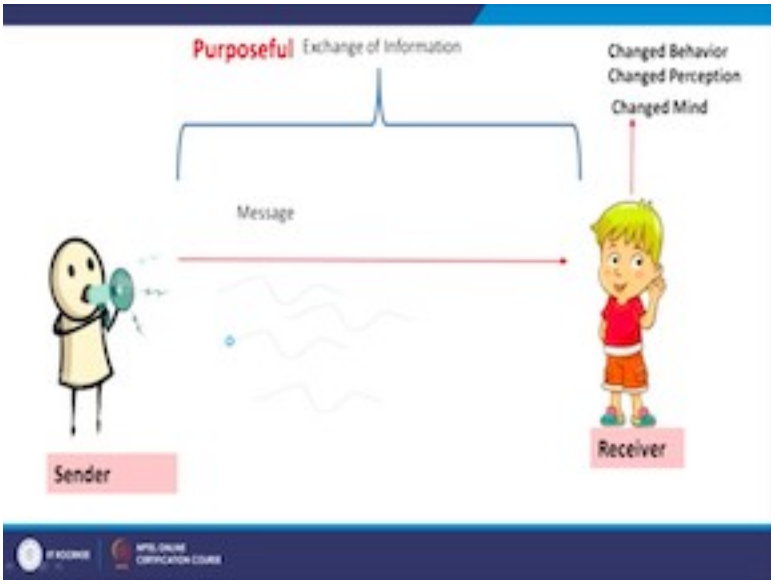
Disaster Recovery And Build Back Better
Prof. Subhajyoti Samaddar
Disaster Prevention Research Institute
Kyoto University, Japan

Lecture – 39
Source, Message and Receiver in Disaster Risk Communication

Hello, everyone, I am Subhajyoti Samaddar from the Disaster Prevention Research Institute, Kyoto University. I welcome you all to this lecture series on disaster recovery and build back better. In this lecture, we will talk about source, message and receiver in disaster risk communication, particularly, what are the challenges there when we adopt particular risk, communication model.

That is very important for us to understand the disaster risk management. Now, we all know that the meaning of risk communication is actually a kind of event, where there are two parties.

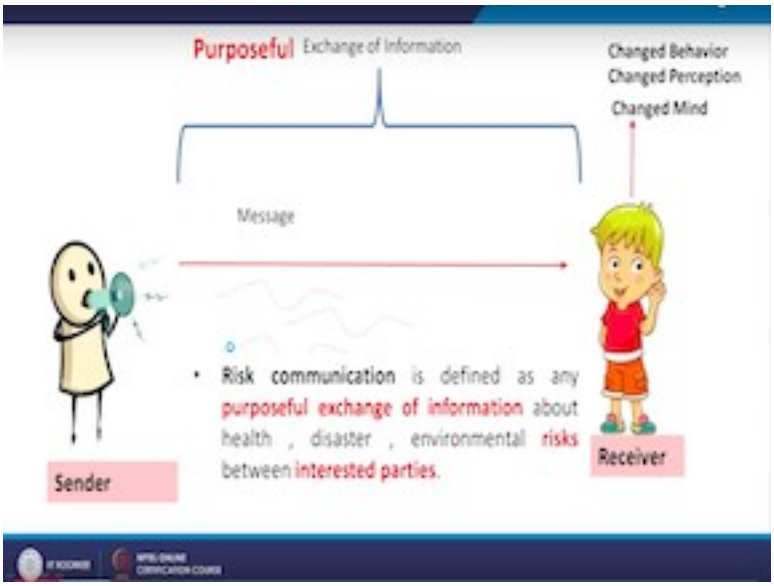
(Refer Slide Time: 01:09)



One is the receiver another one is, one is the sender another one is the receiver. Now sender send us their, send informations, message to the receivers in order to change their mind, their perception and their behaviour and this exchange of informations between receiver and senders is actually a purposeful exchange of information. That means they want to change the mind, senders wants to change the mind of receiver's.

It’s not that senders is talking and receiver is not listening it is a purposeful exchange of information.

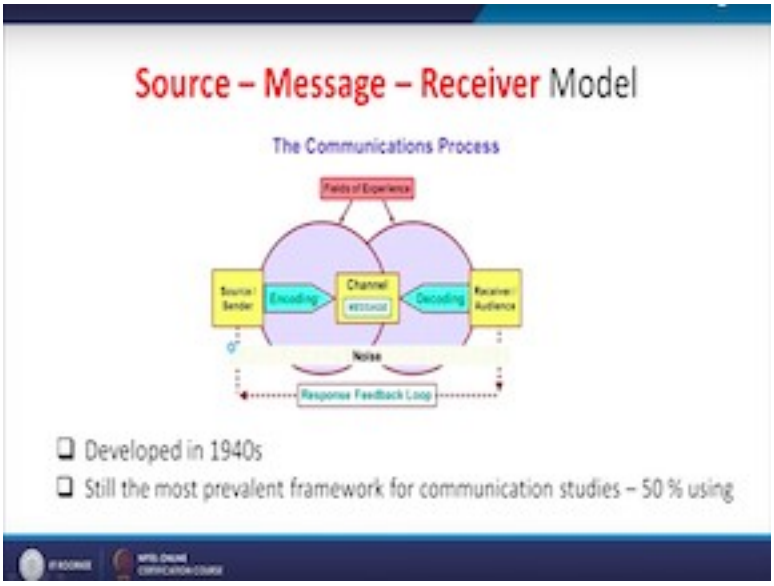
(Refer Slide Time: 01:51)



So risk communication is defined as any purposeful exchange of information about health, disaster, environmental risks between interested parties. Right, now understanding risk message, it is okay to send the informations but it is now we need to look that what are the challenges when we are sending the informations to the recipient in order to do something, in order to prepare, in order to enhance their capacity to prepare against the disasters.

