Reduce the underlying risk factors; and it is not just a story of a building which is prone to the hazard, it also we have to talk about the environmental management, how a larger sector can reduce the risks related to natural disaster because it is all a chicken-and-egg story you know something happens here, something happens big, something happens big it happens it affects the small thing.

We talk about the climate change, is there a relationship between climate change adaptation and the disaster risk reduction.

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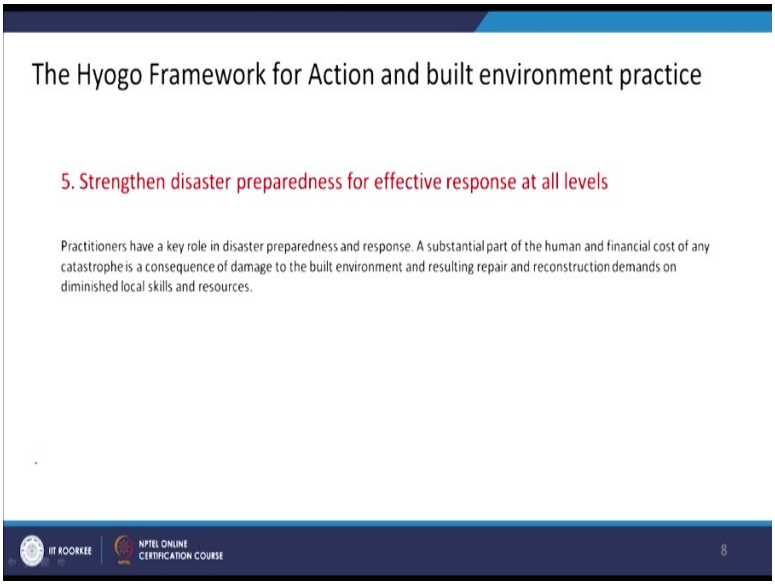

So, the fifth principle, strengthen disaster preparedness for effective response at all levels. So, practitioners have a key role in disaster preparedness and response, and it also has to outlay the human and financial cost of any catastrophe and what kind of repair and the reconstruction is going to cost and how to procure the local skills, how to procure the resources, so all these things fall within there.

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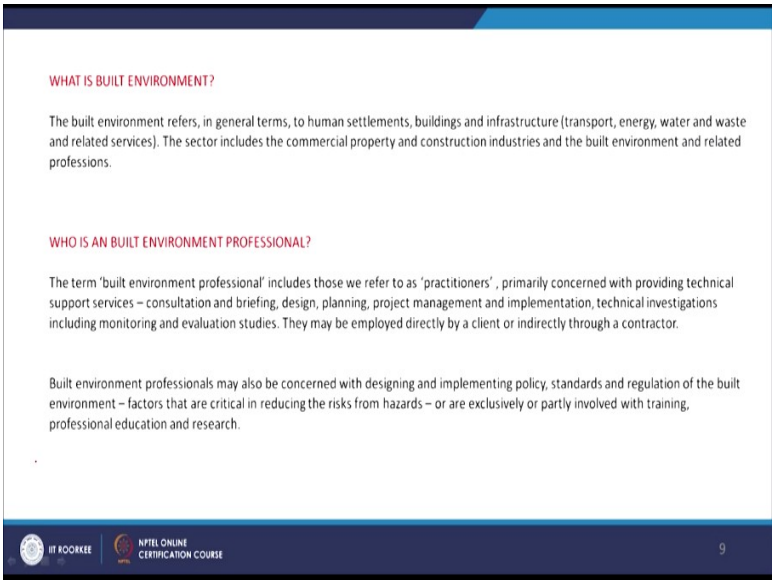

When we talk about the built environment, the guide describes the built environment which refers in general terms to human settlements, building and infrastructure, transport, energy water, and waste and related services and it also includes the commercial property and construction industries and the built environment and the related professions.

So, when we talk about the professional, who is a professional, the term built environment professional includes those we refer to as practitioners primarily concerned with providing technical support services, consultation and briefing, design, planning, project management, and implementation. Also, someone who can investigate the technical failures including monitoring and evaluation studies.

They may be employed directly by a client or indirectly through a contractor. So, apart from this monitoring and assessments, they also are very much concerned with the designing and implementing the policies, standards, codes and the regulatory frameworks which have a crucial influence on reducing the risks from the hazards and apart from the dissemination part how this built environment practitioners, how they disseminate the knowledge with the training and the professional education and the research.

