Disaster Recovery and Build Back Better

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Lecture – 17
Information for Disaster Preparedness

Hello everyone, welcome to disaster recovery and build back better lecture series, in this lecture I will discuss about the role of information in disaster preparedness and disaster recovery okay. So, this series; this lecture would be in relationship with another two successive lectures, so please stay tuned and listen the other two lectures after this one, okay.

So, the focus here would be that to make the decision about disaster preparedness that would lead to disaster recovery, okay for the people while make this kind of decision, who are the source of information for individuals, from where they get the information okay. So, this is Bangladesh, and I will first introduce to you the problem; a little problem in Bangladesh and why they need disaster preparedness and what extent and in which context okay.

So, this is Bangladesh, a beautiful country with a lot of greens surrounded by India, most of the part, three sides are surrounded by India with one of the most fertile land and also is this is a beautiful country and but this beautiful country particularly, in the coastal areas, they are under serious threat of drinking water risk and climate change-induced risk kind of disaster.

So, they are facing a very millions and millions of people are battling here, it is a very densely populated country, okay whose one of the most densely populated country, there population is already close to 20 crores so, let us look. So, this area they are suffering from 2 huge slow poisoning environmental and disaster risk, okay is that you are slow poison gradually and nobody is realizing until before 5 years or 10 years.

What is the problem here is that arsenic contamination of groundwater so, arsenic contamination of groundwater you cannot drink the groundwater because it is contaminated by arsenic and you cannot drink surface water because it is saline affected by salinity, is the kind of salty if you get, you will get dysentery, diarrhoea and other health problem.

Well, they have a history like, after the independence in 1971, after the independence from Pakistan, Bangladesh in 1980's, in the early 1980's before that during that time, people used to depend on surface water like river, ponds, canals or lakes for their basically ponds and rivers which for their drinking water need, okay and these surface water also sweet water and people depend on that.

But UNESCO along with the in collaboration with the Japan government, they started to stop not promoting surface waters as a drinking water, they said that they found that it could lead to waterborne diseases like dysentery and diarrhoea and other health issues so, mortality rate was increasing there because people were drinking surface water from ponds and lakes which according to UNESCO and other scientists was contaminated waterborne disease was enormous in this area.

So, what did they do? They started to in collaboration with the UNESCO, the Bangladesh government started to promote these tube wells, which you can see the hand pumps kind of tube well, okay so, these tube wells are not very deep, only 15, 20 meters you can get water and you can use it so, they were hugely promoting tube well water which is cheap and which you can have the access to ground water.

Now, people started to using tube wells and by 1990s after 10, 15 years, promotion of tube well, almost 80% of the rural population of Bangladesh having their drinking water from tube wells, so they were; they used to depend on surface water from ponds and river, then they started to move from surface to tube well; tube well water okay or hand pumps. Now, when the 80% people using this one then the scientists realised that the people now again exposed to another disaster, another risk that is arsenic contamination.

So, if you are drinking arsenic contaminations; contaminated water, then you will be, your health will be severely affected leaving you, making you vulnerable for cancer even, so the one problem that you cannot drink surface water because it was contaminated already, but recently, it is more contaminated by water salinity, it could be sea-level rise, climate change and also some kind of changes of you know, shrimp cultivations.

They are channelising the seawater into mainland areas, so as upland areas; as a result, these areas are also contaminated by water salinity so, drinking water is in crisis, you cannot eat,

you cannot drink surface water because this water is saline, and the groundwater because of arsenic.