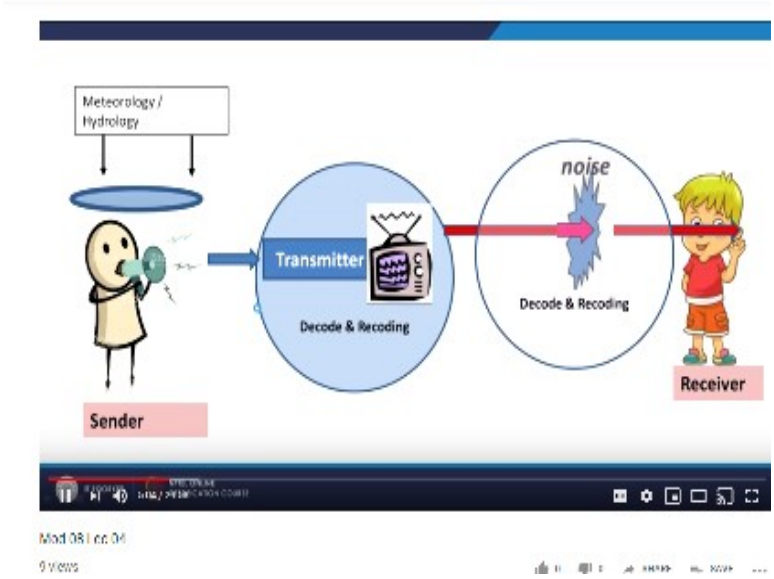
What are the challenges? What are the barriers there to communicate effectively, well there is one very typical model, very popular model, that was developed in 1940s on risk communications and that is most widespreadly used model in risk communications called

(Refer Slide Time: 02:52)



Source message receiver model and it is considered to be there is still the most prevalent framework of communication studies at least 50% are using these model.

(Refer Slide Time: 03:02)



What is this model is saying that a sender, they collect informations from some scientific bodies or some outsiders like meteorological department or hydrological department about the disasters and then this collected risk informations, in order to develop a kind of informations or analysis of risk and based on that the sender collecting this information, dispersed this informations to their receivers in order to change the receivers mind and attitude and behaviour?

Now, they cannot directly send, sender cannot directly send it to receiver most of the time. Sometimes, is possible but most of the time it is difficult to send directly the message from the scientific body to the receivers or that those who are doing these scientific analysis they cannot also pass these informations to the receiver directly. What senders they do, they have some transmitter.

Generally, it is could be mass media like televisions, radios, newspapers for many other. We call them as mass media and when the sender send these informations to the transmitter or mass media or some other transmitters, they do coding and decoding in order to understand that message and they interpret and deconstruct and reconstruct that message and transmitter then after the decodifying the message from the original source.

They send it to the receiver and receiver also decode, decodify and recodify this message. And also in between, it does not directly go to them, in between the challenge is the noise right. Now, he also has, the receiver also interpret decode and recode this message coming from the transmitter and it is also challenged by the question of noise.

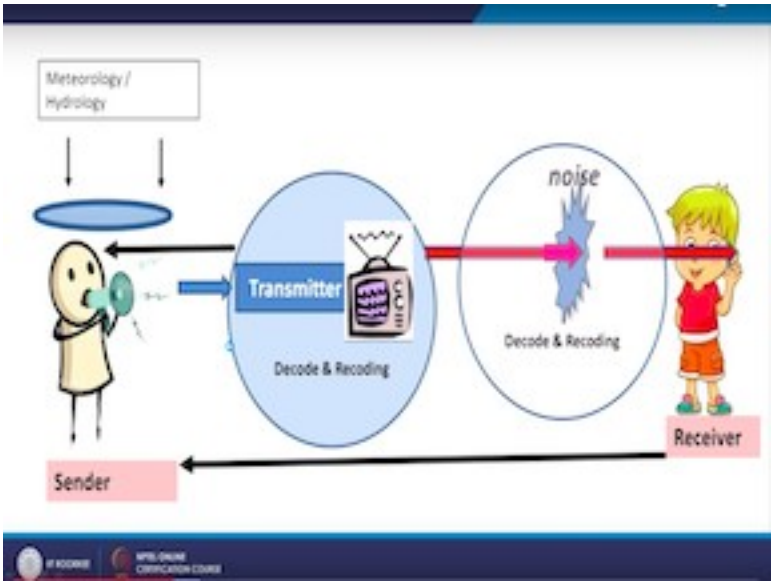
(Refer Slide Time: 05:13)

What is the noise? It could be some external and internal factors, external factors like the beep of car or sound pollutions? I want to say you how are you but maybe you are not listening it properly because there are a lot of noises there, the bikes there or a lot of the cars are beeping or

maybe you have headache or you have difficulty in hearing. So, the senders and receivers they are challenged.

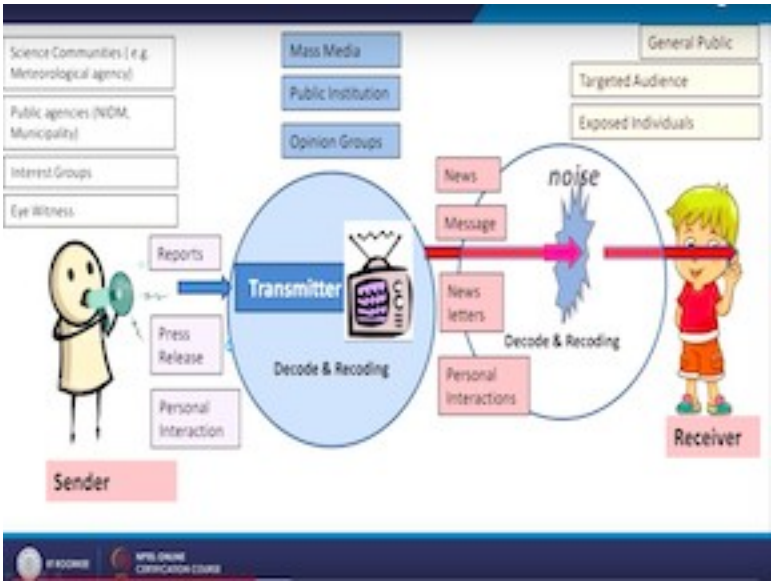
When they are communicating with the noise, this noise could be internal and also could be external. Now senders collecting informations from some organizations like meteorology or hydrology and then they passed these informations to the transmitter like mass media after decoding and recoding and then they send it to the receiver and also these goes from transmitter to the receiver through decoding and recoding.

