

**Disaster Recovery and Build Back Better**  
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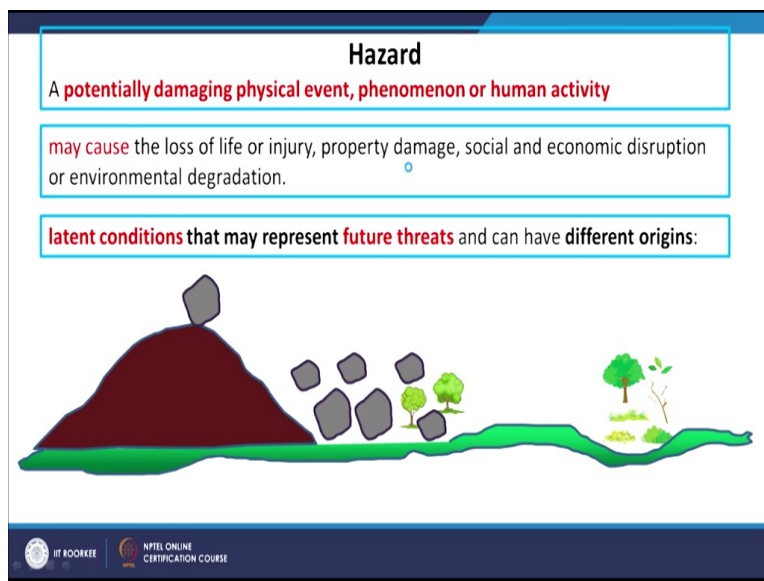
**Lecture - 08**  
**Disaster Vulnerability**

Hello, hi everyone. This series we are talking on disaster recovery and build back better and you are welcome. This lecture, we will talk on disaster vulnerability, some concepts. I am Subhajyoti Samaddar from the DPRI Disaster Prevention Research Institute, Kyoto University, Japan. Let us look here. For very very long time, disaster was taught, considered that is only a physical event.

If this physical event is bigger, disaster is also big. If this physical event is small, disaster is also small. If this physical event is not there, nobody could expect a disaster. So, as simple the bigger the physical event, the bigger the disaster and the disaster we are facing because of natural and physical events or acts, so it was the focus was much on engineering or technocratic solutions to manage disaster.

But we already know that even this stone coming from this mountain to these foothills, nothing will happen and we are not worried about it. Why?

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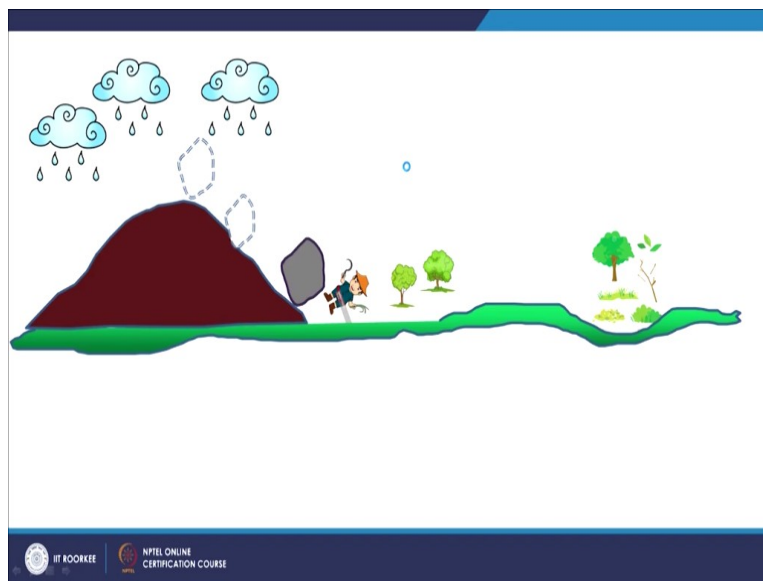


The simple reason is this is just simply a hazard which is potential to cause some effect. It is just a physical, this stone is just a physical event or phenomena, or it could be some human

activity also. It may cause some effect like injury, human loss, property damage, social and economic disruptions or environmental degradations right. And it is latent, it depends on probability, it also depends on from where it is coming from, so it is latent.

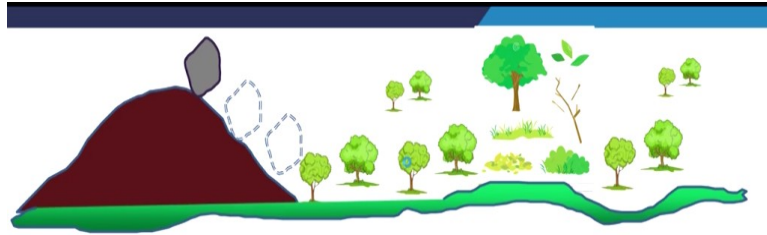
So, we do not care about this physical event phenomena until there is a human being. Like we discussed before in other lectures that if we have avalanches in Himalayas we do not care. If we have earthquake in deep sea, we do not care unless and until the Tsunami comes on Mainland. So, if this human being is not working there in the down at the foothills, then this stone is not considered to be disaster or risky right.