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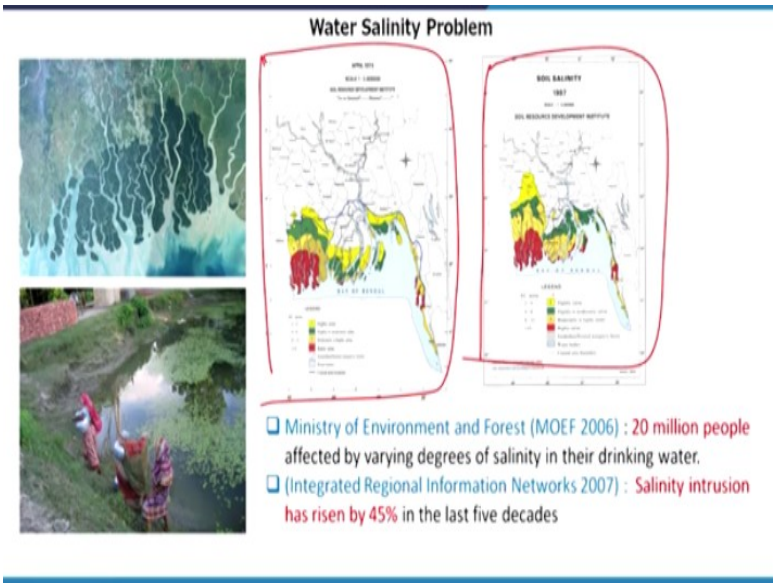

Now, here you can see that a Ministry of Environment and Forests, 20 million people affected by varying degree of salinity in their drinking water okay. Integrated Regional Information Network, 2007 reporting salinity intrusion has risen by 45% in the last 5 decades, 45%, you can see this one in 1973 and 1997, how this is changing, you know water salinity in Bangladesh, is water salinity intrusion okay, so, these all red areas are actually water saline areas.

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So as I said that during the late 1970's or in the beginning of 1980's, the Bangladesh government supported by the United Nations Children's Fund, UNICEF initiated a mass

project installing shallow tube well; STWs is in short and to provide safe drinking water to the rural population suffering from number of waterborne diseases such as diarrhoea, cholera due to contamination of drinking surface water, okay.

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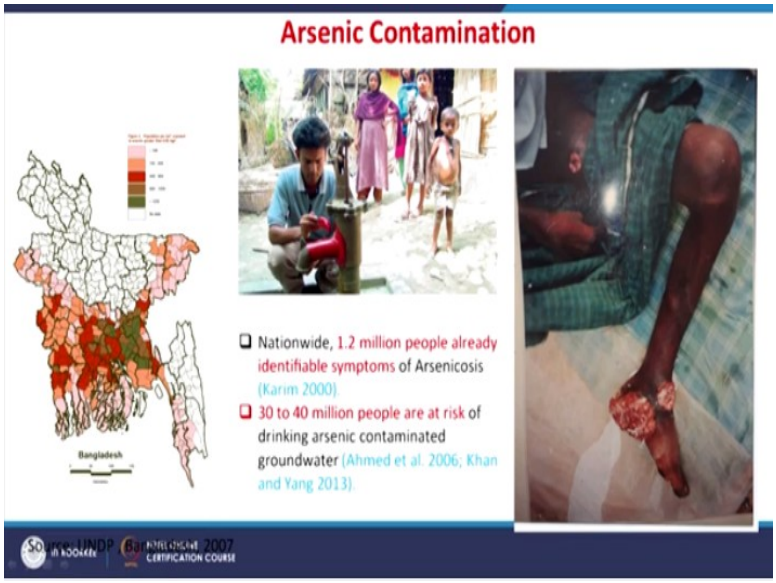

Now, more than 80% Bangladeshi population depends on tube well for drinking water, okay. Now, this is they are affected by water arsenic contaminations, 1.2 million people of Bangladesh already recognised identifiable symptoms of arsenic, okay and 30 to 40 million people are at risk indirectly or directly because they are drinking arsenic-contaminated water, it is not a small number, 30 to 40 million population.

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Then what is the solution for this? You can see water but you cannot drink water, there are lot of water, they do not have the water scarcity as such because it is a coastal area, you can see

water every day, you can see water, but you cannot drink water neither surface water, neither ground water, what is situation?

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Some people came up with idea community-level water supply ponds and filter system, okay so, it was like you are collecting the pond water and then with some kind of filtering, sand filter kind of system, then it is aggregated and then coming to clear water but there is a lot of maintenance issues, and which is not working very well, it is called PSF; pond sand filter.