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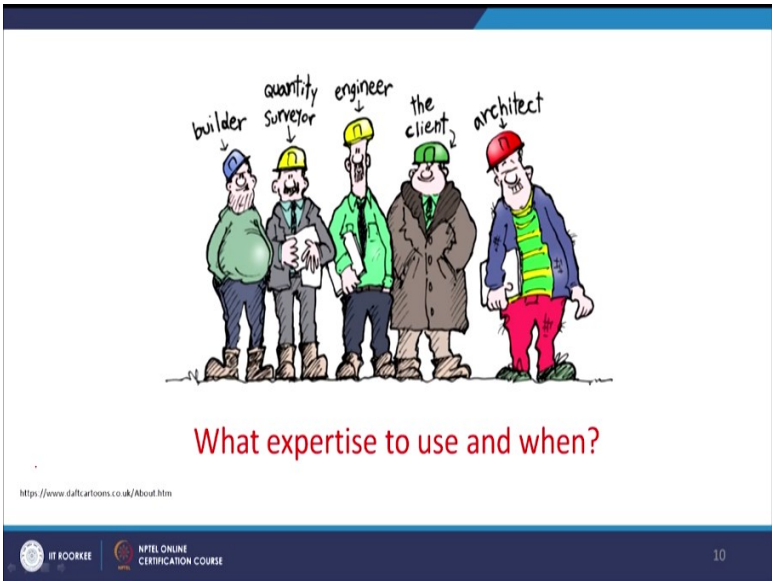

So, we have a set of expertise, the surveyors, the engineers, the architects, of course in the architectural profession, we have another one the builder and the client, but in a disaster context it varies with the context in the context. So, the main question is what expertise to use and when. This is a very fundamental question which this whole guide talks about. So, for this, the team has understood that how one can look at the process of understanding the disaster management.

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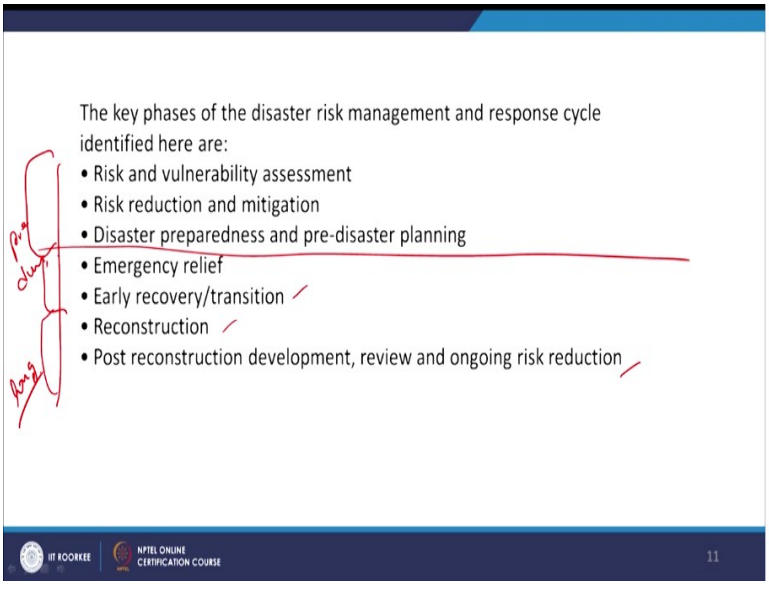

They have identified the 7 phases; one is the risk and vulnerability assessment, risk reduction and mitigation, disaster preparedness and pre-disaster planning, emergency relief, early recovery and transition, reconstruction, post-reconstruction development, review and ongoing reduction. So, we are talking from that is where we draw a line, so this is more of pre and then during and then a long-term.

So, this is how they looked at the process of before disaster, during disaster and the post-disaster. So, in that process they have classified.

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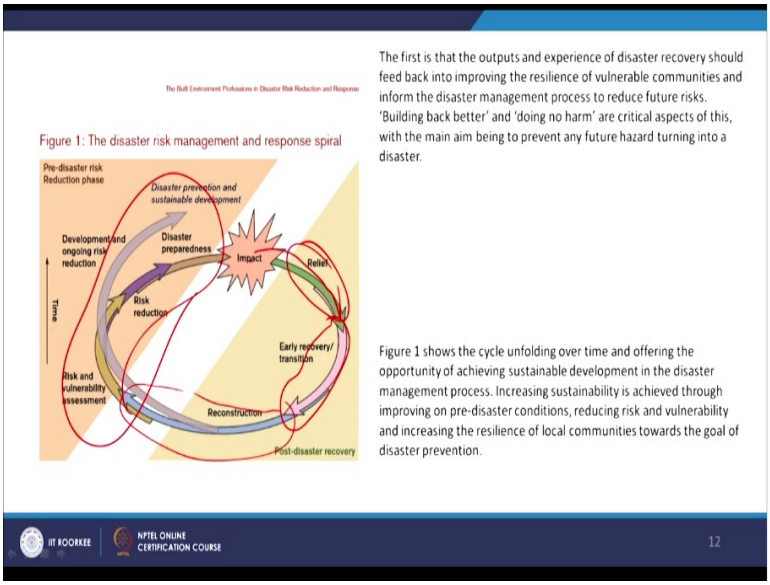

So, a framework have been understood a conceptual understanding how a disaster risk management and response spiral from the impact, you have the relief which happens only for a few days like providing you know securing them, clearing the debris and water, food you know for the immediate, as immediate response and then gradually how they secure the livelihoods or how they get on to their works or how they can provide some temporary early recovery in transition.