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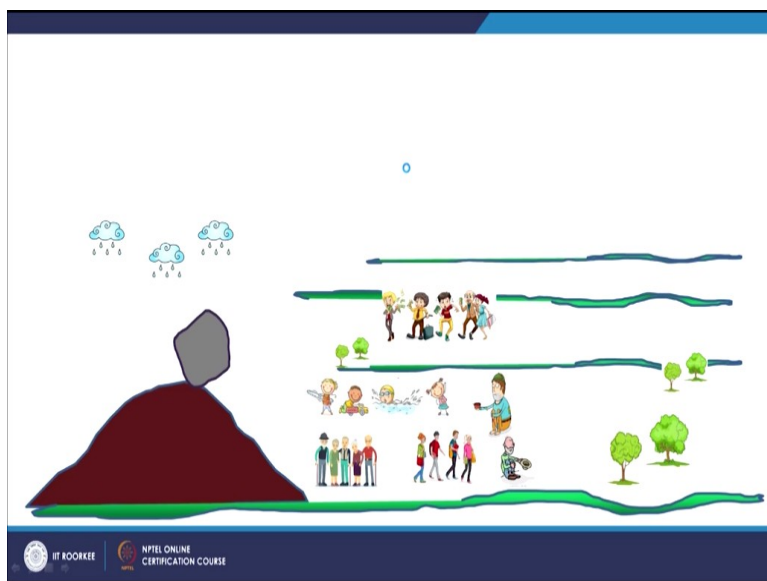
So, if there is a rain, if this human being is working, then there is a possibility that this stone will hit this person. Then, we only are concerned. So, this person is exposed to that kind of hazard, and that is why we have concern to manage that particular disaster or particular disaster risk right.

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If it is like that where he is not here, he is not working, no human being, only forest, then we do not care about it, we do not consider it as risky. It cannot cause any human loss or human effect. That is as simple as.

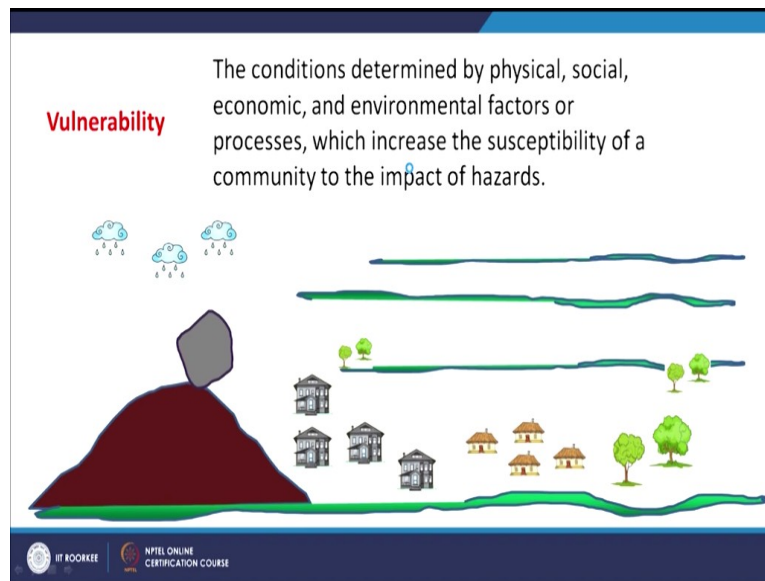
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Now, it is not that how many people are exposed, but it also depends that who are they, what are their characteristics, are the young, are they old, are they kid, are they poor, are they rich. So, their human characteristics also matter when we are talking about disaster risk right. If they are poor than rich, they are more vulnerable than rich. If they are old senior citizen, they are more vulnerable than young people.

If they are kids, they are also vulnerable than other common people, so the characteristics of these people that matter right.

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Also, it matters that what kind of settlements, who are, how their buildings are there, it is a kutcha house, pucca house, wooden house, stilt house, concrete house. So, these characteristics of the buildings and population, they do matter, that how and what extents this stone can actually affect this place. This could be human loss; it could be other socio-economic loss or property damage right.

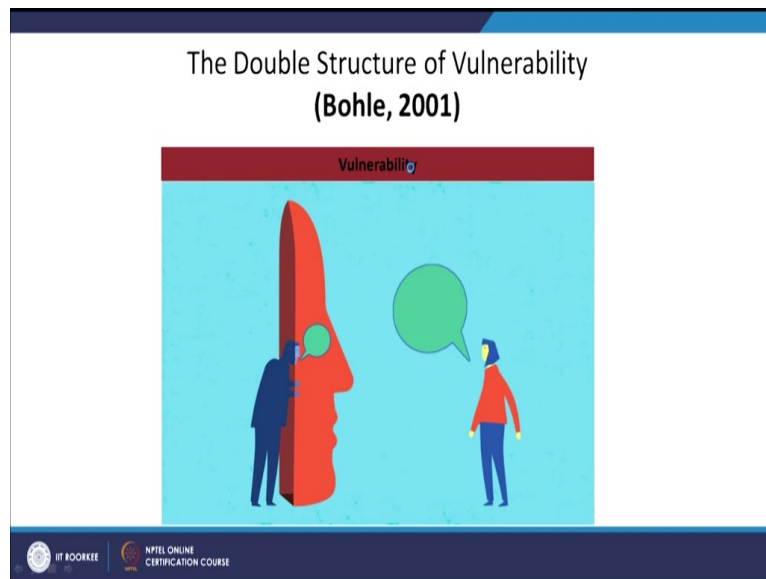
So, vulnerability is that a condition that determined by physical, social, economic environmental factors or process which increases at what extent. This particular object that is exposed to a particular hazard will be impacted. If I kick someone, then somebody can resist it, somebody cannot resist it because he is weak. So, even though I can force someone, I can just kick someone, but it impact depends not only on my capacity but also whom I am kicking.