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But people are finding that this is not really working at all to provide drinking water, there is another solution to provide water filter to the people which would work some extent not badly to provide a better water though scientists are not very sure that it can really reduce the

arsenic, eliminate arsenic but still it is not very bad, but are they affordable; the people in coastal Bangladesh are one of the most poverty striking people, okay.

They are really, really, really poor, a large number of populations are very poor, can they afford to have these filters this is a question; the big question, right. So, people are saying now that okay, we need alternative drinking water in this area.

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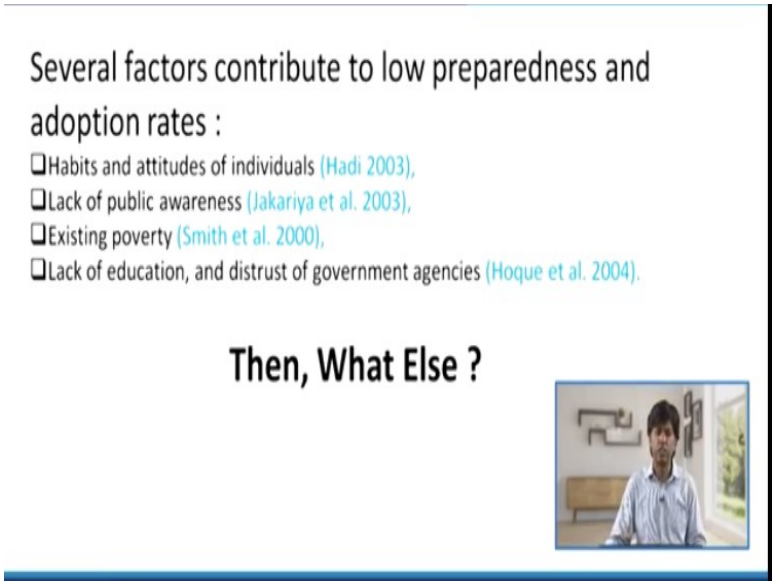

The scientists found that people are not very encouraged, not very motivated to have these alternative drinking water, right. So, people saying that the several reasons are there, people have a habit and attitude kind of problem, people became used to with this what they are drinking, they would say no my father and my forefathers, my grandfathers, my grand-grandfathers, they all are living here, they are drinking the same water.

They did not have any problem, they lived 70 years, 80 years without any much issue, why should I bother, I am used to it, I become resilient so, do not worry about me, oh, this is one perspective. Another perspective is similar line that is people saying that they have lack of awareness, maybe they do not know, they used to it, they do not realise the seriousness, severity and vulnerability of this disaster.

Another one is the existing poverty; people are really poor, they have so many problems in life, their entire livelihood is at risk, all households they are at risk from the poverty perspective, income perspective, economic perspective. So, when they are every day at crisis

because of their financial condition, it is really tough for them to look into other matter okay, so it is a kind of background risk.

Also, there are other factors people identified, these are lack of education, distrust and distrust in government agencies and NGOs, they cannot believe that these NGOs, nongovernmental organizations and governmental organizations are really honest promoting any kind of alternative drinking water technology because in 1980's they were told that okay your surface, your ponds are contaminated, please use tube wells, it took a long time to convince people not to use surface water, they are more, more comfortable, much, much more comfortable using surface water which took much longer time spending a lot of investment projects to motivate people to use tube wells not surface water. Now, you are again saying that do not use that one, where should I go; it is not a very prosperous area economically.

So then what else, are you hopeless, we cannot do anything, some people coming with accepting that challenge, coming with a very innovative idea, a very innovative idea and very simple. They said hey, come on we have plenty of water actually, numerous stamps in the sky for safe drinking water, the sky will provide us drinking water and do not worry, yes like this tap.