(Refer Slide Time: 06:26)



Now, if the transmitter cannot understand, they feedback this one to the original senders, and also the receivers if they have some questions, concerns, needs, they can also give feedback to the senders. But it's actually a one-way communication process, once you receive then you didn't understand then you again, you contact it is not a one two way communication, reciprocal process is generally one-way traffic and flow of information. Now, who are the senders?

(Refer Slide Time: 07:09)



Okay, senders are generally science communities example meteorological agencies or it could be public agencies like NIDM; National Institute of disaster management or sometimes could be some municipal authorities or some interest groups. They could be senders or maybe eye, eyewitness, eye watched maybe I, I am experiencing some disaster and I am conveying that relaying that to others it is possible.

So, which is not always the case but scientific communities, public agencies, interest group, eye witness they all could be senders of informations. Okay, now they send this information to the transmitter. How do they send it? They publish reports, their scientific journals or maybe they do some press release. Right, they do press release about a particular hazards, particular events. And also maybe they can share the information through personal interactions.

Personal interaction especially, in case especially, in case of eye witness they pass these informations to another person through personal interaction. So, scientific communities, public agencies, interest group, eye witness they are all senders they are pressing the informations through reports, press release, personal interactions to the transmitter. Okay, to the transmitters. Now, who are these transmitter?.

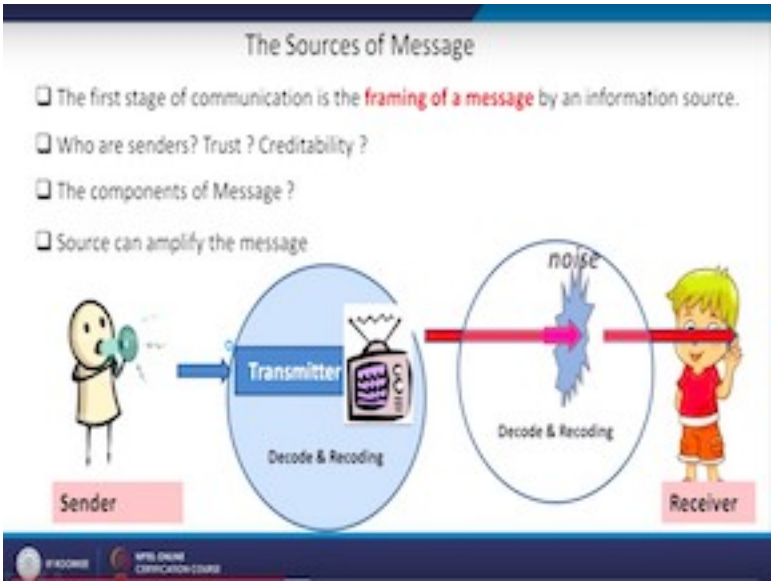
They could be mass media like TV, newspapers, radios or could be some public institutions. Okay or could be some opinion groups, same-minded people they pass it to the receivers. Okay,

they pass it to receivers these informations. How do they pass it? They can publish news or broadcast news or some send message like SMS or maybe some newsletters about a particular disasters.

Or maybe, some personal interactions like eyewitness people generally do, they pass the informations about risk from one person to another. Okay, to the receiver, and who are these receivers? Who are receiving these informations they are general public or maybe they are a particular target audience some municipal authority one to target maybe some particular people, who are at risk exposed to landslides, exposed to earthquake, exposed to cyclone right then

We want to pass the evacuation order to them, evacuate really warning informations to them. So, it could be general basically, general public but we among them may be particular target audience. We have or those who are at risk, those who are at risk they are the receivers of this.

Refer Slide Time: 10:08)



Now, the source of message so from senders to the transmitter decoding and recoding and then again decoding and recoding, coming to the receiver. The first stage of communication is the framing of message by an information source so, the senders they frame the information at first right they collect so, who are senders is very important who are sending the informations to the public is very important because they are also framing the message.

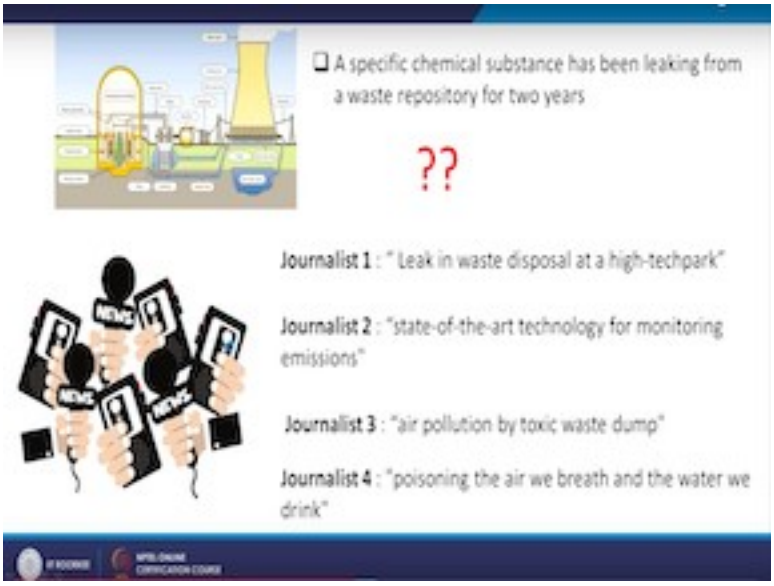
So, there is a question of trust and creditability and also the component of message is very important component here. And source can because they can all amplify, magnify, reconstruct and deconstruct the message. I can show you some example.