Somebody can resist that one, somebody cannot resist that one, it depends on their characteristics also. So, if I am hit by an earthquake, it depends on my capacity, on my conditions, my characteristics that how I can resist the shock. So, disaster risk is we already know, is already agreed decisions that it is the 3 critical components.

One is the hazard; of course, that should be there, a latent physical event that may cause some potential damage, also the exposure; some people and settlements should be exposed to that hazard, and the vulnerability; the conditions and the characteristics of the people or the

settlements they are exposed to that hazard. So, disaster in general is considered to be the function of these 3 components as it is very clear.

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Now when we are talking about disaster vulnerability, this is nothing a new concept. For last two decades, it has been discussed at a length, but the problem is to put this idea into practice or to improve disaster risk management strategies or disaster risk reduction strategies and policies. We need to know clearly what is the meaning of disaster vulnerability, what kind of characteristics would define disaster vulnerability.

So far, we have so many definitions are there. We have very rarely agreed to reach any consensus decisions. So, scientists, practitioners, planners, they have different opinion about the definition of disaster vulnerability, its indicators, its parameters. So, therefore, it is critical to look into some of the critical, theoretical aspect, conceptual aspect of disaster vulnerability that how they are defining disaster vulnerability.

Here, in this lecture, we will focus on these two such prominent early theories or concepts on disaster vulnerability. The first one is the double structure of vulnerability. It is by Bohle in 2001. So, they are looking disaster vulnerability from 2 aspects. They are saying disaster, not disaster vulnerability only but, vulnerability is there is a two components, two important components are there.

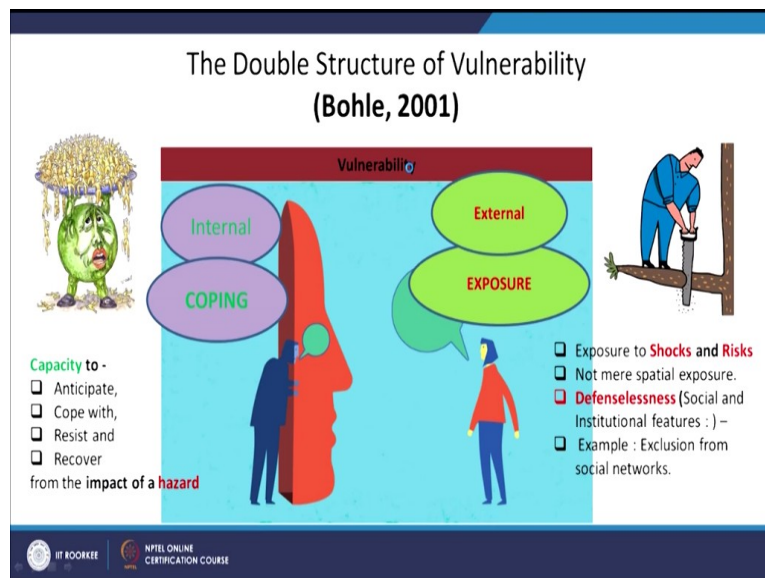
One is internal component, another one is external component when we are talking about someone's vulnerability. What is the internal component? Internal component is the coping

component,, and then what is the coping component? It is actually my capacity that how I can resist bounce back or can absorb the shock of a particular event. So, my capacity to anticipate that something will come, something will happen and to cope with.

If something will happen, what extent I can overcome that problem, that risk or that danger and how I can absorb the shock, the resist. If something happened, I can resist what extent. Like poor people, they cannot resist financially, but maybe rich people can resist. If someone's shop, a very rich person has a business, it is affected by disaster, he can easily recover from that because he has greater capital.

That a person who depends on agriculture or maybe a landless labor, after the disaster, he is not affected, but also it is very difficult for him to bounce back because he has no money or maybe a small shop owner. Once his house or his shop is affected by disaster, it takes a long time for him to run the business again because he has very little money. So, how I can resist that one also or recover that one also matter.