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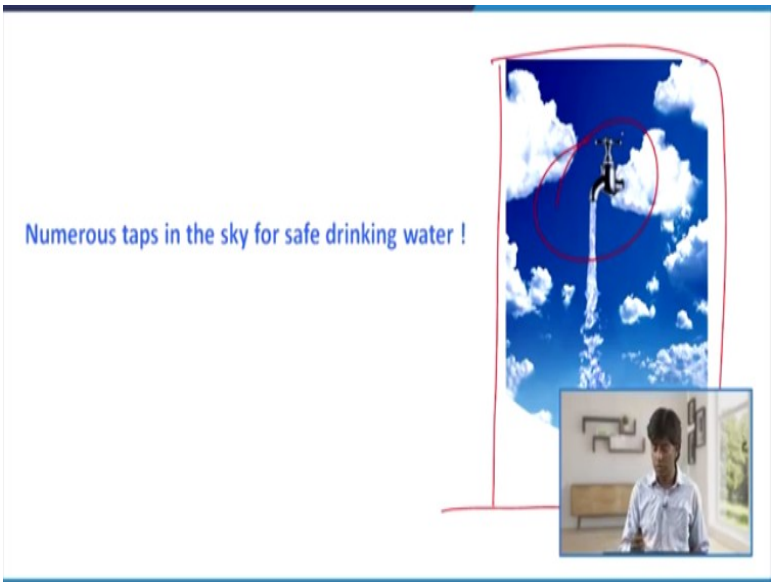

Like this tap, you get, so each one we can get gallons and gallons of water okay, who said we do not have water.

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There is a Japanese organization, non-profit organization people for rainwater, they said okay, this is called Amamizu, in Japanese is called a kind of rainwater that will bring smile to every home therefore, diffusion of innovation is inevitable. This is a model tank at the household level, during the rainy season you have to collect water and from the roof water, this will come channelize okay, and we will store it here, simple; very simple and there is a small net, pipes and Phukets okay, so this small simple technology you need.

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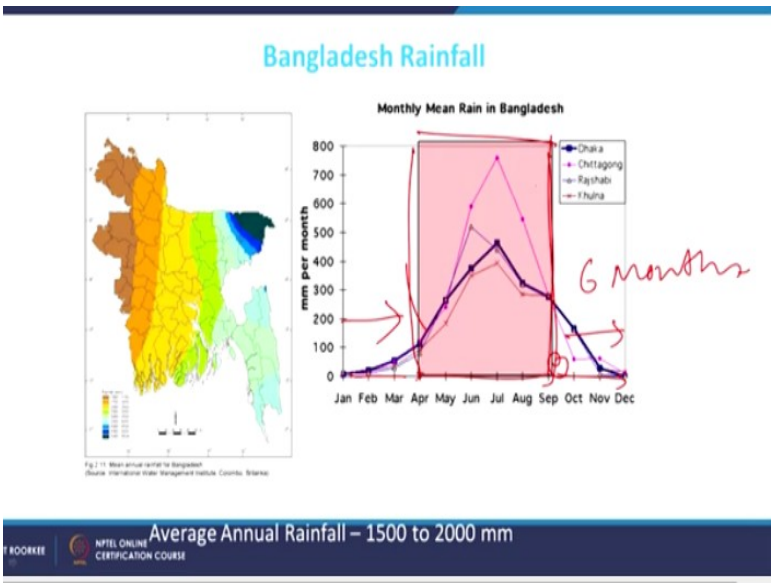

Bangladesh which has a very good rainfall like this one from April to May, you get a rainwater so, it continues till September so, from October to March, 6 months you need water so, you preserve water during this time in the end of this and then you can continue for this 6 months and during this time you have always rainwater.

So, you do not need to worry. So they have average rainfall of 1500 to 2000 millimetre but concentrated only in these months.

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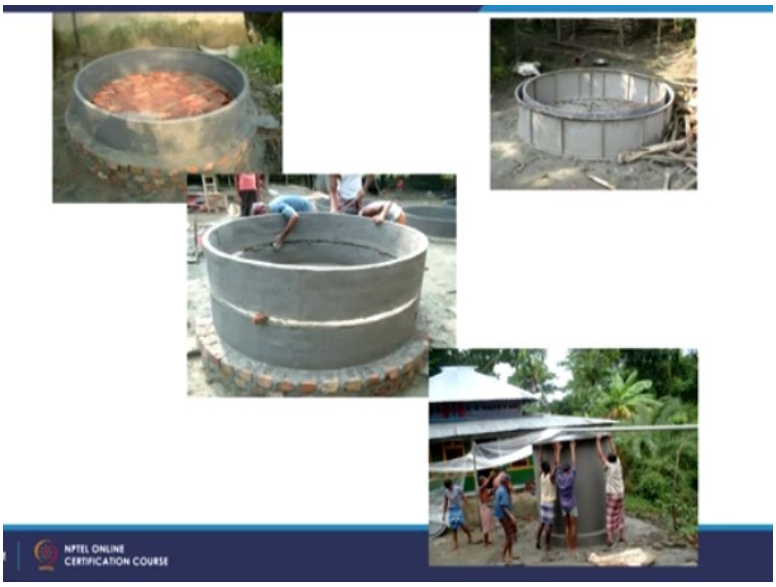