And one can look at the reconstruction phase, and that is where when we talk about, when we are talking about this, we have to understand that you know how we can integrate the sustainable development and that is where one has to look at the disaster prevention and the sustainable development. So, there is you have to create that because this might repeat again because the same incident might occur again and again at the same place.

So, how one can understand this and how can plan for it so that you can reduce these risks later. So, that is where one will try to you know improve the resilience of vulnerable communities and inform the disaster management process to reduce the further risks. So, here the cycle actually shows the unfolding over time and offer the opportunity of achieving sustainable development in the disaster management process.

So, it talks about if you want to achieve the sustainable development, you need to understand that pre-disaster conditions which can reduce the risk and vulnerability and increase the capacity, the resilience of local communities to a goal of disaster prevention. So, that is where your training, all the capacity building will focus so that it can actually help the communities further.

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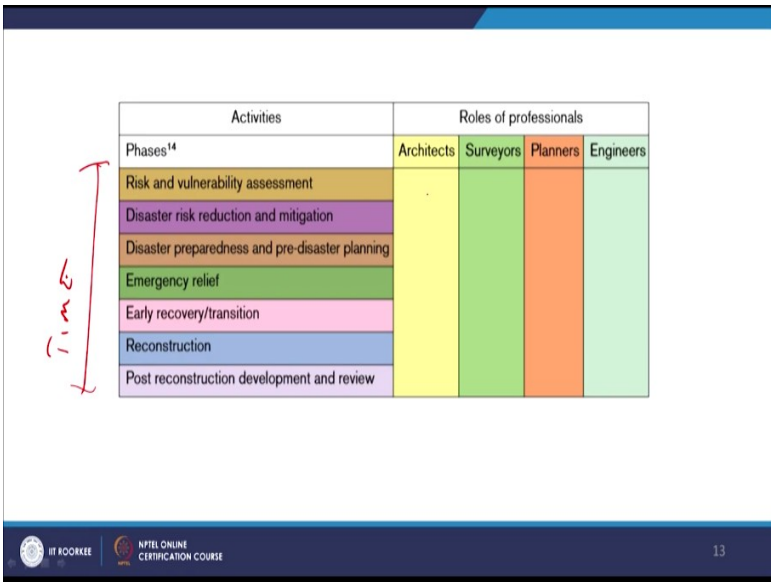

So, this is how all these 7 phases have been listed out by time and then 4 different professionals, architects, surveyors, planners, engineers. This is a kind of framework which they try to describe the whole guide. Now, let us say a few activities.

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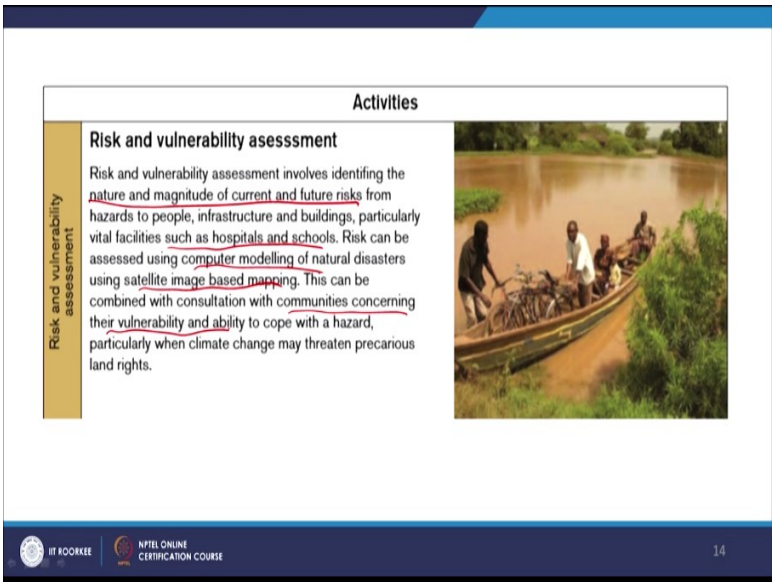

What are the activities that include in the risk and vulnerability assessment? It can talk about the nature and magnitude of current and future risks. Are we predicting any earthquakes, are

we predicting a Tsunami, are we predicting a landslide in this process, which are the areas which are landslide prone and in that process, where you can procure you know where we can actually facilitate them like hospitals, schools.