(Refer Slide Time: 11:07)

What can happen? Now, look into this nuclear power plant and if the source senders of information is this company who are at risk about the radiation, then people would believe them or what is the status of radiation is reported by a group of Nobel laureates who would be more trustworthy the event is same. Basically, we are giving the radiation status report the senders are two different group.

One is the company itself, who were affected and other one is a group of Nobel laureate. People, of course, would easily trust more these Nobel laureates because they can think that this company may be fabricating or suppressing the informations, making stories and not and they are not giving the right information to the people. So, the event is same but the sources are different.

(Refer Slide Time: 12:16)



So, people cannot trust, so by own people trust depends on who are the, who is providing the information. Now, also it is very important that this one, this oil refineries, for example, a particular, the factory there is a specific chemical substance has been leaking from the waste, repository for two years okay. Now, how different maybe a Group transmitter can interpret that one.

The event is that a specific chemical substance has been leaking from a waste repository for two years. Maybe, do you think that all journalists will report the same way? No right, they generally don't do it. Let's look, journalist 1 reported like that "Leak in waste disposal at high-tech Park". How about journalist 2 is "State-of-the-art technology for monitoring chemic emissions." May be journalist 3 is reporting air pollution by toxic waste dump.

Journalist 4 is reporting poisoning the air we breathe, the water we drink. So, same event but different journalists are reporting different things, it's so interesting.

(Refer Slide Time: 13:48)

So, the primary source of risk communications.

(Refer Slide Time: 14:02)

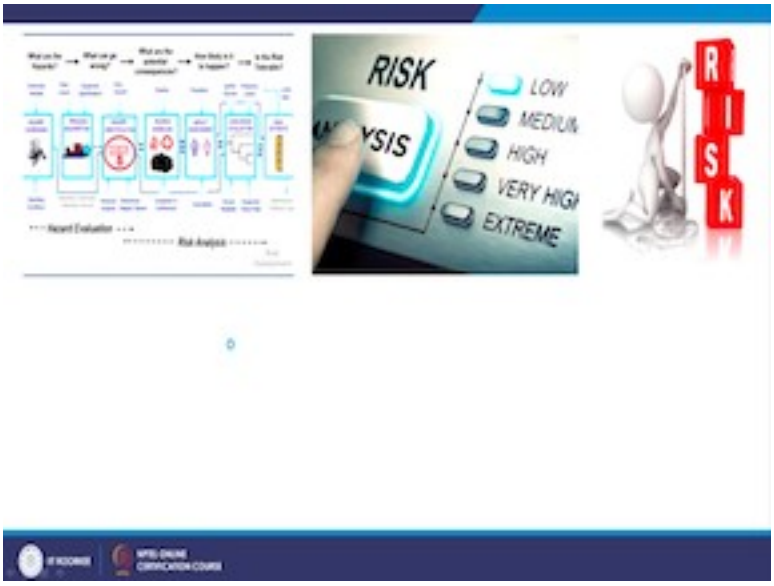
Primary source of risk communication so these are hazards, we know like smoking, genetically modified foods or irrigations of arsenic contaminations or hazardous material or volcanic eruptions okay or Tsunami.

(Refer Slide Time: 14:18)

Now, it can cause some kind of risk like genomic, genetically modified food can cause a lot of damage to the children, kids and also arsenic can contaminate, arsenic contamination can cause cancer or we can have flood in fact, of events of Fukushima a nuclear accident or other many problems we are facing. Now, the scientific community basically, the first group the senders of the informations what do they do basically, I am talking about the scientist.

Okay, they do hazard analysis, what are the hazards, what can go wrong, what are the potential consequences, how likely is it to happen, is the risk is tolerable or not. So, these first primary analysis is done by the senders, the primary source of informations about risk, they do the risk analysis path, and now they based on their analysis they can categorize the risk low, medium, high, very high or extreme high and so you can.

(Refer Slide Time: 15:35)



So, they can have measured the risk from a different parameters, from based on their own parameters but not necessarily that these informations considered to be at raw informations, they only do it to share among themselves within their own peer group, not to outsiders because if they share it without much concern to the outsiders, it can cause lot of mistrust and misconfusions and misleading, okay.

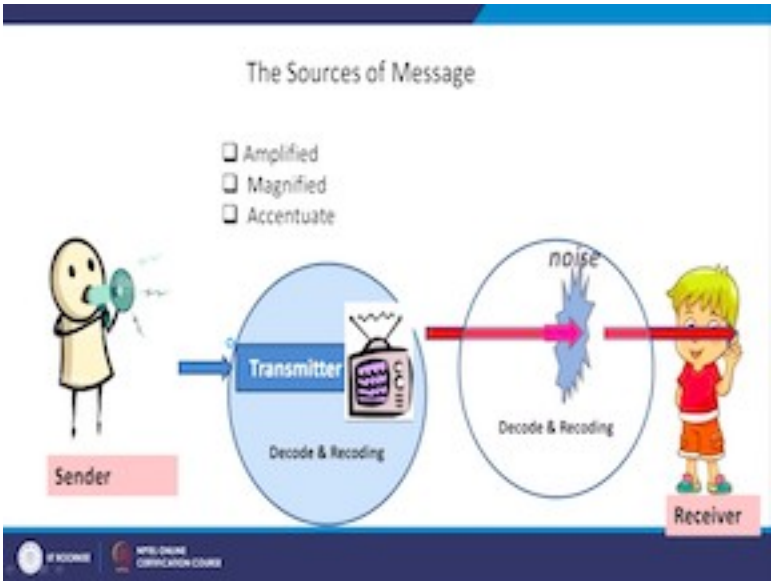
(Refer Slide Time: 16:09)

So, here is a very good cartoon, that how most people view their vacations and how scientists view their vacations, okay. Like endemic but a thunderstorm at 4 p.m. So, there is a difference between what scientists are estimating the risk, the scientific perspective of the risk or estimation

of risk and analysis of risk and the common man's perspective of risk. Here, is another good cartoon also, like climate impact range from moderate to catastrophic.