So, some people came up with that okay, we can do it, if we have around 5000 litre water tank, then if 4 and 5 members family can easily run 6 months with this preserved water for drinking purpose, okay.

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So, this is a small tank at the household level, he is the NGO person, and they are the users so, we need to install this tank which is not very costly, little costly.

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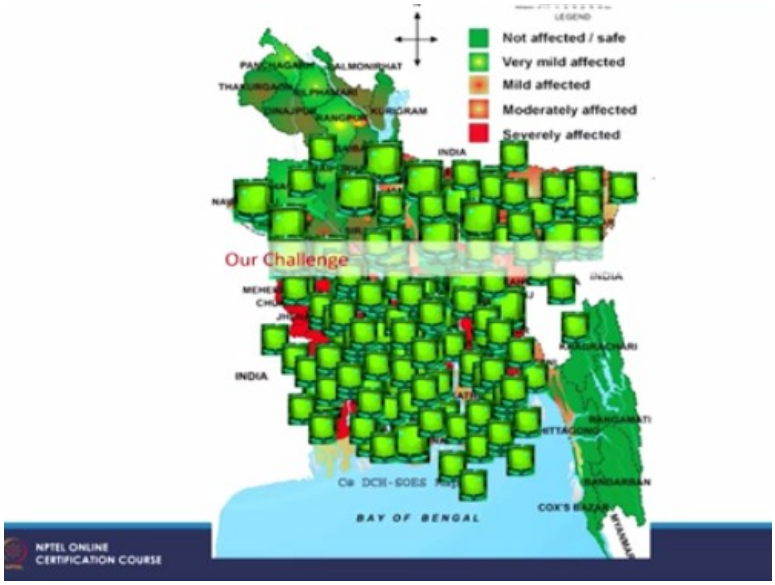

So, the challenge is therefore to solve the drinking water risk in Bangladesh, you need to install many, many, many, many so, this is our challenge so, how we can recover from this how, we can promote these rainwater harvesting, right so, this is our challenge given that how we can solve this problem. So, as a planner, as a practitioner, we are saying that okay, you need to promote this tank to stop drinking water risk to reduce drinking water risk in Bangladesh, tell us what is the solution?

People have water problem, people have habit problem, people have problem of risk ignorance so, they are not considering so, many problems, one is socio-economic problem, another one is the educational problem so, during such a complex situations, the government is hiring you and asking you that what solution you can give.

So, in order to encourage people you first need to know why, what they need, what is the role of information, what kind of information we should provide to them? And how we should provide to them, so that they would be motivated, encourage to install these tanks. So, this is the ideal the small, small support, we do not need a very gigantic bigger effort but very small.

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This small effort can have a very gigantic impact like diffusion is of innovation, this innovative technology is inevitable for sustainable climate change adaptations and disaster risk management so, putting a lot small power together adds up to big power right, putting a lot of small power, small power ending at a very gigantic big power, okay.