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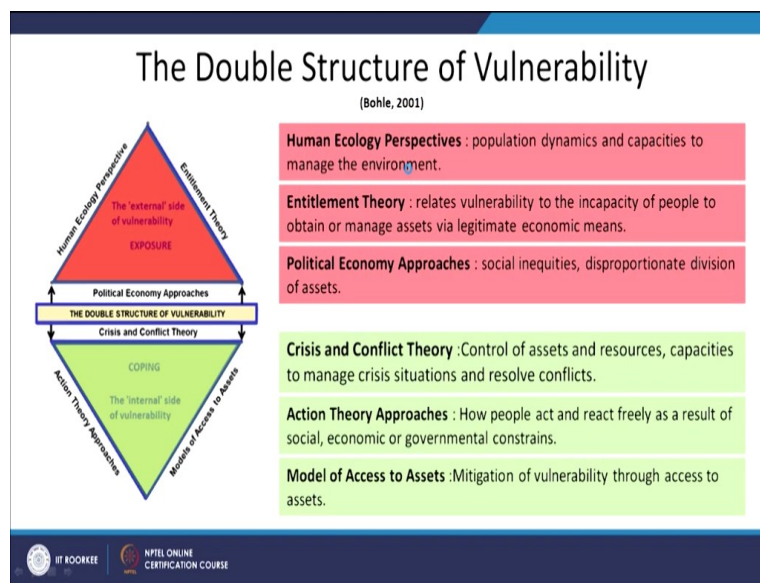


So, this is my capacity to anticipate, cope with, resist and recover from the impact of hazard is the defining idea of coping, and this is my internal, this depends on individual internal characteristics or communities own characteristics. It is not an exogenous variable, but there is also, so these components are much in someone's hands, in a group's hands or communities they can control this one.

On the other hand, we have external one which we cannot less control, is an exogenous variable. What are they? External variables is considered in this double structure of vulnerability as exposure. So, exposure to what, some shock or some events like it depends on what kind of shocks, is it natural phenomena or some epidemics or not merely a kind of special exposure but how defenseless like I am for that one.

It also defined the social and institutional structure, features of that one that also bring individuals in a particular exposure of threat and like if I am an outcast, I have less networks, it actually increase my exposure to a hazard, to a threat, to a risk.

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So, double structure of vulnerability, two components; one is the exposure one and this exposure one according to Bohle that we can understand this exposure context from 3 different dimensions. One is human ecological perspective, population dynamics, capacity to manage the environment, population growth, and how human ecology is looking at population growth and the capacity to manage the environment.

And also the entitlement theory, the capacity theory and that the people have for control and to get to secure the means of their economic needs. And also the political-economic approach like the question of inequalities or disparities of assets, the power structures. So, these issues, these approaches should be considered when we are talking about exposure.

Well to understand people's coping, we can also borrow the ideas from crisis and conflict kind of studies, who have the access to assets and resources and how it matter of conflict

between individuals and groups or maybe sometimes action theory approaches, how people act, react frequently as a result of social-economic and governmental constraints and model access to assets like a mitigation of vulnerability through access.

So, these approaches can help us to understand the coping characteristics or internal characteristics of people to respond vulnerability.

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## The Sustainable Livelihood Framework

Figure 1. Sustainable livelihoods framework

**Key**  
H = Human Capital    S = Social Capital  
H = Human Capital    R = Natural Capital    P = Physical Capital  
F = Financial Capital

- Original concept developed by – **Chambers and Conway (1992)**

**DFID** Department for International Development

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There is another more prominent and very popular conceptual idea of vulnerability is the sustainable livelihood framework. It is not really on vulnerability, but they are one of the pioneering approach that define and quoted the vulnerability and which was now very regularly used in disaster risk and other risk management. So, this idea came originally developed by famous person Robert Chambers and Conway in 1992, quite long back.


Well, they are talking about poverty issues and livelihood issues and which was this model was later on adopted by the DFID Department for international development.

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## Focus

- ❑ Designed to understand and analyze **poor people's livelihoods**.
- ❑ **People at the center** of the development.
- ❑ **Vulnerability** is viewed as shocks, trends and seasonality and the influence of the transforming structures for livelihood strategies and their outcomes.
- ❑ Two Major Components – “**Sustainability**” and “**Livelihood**”
- ❑ **Livelihood = Sustainable** :
  - Resilient in the face of external shocks and stresses,
  - Not Depend upon external support,
  - Maintain long-term productivity of natural resources,
  - Not undermine the livelihood option of others.

Their focus is like one poor person and their livelihood. When they are talking about vulnerability, it did not come from, did not come from the disaster perspective, but they are talking defining poor people and their livelihood in case of development and people at the center of their model. People should be put into the center of the development and vulnerability is considered as a kind of shock or a kind of trend or seasonality that influence the capacity of the people to maintain their livelihood.

So, vulnerability is directly connected with people's livelihood and their capacity to manage their livelihood basically. And two major components here, one is the sustainability, and livelihood. So, a livelihood becomes sustainable in different conditions or a livelihood should be considered as sustainable. When? Let us look.

When it is resilient to face any kind of external shocks like natural disasters or epidemics that they can absorb this shock, they can bounce back, they will not finish. Then, one can say that this livelihood or these people are not at risk, they are not vulnerable. Also, someone's livelihood should not depend on external agencies, external support.

If we are talking about a village community, there should be self-dependent, not independent, not depend to external people. Then, we call it as sustainable. Also, we should not consider from very short-term, but we would see that how resilient this livelihood in long-term basis, long-term perspective and not undermine that in order to maintain my own livelihood I am not wasting, I am not harming others livelihood options or choices.