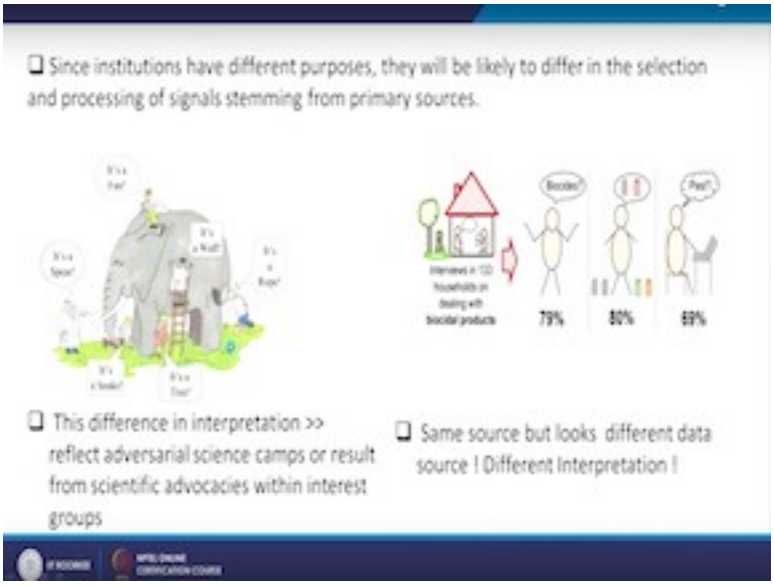
And the person is saying that I cannot say myself that doing nothing is not the best is not the best solution. Also, there is a small chance my house will burn down, I cannot say buying insurance is worth it. So, we have kind of construction of risk is how the scientists are looking at it and how the common people are looking. They can ready at great extent.

(Refer Slide Time: 17:08)



So, the source of message, when the senders, they are sending to the transmitter. They actually do amplify, magnify and accentuate the informations, it's not that what information you pass is go directly but it is the media or the other they actually convert this one in printer pair this one, amplify this one, magnify this one, and then it comes through decoding and recoding.

(Refer Slide Time: 17:41)



Right, so and the primary source the science, since institutions have different purposes, different interest, they will also like to see the different parts and selection and processing of one single signal, one single message have different meaning. So, the source is very different, source is one, but looking at that as object is perish like some per is elephant it's like one community of scientists.

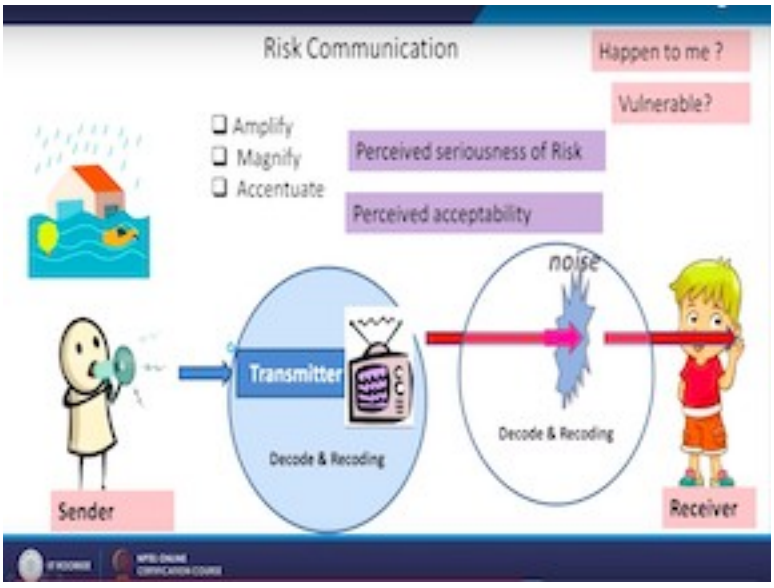
They are looking one particular aspect is a fan, someone is looking it is a rope, a particular body of the elephant. No one is looking at the entire aspect of the elephant, okay and these differences in interpretations reflect adversarial science camps results from scientific advocacies within interest group. Even the scientist, if they have same data they have different interpretations as if they look like they are coming from different data set.

(Refer Slide Time: 18:58)

So, what I am analysing is also under considerations if my data is right or wrong, the scientific analysis is also under subject of that what authentic data they have. So, here is this that are you sure that data you gave me is correct, I have been giving you incorrect data for years. This is the first time you have asked what I said the data is totally accurate okay. So, a model of single flow risk communications is that.

Senders passing this informations to the transmitter and transmitter is decoding and recoding.

(Refer Slide Time: 19:42)



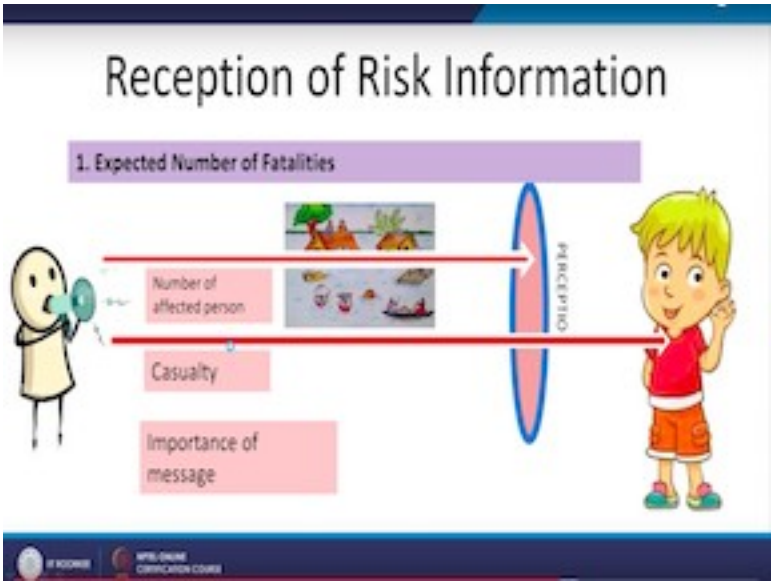
And when they are sending it to the receiver, they are also decoding and recoding the informations, So, it's not directly going and so during this process, amplifications,

magnifications and accentuations are happening, okay. So, how people react it depends on how they are perceiving the seriousness of the risk and perceiving their perceived acceptability okay. So, it depends that if this person is getting informations from the mass media.