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Research Problem

So, our research problem then,

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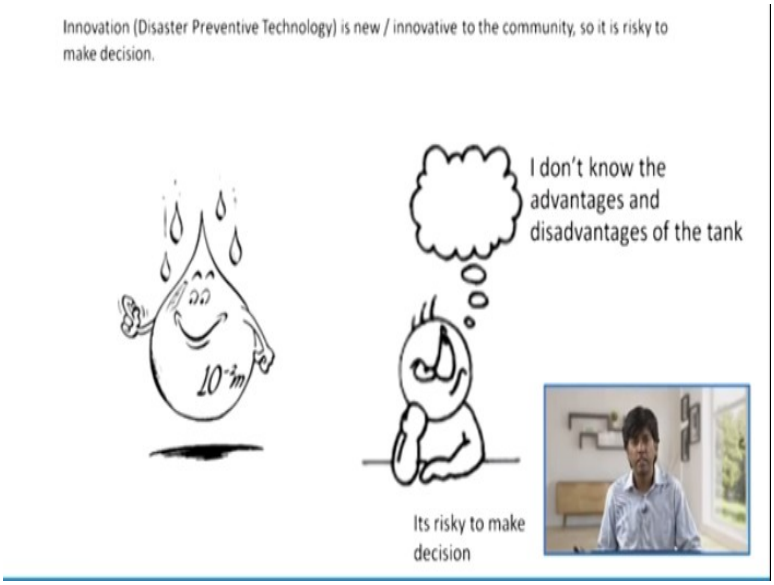

If we are asking people to install this tank, imagine this is a tank, we ask people hey, install this tank at your house oh, I am really confused why? It is not easy to make a decision why; because I would really do not know the advantage, merits and demerits, how should I believe you, how should I trust you right.

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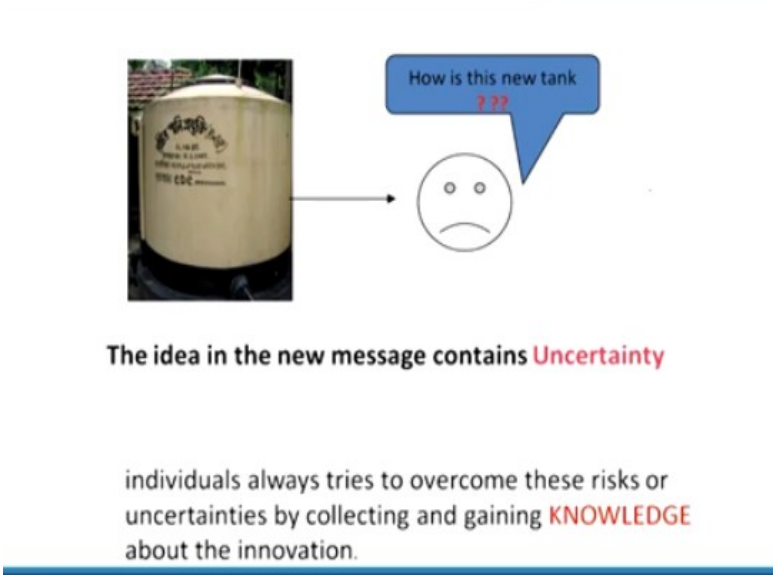

So, I need information because this is a new, no one before tried this one, this is an innovative technology so, innovation is also very dangerous in some sense because this is new and as it is new, its advantage and disadvantages are not known to the people, so people have no idea, they have to make decision of adoption, decision of installation in an uncertain situation, right.

If you are buying this one is already existing a community no problem, you can buy this remote but if you are; if this one is not available, never came before so, how people would make a decision that is a big question.

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So, what kind of information people then need, how they would know that okay, this is good or bad, this has this will work for me or not, they need information, right, if we provide, they do not have the information because this is new, but if we provide them information they would eventually know, they would judge and evaluate this innovative technology, this will remain innovative, but this would not be that new, because they would have some feedback.

So, now people need to collect information in order to reduce their uncertainty, no one likes uncertainty, everyone wants to predict their future, like any kind of risk; risk is always future you know that is true, we always face risk in future, future risks cannot be in present or past is always in future like fear, so like uncertainty so, it is always in future.

So, we would like to; no one likes uncertain situation, they want to minimise the uncertainty so, then people would like to collect information, how they can collect information about this tank, this person?