So, according to this model, people are actually operating, you know they are working in a context of vulnerability. What is the context of vulnerability? So, vulnerability context is defined with 3 characteristics that people are at vulnerable because shock, trends, and seasonality.


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People operating in the 'Context of Vulnerability'



Vulnerability Context

- Shocks
- Trends
- Seasonality

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Vulnerability context Impacts people assets and livelihood options. They are interlinked .

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## Vulnerability Context

**Shocks**



- Natural Shocks (Floods, droughts, cyclones)
- Health Shocks ( Epidemic )
- Economic Shocks
- Deaths in the family
- Violence or civil unrest

**Seasonality ( seasonal shift in )**

- Price
- Production
- Food availability
- Employment opportunity

**Trends and changes**

- Population
- Environmental change
- Technology
- Markets and trade
- Globalisation
- Governenance and politics

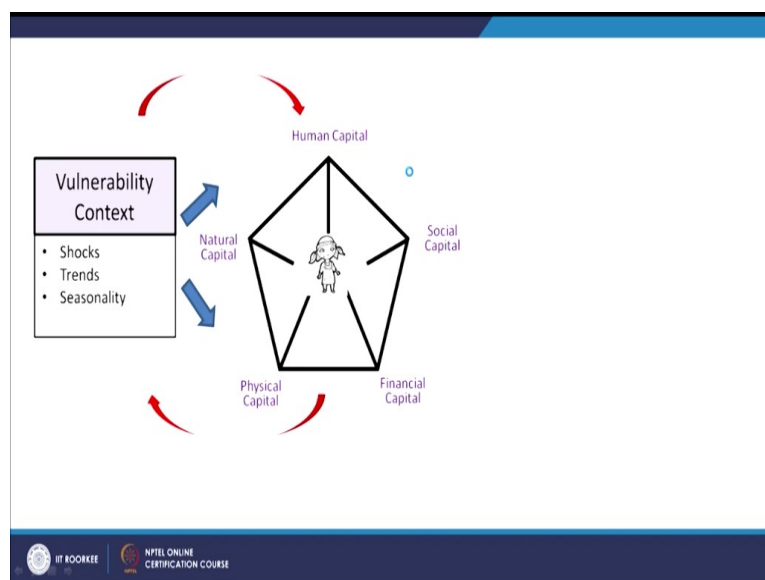
So what are the shocks? One is the natural shocks like flood, drought, and cyclone. And health shocks like epidemic like cholera or even dengue let us say, or economic shocks like some financial recessions or maybe death in the family for a household or maybe violence like civil war in case of Syria or in many other countries in case of Sri Lanka when they were in civil war or in case of Bosnia.

So, people who are at civil war that really put the individuals as a vulnerable and violence and civil unrest. These are all considered to be shocks that are increasing that under which people are living in a vulnerable context. Another one is the seasonality and seasonal shift in price like the price of the crops of the food for the agricultural labor or the productions because of production is low or high, because of climate change maybe the production is not so high this year.

Or maybe the food availability or employment opportunity, how many days I have employment opportunity in a particular season, maybe in winter I do not have any job in as agricultural labor because nobody is harvesting this time and we have better job during rainy days. And trends and changes like the population, if the population is increasing rapidly, then also it could be a threat or putting people into vulnerable context.

Also, in case of some countries like in case of Japan or in case of many European countries, there is a question about the populations. There are only few people, young people in any community. So, it can also increase the vulnerability of that community. Environmental change or some technological changes, market and trades, globalization, and government and policies like some governments are stable, some governments are not stable. So, if the political situation is in a turmoil that will of course increase people's vulnerability.

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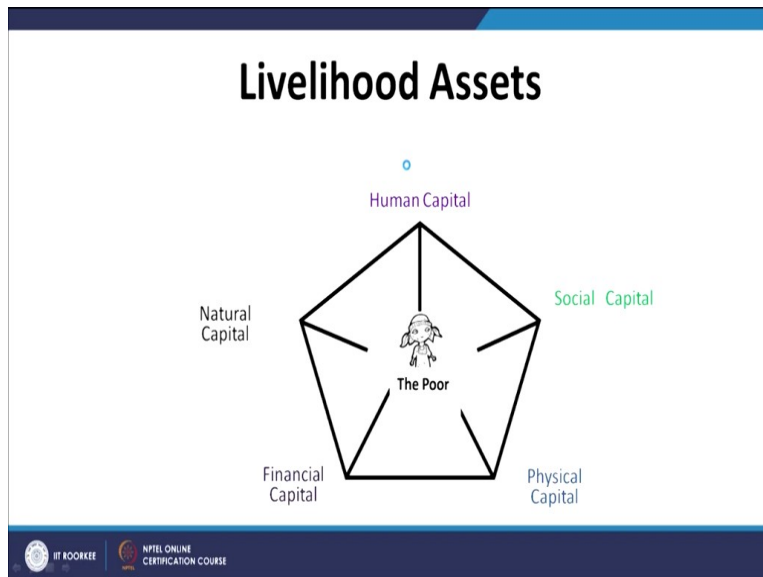


So, 3 conditions are important to define people's direct vulnerable context. One is the shock, trend and seasonality. Now, this vulnerability context actually, this is the poor people and is affecting their household capacity or their own individual capacity. So, they have actually

different kind of capitals or capacities. One is a human capital, social capital, financial capital and physical capital.