He would think, Oh this flood will happen to me, this landslide will happen to me, will it happen here, what is the probability? And if it, even if it happened what extent I am vulnerable, because I have a good house maybe, I will not be affected by this flood or landslide. So, maybe my neighbours will be affected, I will not be affected, so what happened? What, will it happen to me? What extent I am vulnerable?

These questions are very important for the receivers, which we, so, the probability and the severity he would judge. Now, the senders who try to break the perceptions of the receiver he wants to reach him. But in between, there is a question of perceptions.

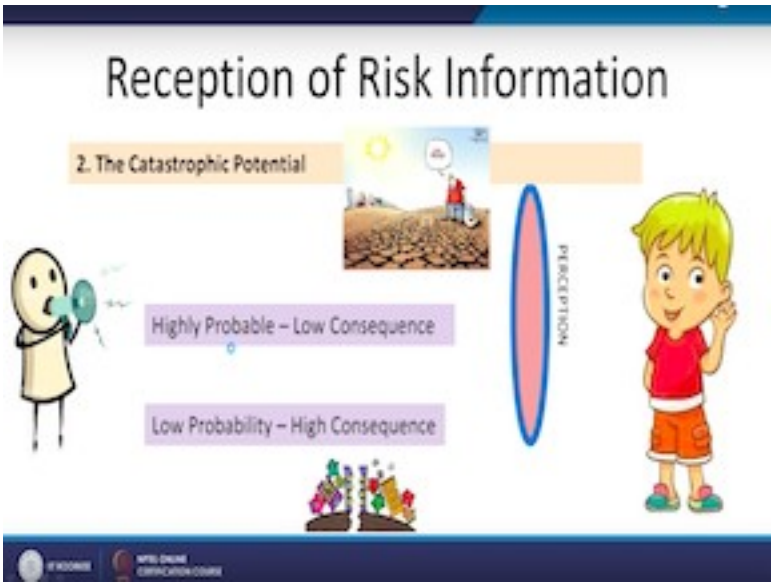
(Refer Slide Time: 21:06)



He would, the receivers would follow him the senders only if he believes or she believes, okay. So, expected number of fatalities, if our is communication message is including that component. How and what extent it affects people. When we are saying to the people that that number of people are affected by particular flood, the scientific studies are showing that people are not perceiving, believing that this is risky.

But when we are saying that, that much of casualty happened people are more likely to believe the information, ready to accept that this is risky. Importance of message is also very important, okay. Who is sending these informations to them and how important it is?

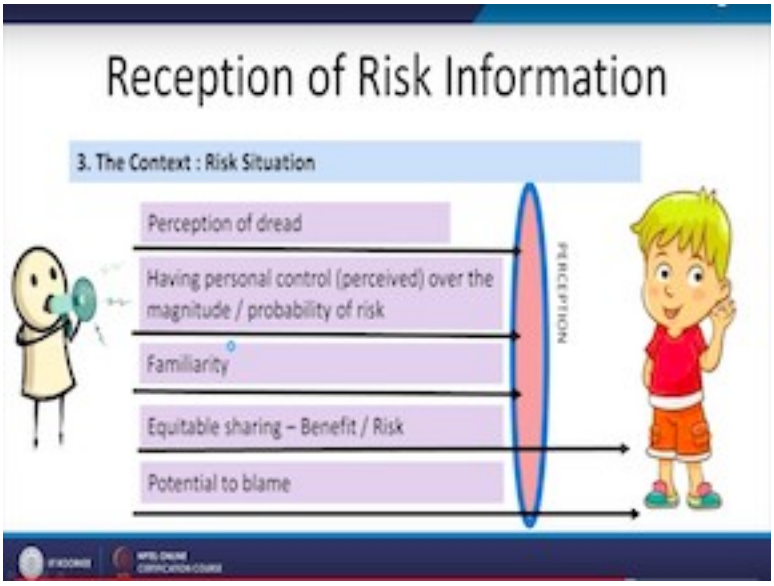
(Refer Slide Time: 22:04)



Another one the catastrophic potentials, how people consider the catastrophic potentials in order to judge the risk. When we are saying high probability, low consequence of disasters like you can say the drought compared to low probability high consequences like the 2011 Japan earthquake and Tsunami. Which one you think people considered more risky, accept as risk. So, drought which is high probability, this means happening almost every year or very frequently.

I have at have low consequences, people consider that as low risk but when this is low probability, may be happening in 100 years but high consequences people consider that as more risky. This is what the scientific studies are saying.

(Refer Slide Time: 23:08)



Also, the context, the risk situation, the perception of dread having personal control, that I can control the risk over the magnitude and probability, so how it will happen or what extended to happen, I have some control or not. This is one variable, another variable is the familiarity, if I have experienced that one or if I am experiencing that and disasters and equitable sharing that who is benefit and who is a risk.