And how different techniques could be used in using computer modelling, satellite image GIS techniques, and it could be also the participatory the communities knowledge and how their knowledge on the vulnerability and the ability to cope. So, all these things will come under within the risk and vulnerability assessment.

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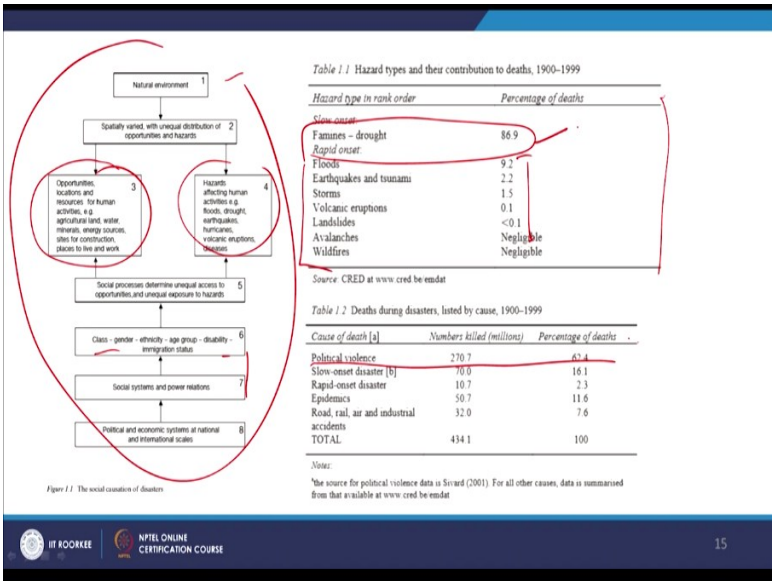

If you look at the social causation of the disasters, God has given as a natural environment and then if you look at how this environment has been distributed, it is distributed, it is spatially varied; it is unequal distribution of opportunities and hazards. In South America, they have rich gold mines, but they have again some disaster affected areas. Similarly, in some other part of the country, they do not have anything, but they have very less resources.

So, there are obviously talks about their good opportunities and the hazards, and then this social process determines unequal access like for example even the gender and Tsunami recovery time you have noticed that many of the women have died because they are unable to swim. It may be a different case if it has affected in a different part of the Western continent because the women they know how to swim; they are taught in the school.

If you do the same thing in Saudi because there is a huge in the Middle East, so they have the skill difference is so huge because women have certain restrictions. So, in that way, it

obviously talks about different opportunities, different access to certain resources, different class, different gender and the disability. What about the disabled people? The refugee, immigration status and what kind of facilities we provide and not.

The social systems and the power relationships and the political and economic systems at the national and international scale. So, this whole chart talks about how different dimensions contribute to the risks. If you are talking about the statistical aspect, if you look at this particular table from the CRED Center for research in Epidemiology Disasters, you will see that the famines, these are the slow onset and the rapid onset.

The famine which is a drought is 86.9% deaths whereas what you see the rapid onset disaster is very negligible. Similarly, you can see the deaths of the political violence is 270 millions and 62.4% which talks, this is what the data talks about.

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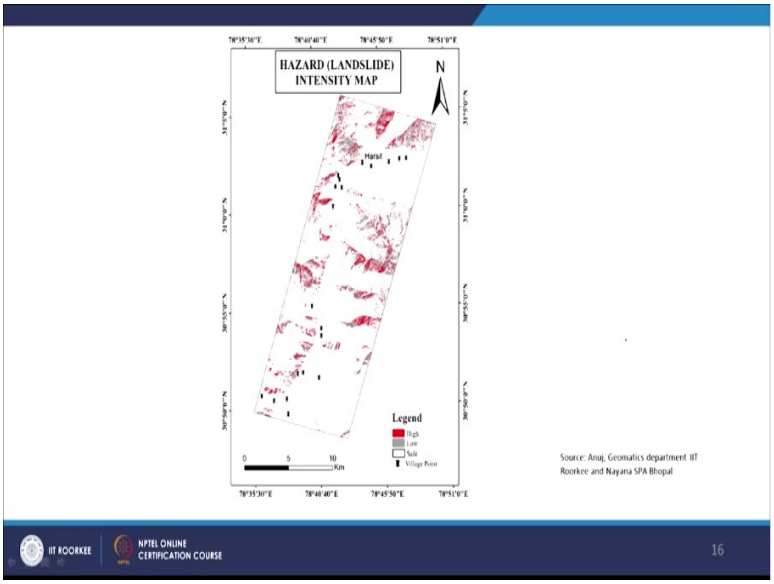

And now there has been advancement in the tools, how a surveyor can naturally do and the geomatics people can develop the hazard mapping, the landside prone area, this is a map developed from my Ph.D student, assistance from the Geometrics Department.

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