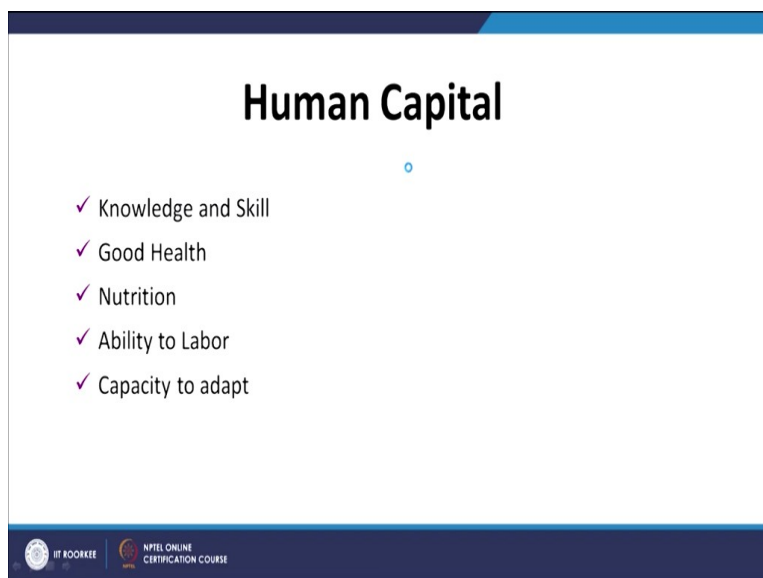
So, now they both are interlinked, vulnerability, and capital. And also capital define that how and what extent they are vulnerable to particular shock.

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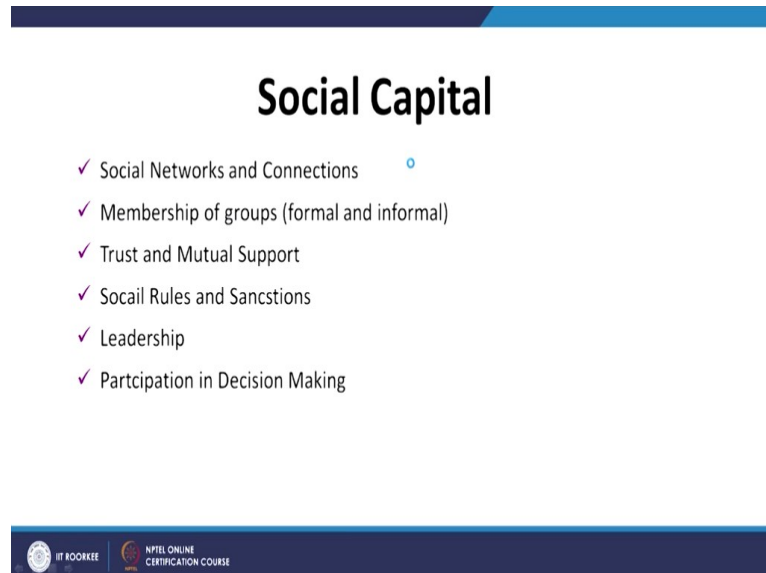
So, how one look into these livelihood assets or capitals? Livelihood assets we say that there are 5 capitals; human capital, social capital, physical capital, financial capital, and natural capital.

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And human capital; knowledge and skill like education or good health I am capable person, nutrition I am getting enough food, nutritious food, ability to labor I can work, I can give my labor, capacity to adapt, in any situation, I can adapt culturally.

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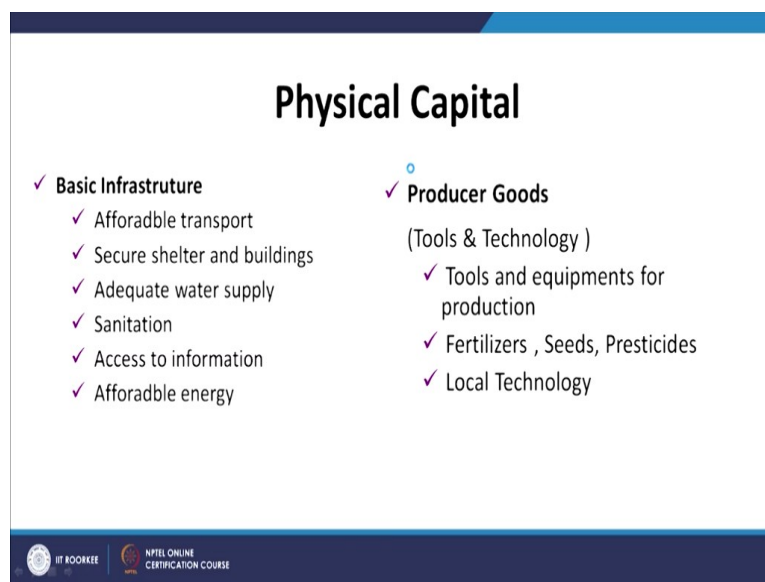
And social capital, of course my network, network works very well, my human networks, connections with each other or membership in a group, formal and informal. Like I can go to some club or maybe in a puja or in so any kind of formal and informal relationship defines my social capital. If I am outcasted, I am not included in any particular group then I feel that I am isolated; I have less capacity to absorb the shocks or absorb the threat.