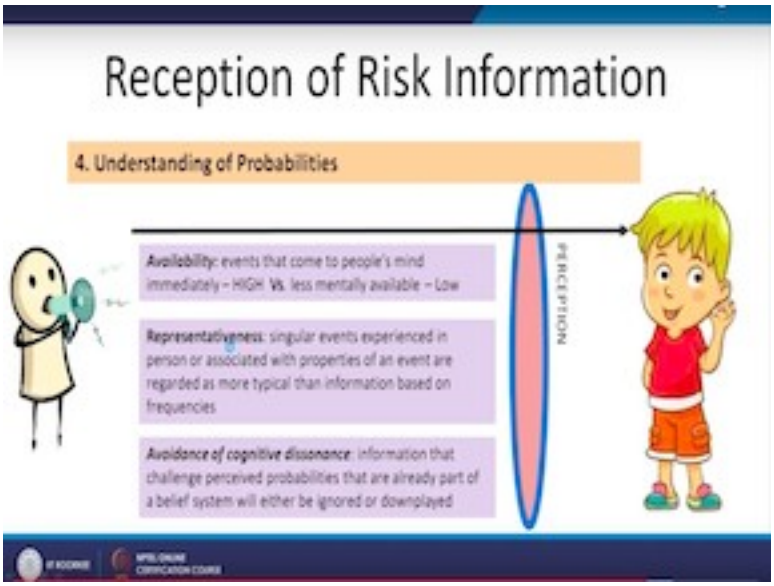
So this kind of questions like you were running a nuclear power plant but that may cause you were running from that but that may cause someone's, increase someone's risk. So, which one people will believe? So, also the potential to blame someone that this risk is happening, this flood is happening because of the municipal authority, so people are deeply believing that if it is considered to be dread people don't believe it.

Having personal control, that they can control the risk they have some kind of capacity if they perceived this way, then they don't consider this is a high risk. Familiarity, when people are experiencing this in a regular basis they don't believe or accept the risk. But when they are seeing, think that he is at risk because someone is benefitting out of it, he thinks this is more risky.

And when it is more easy to blame the reason that why this risk is happening, risk is taking place, disaster is taking place is because of someone's responsibility people consider this as more

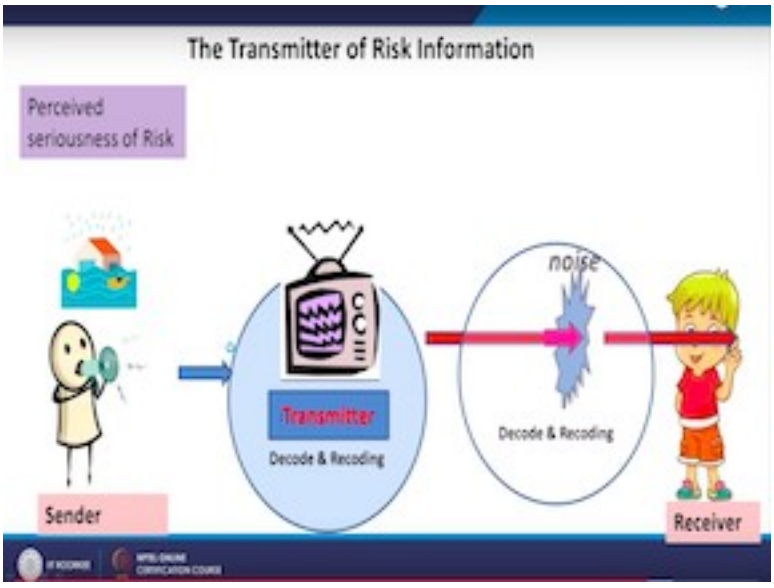
higher risk and believe the cause of risk okay, is it unfair, equity, profit of others. So, these all factors also increases can make it people acceptable to the existence of the risk and understanding the probabilities.

(Refer Slide Time: 25:13)



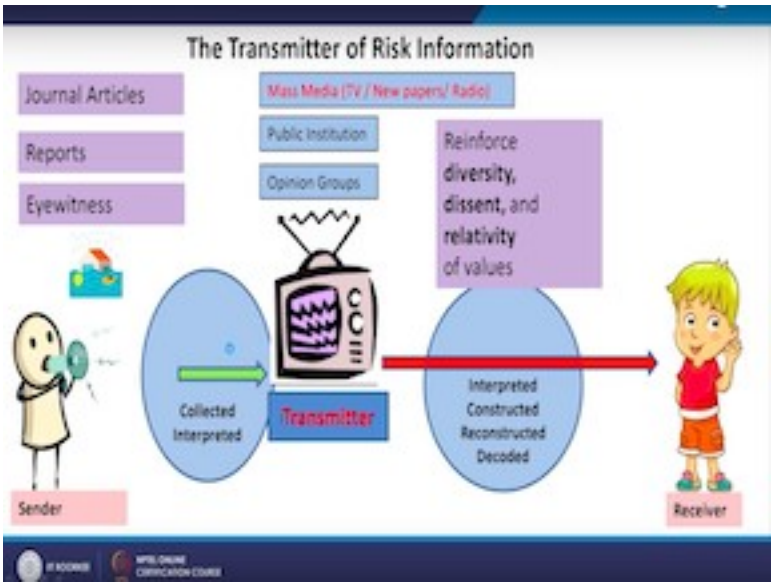
Okay, alike availability, events that come to people's mind immediately they can imagine it okay, high and less mentally available or representativeness, singular events that they experience not exactly the same.

(Refer Slide Time: 25:32)



But similar kind of and these are considered to be more risky by the people. Now, the transmitter of risk information, that how the sender is that the transmitter is collecting the informations from the senders and the perceived seriousness of the risk okay.

(Refer Slide Time: 25:52)



Now, this mass media public institutions and opinion groups and they are collecting data from the senders through journal articles from report, eyewitness okay and they are collecting and then they are passing it to the receivers. So in this process, they are collecting and interpreting and then when they are passing it to the people they are also interpreting, constructing, reconstructing and decoding and then they are sending it to the people.