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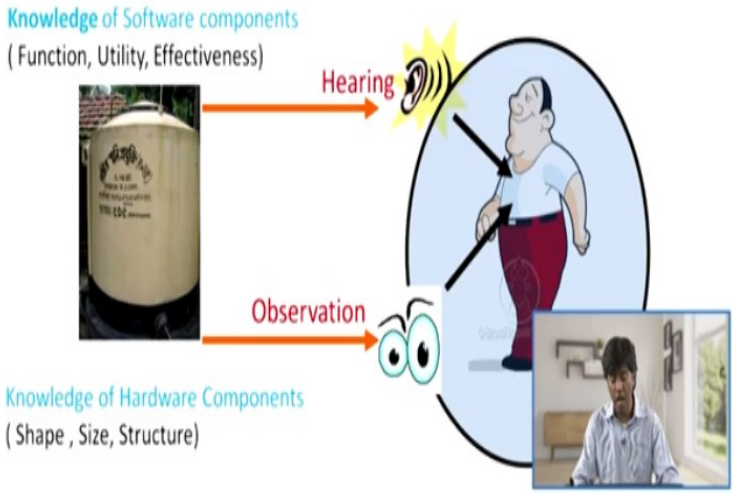

He can collect it; one is through hearing, right another, he can collect from listening or hearing from others, another one is observation or watching this tank, somewhere in some place, friend's place, bazaar, market and anonymous person's house so, they hearing it would give him software kind of knowledge like what is the function of this tank, how does it work, what are the utilities, effectiveness.

So, his friends, relatives or maybe someone neighbours he does not know or from radio, televisions anything, it could be human networks, it could be social networks anything, a mass media so, he or she can collect information about tank through hearing but hearing can only allow you to collect information about the software part, not the hardware part. For hardware part, you need to watch it, what is the shape, size, structure, is it beautiful or not, is it big or small, okay is it round or square so, these are also very necessary.

Because I do not have maybe space to install it or maybe it would look ugly if I put it into in my house so, these hardware components you can only get through observation, okay and then it would complete my knowledge.

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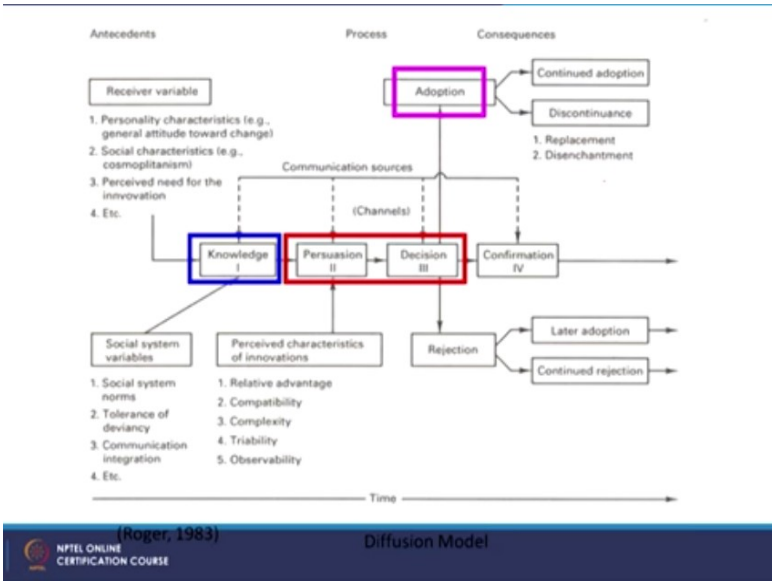

But this is a model of diffusion of innovations developed by Rogers, they are saying that knowledge is important to make decisions like knowledge means, information which we can get through hearing and observation but knowledge immediately does not lead to adaptation; no, no, it takes time, before making adoption decisions, we need to have decision persuasions and decision question.

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So, the persuasion stage and decision stage that means, what is the utility of that from a subjective point of view, I need more information, if subjective interpretations of that one in my condition, it will work or not, this kind of context which I get, which we call discussions so, we have; we need 3 kinds of information; hearing, observations and discussions, okay.

These 3 information would really help me to reduce the decision and making in uncertainty and then I would make decisions. In my 2 other lectures next to that, I would then give you the examples for Bangladesh, the results that feedbacks that how people collect this information, what kind of networks they use and who play a bigger role, okay.

Thank you very much.