And trust and mutual support, during emergency situations or any situations, we need to cooperate with each other and we need to trust each other because trust minimize the uncertainty so trust and mutual support between individuals in a group is very important and this is one of the social capital, and also it depends on the social capital, the rules and sanctions, social norms are there.

Some people whether the people have open access to get all the opportunities to maintain their livelihood or not. In case of very hierarchical societies, the low caste people or low-class people are restricted. Generally, their achievements are not achieved by society, so they are not given enough opportunity socially to compete with other. So, their movements, social and economic movements are restricted because of various kind of social norms which actually increase their vulnerability.

And also the leadership, a good leader is very important, so what kind of leadership quality one carries it depends on their level of vulnerability. And participations; participation in decision-making, if I have the ownership, I have the right to participate in the village decision-making process in the town neighborhood decision-making process, I can influence the decisions that is a great capacity, it has a direct impact on my vulnerability.

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And then after social capital, we have physical capital like basic infrastructures and basically it is the infrastructure of a community like a transport system or shelter or buildings, adequate water supply, sanitation, access to information. So, this defines one village, you can compare easily from one village to another village based on physical capital or affordable energy.

And the production producer goods like basically tools and technologies like tools and equipments for production, fertilizers, seeds, pesticides. This should be considered as a producer goods or local technology.

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## Financial Capital

- ✓ Affordable Stocks
  - ✓ Savings and Bank Deposits
  - ✓ Credits
  - ✓ Livestocks
  - ✓ Jewellery
- ✓ Regular Inflow of Money
  - ✓ Pensions
  - ✓ Remittance
  - ✓ Wages

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And then we have a financial capital, so what are the financial capital like affordable stocks: like some bank deposit or savings, credits, livestock, jewelry, all should be considered as affordable stocks. Regular inflow of money: like pensions, remittance, wages, these are the regular inflow of money.

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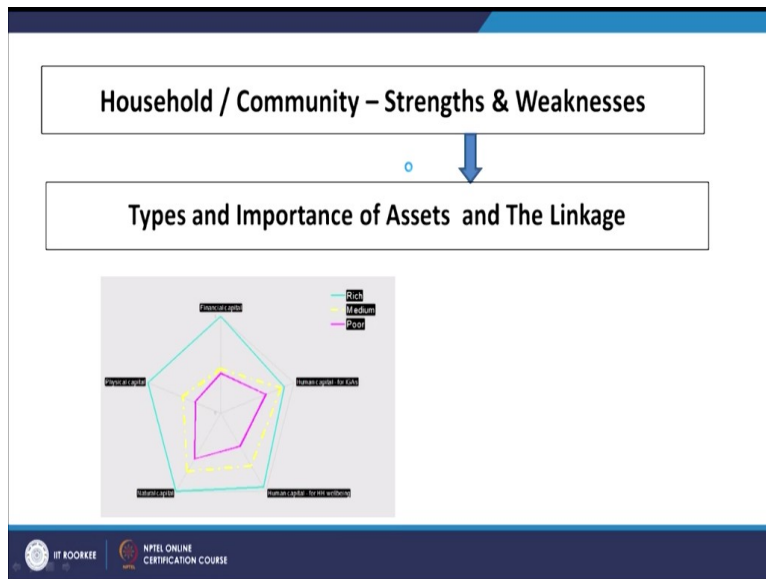
## Natural Capital

- ✓ Natural resource stocks from which resource flow and services are derived
  - ✓ Land
  - ✓ Forest
  - ✓ Marine and wild resources
  - ✓ Water and aquatic resources
  - ✓ Environmental services
  - ✓ Protection from storms and erosion

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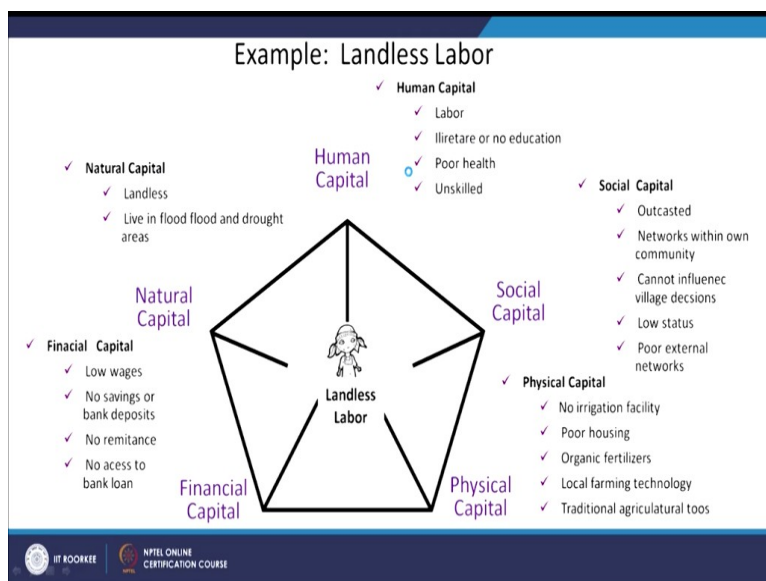
What are the natural capitals? Land, forests, marine, environmental services, so all are considered to be natural capital.