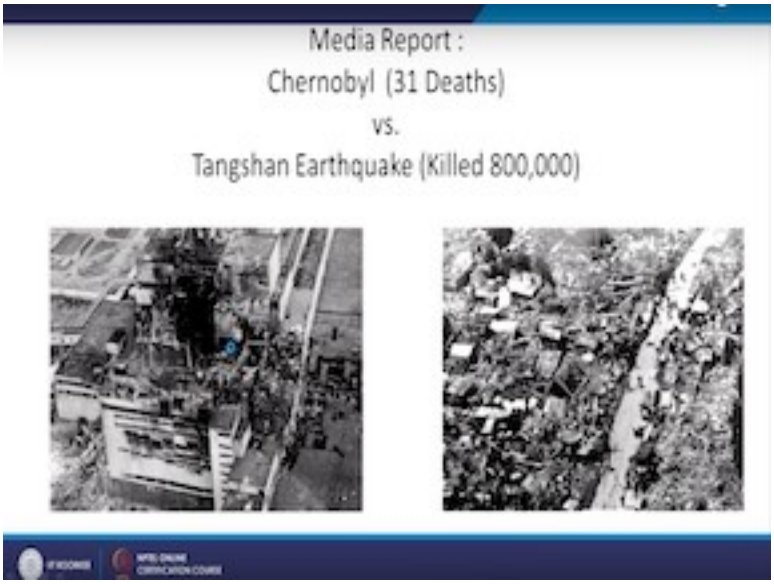
So, they are actually transmitter play a very critical role in deciding, reinforcing and amplifying the value of the risk.

(Refer Slide Time: 26:35)

Like, all disasters are not reported by the mass media, the nature and magnitude of the original hazards are only minor interest for most of the transmitter, most of the mass media. Do you think, that volume of news that depends on number of victims? No! Number of victims and volume of news that they have no correlations. Neither, it is on expected number of fatalities, okay.

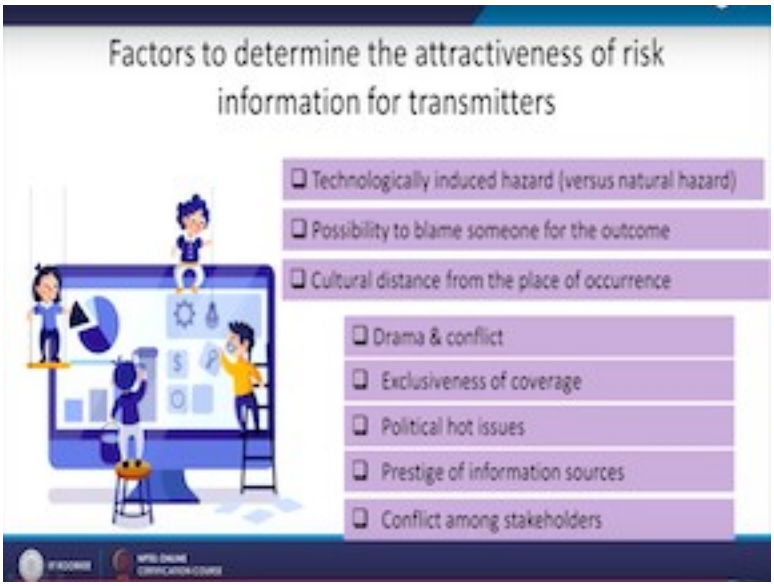
The focus is generally for the mass media transmitter on the hazards that are relatively serious and relatively rare.

(Refer Slide Time: 27:14)



For example, a very good example like Chernobyl okay, that killed only 31 deaths and Tangshan earthquake at the same time and same year killed 800,000 people but compared to Chernobyl the media coverage of Tangshan earthquake is nothing, was nothing.

(Refer Slide Time: 27:38)

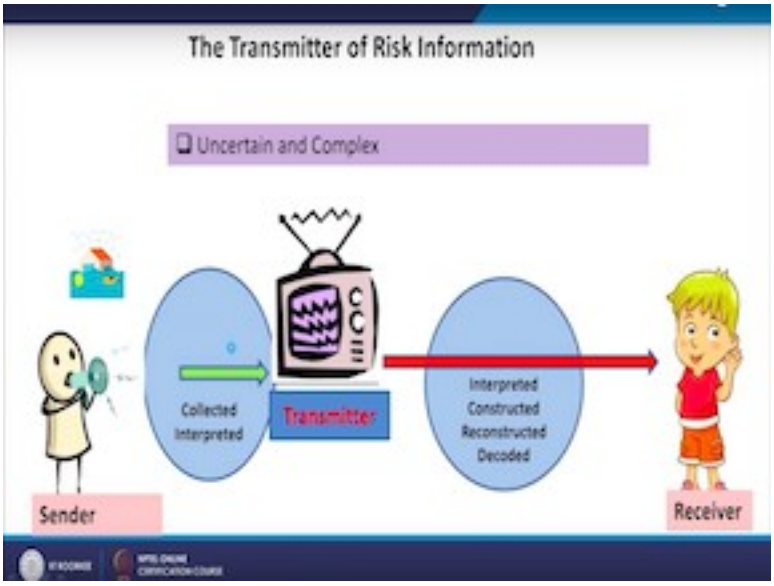


So, factors that determine transmitter attractiveness to pass report risk informations or risk news is, if it is technologically induced hazard then compared to natural hazards they will report more possibility to blame someone that it is this risk, people are at risk because of someone then they are more interested, cultural distance from the place of occurrence people never experience this one.

The disaster is happening in an very different cultural settings in it faraway place or if there is a drama and conflict exclusiveness of coverage, very unique report where no one reported before or politically hot issues which is going on right now. And also, prestige of informations. Like, it was collected from very secret sources but with a lot of rigorous process then the transmitter particularly the mass media they are interested.

And when there is a conflict among different parties or stakeholders they are also very interested to transmit that news.

(Refer Slide Time: 28:51)



So, senders, they are getting information from senders interpreting and then they are reinterpreting and sending it to the people. And so, uncertain and complex process this one so, that we need to understand this simple source map source and message and receivers model how what are the challenge and barriers are there. So thank you very much.