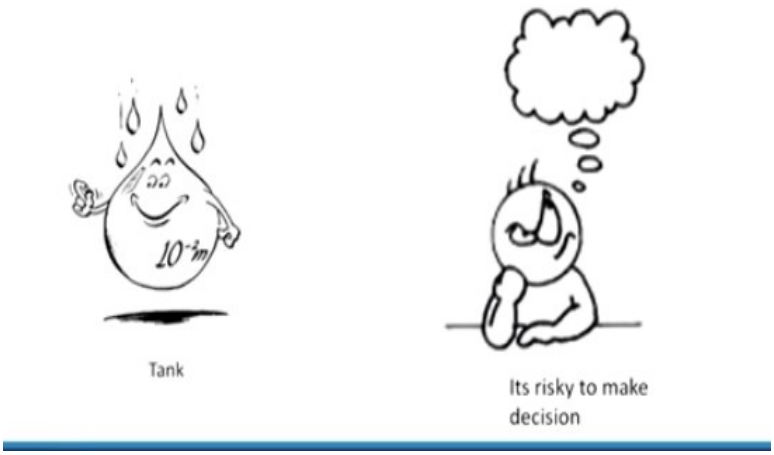

But the first thing is one has to look at; it is a very risky decision whether to take it or not. Imagine, someone has invented tomorrow a car driven with just water, not with petrol, so what happens people will start adapting because they keep putting water on it and they keep driving it, then they can save a little bit more money but then what happens to a larger ecosystem, what happens to the larger habitat?

So, a small invention can lead to a bigger risk. Smilarly, an autopilot car when subjected in an Indian roads unless if it is not properly tested so, how to take this risk to start with, the person who is starting in the beginning is obviously taking a huge risk because he do not know what is the consequences of it, it could be a drunk which is coming into the market to solve to cure a particular disease.

But then we are not sure how it is going to have a future consequences so, normally it is our human tendency, we try to see that how others have implemented, are they okay, has it been tested, forget about everything, just take a small thing, you are buying some product in Amazon, many of them I have seen when they look at it they see the reviews, they reviews how this product is, they reviews how that supplier is, what is the star ratings.

And nowadays, I have seen even when you go to your doctor to hospital, people are also looking at the feedback because that feedback process was telling you whether it is a good doctor whether the hospital is treating well or not so, this is how you know we are relying on a source of informations or a tacts of information coming from different networks.

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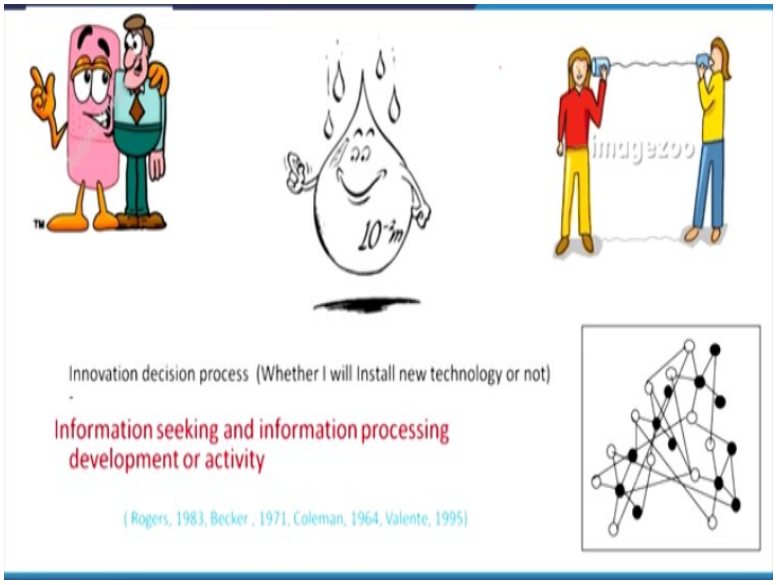

So, this is where the information seeking, we are able to seek some information and we are able to process it development or activity so, this is a very important decision making process whether I install new technology or not because it is a very risky, you do not know what is the consequences and we try to relay on this information seeking, you know that how we seek for information and we process it, we develop it, we make our own analysis of whether we should go further or not.

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In order to implement these tanks, one is sharing information on innovation whether someone's feedback, someone who have used it that can also reduce some risks, you will become familiar with certain risks which someone else have faced it or they have encountered also you will get some familiarity about the uncertainties, from an early adopter to the late adopters now, how information flows?

It is a kind of Bell graph, which I will discuss in the further lesson where how the early adopter he takes a high risk because he does not know anything what is going to happen next. Individuals are influenced by others, learn from others and eventually, change the decision. So, someone wants to buy this, they were initially very fascinated to buy this product or to take this to implement this product but then they learn that this is the after effects of it, there is a side effects of it and that is what they might change the decisions.

And nowadays, in the social media we are getting a very unreliable data, is difficult to say there are many much of contradicting data, with lot of information we are also getting into a confused state.

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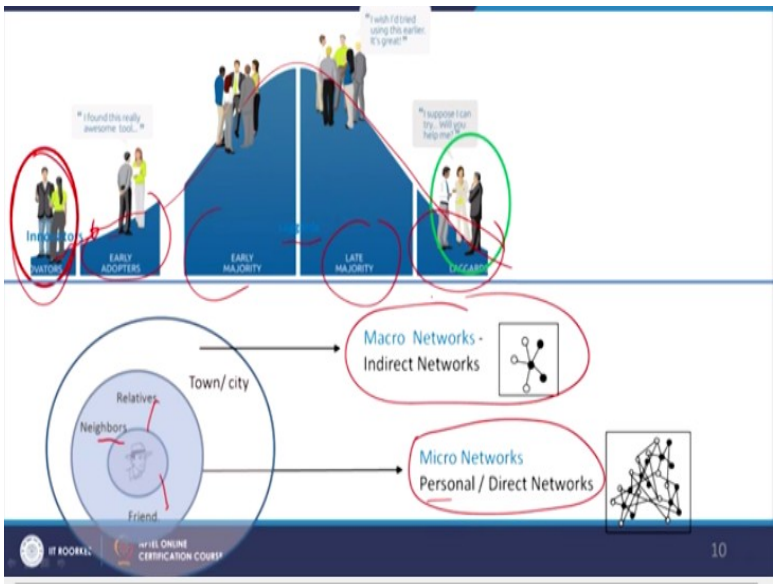

So, the earlier innovators, we call them as innovators because these are the first people who started using it, they might have taken a high risk to take this as how this particular product is going to work and then this is how the feedback have reached to the early adopters, so then the immediate network whether it is a friend, whether is a neighbour, whether it is the relative that is about a kind of micro level networks through their personal or a direct networks.

And then this is what we said about is going to have a bell graph and then there is another group who comes at the end, they try to see at how people have adapted to it and then the finally, they are more in a conservative approach and these after having a serious testing of this understanding how this has been tested option, so that is where they try; then they try to