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Now, these like for example the rich people they have greater financial capital, also greater human capital whereas the poor they are very poor at financial capital, human capital and physical capital we can say.

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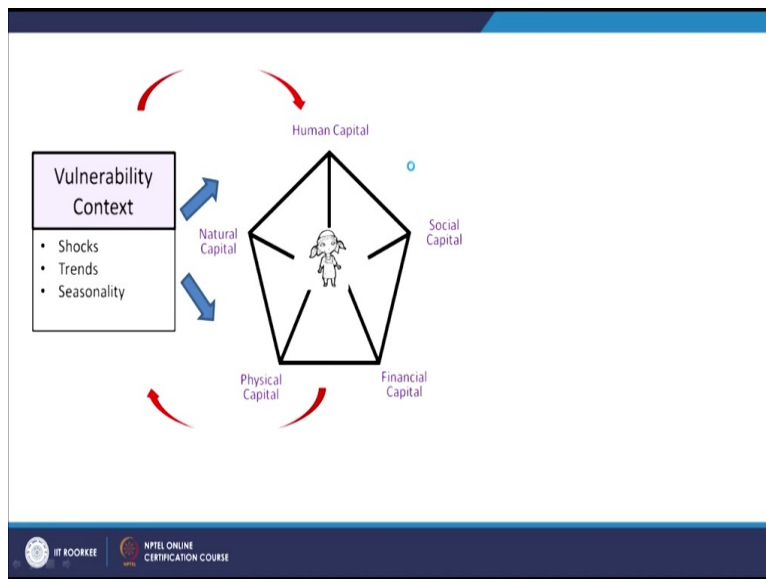
So, here is greater example of landless labour. He had human capital like labour, but he or she is illiterate or no education and poor health, unskilled and social capital generally is not but outcasted considered to be no network, network within own community, no outside and cannot influence the village decision, a labor class people, also low status she enjoys and poor external networks.

Physical capital: maybe no irrigation facility, depends on rain-fed agriculture, poor housing, and organic fertilizers only, local farming technology, traditional agricultural knowledge.



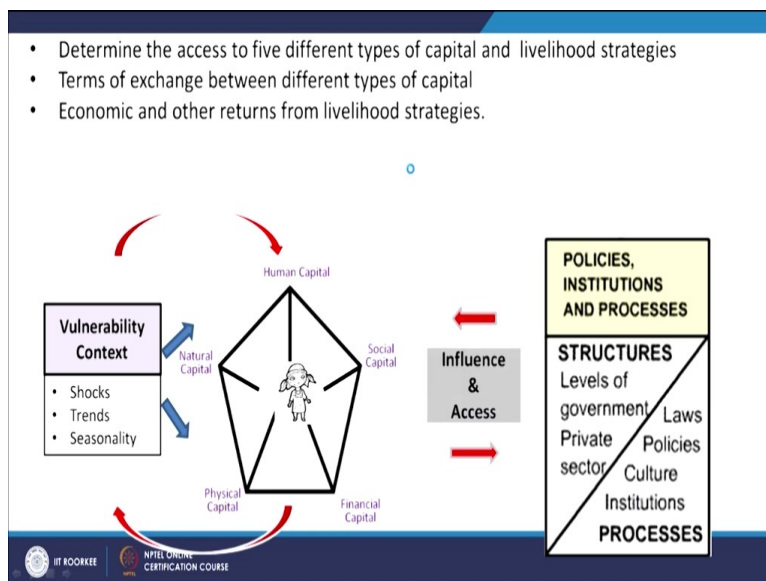
Financial capital: also like low wages, no savings and no remittance and no access to bank loans. And natural capitals: is landless, live on flood prone areas and drought areas.

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So, these all define vulnerability context and then the vulnerability context also is livelihood assets or the various kind of capital and this capital also is redefining the vulnerability.

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But these two also is influencing the policy institution and process. How? They determine the 5 access to 5 different type of capitals and terms of exchange between different types of capitals and the economic and other returns from livelihood strategies.

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## Transformation Structures and Processes

- Institutions / Organizations / Policies / Legislations
- Shaping Livelihoods
- Operating at All Levels – Household to International Arena ; Public to Private.



So, what are the transformation structure and process? One is institutional, organization, policies and legislations. And what are the shaping livelihoods and how they are operating at levels.

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## Transformation Structures and Processes

### ✓ Policies

- ✓ of Government ( Local / Regional/ Central)
- ✓ of NGOs / Donors
- ✓ of International Bodies



### ✓ Institutions

- ✓ Political / Legislative / Representative Bodies
- ✓ Executive Agencies
- ✓ Civil Societies and NGOs
- ✓ Political Parties
- ✓ Law
- ✓ Commercial Enterprises

### ✓ Processes

- ✓ Decision Making Process
- ✓ Laws, Rules, Customs, Norms
- ✓ Language
- ✓ Social Stratification ( Status, Caste and Class )

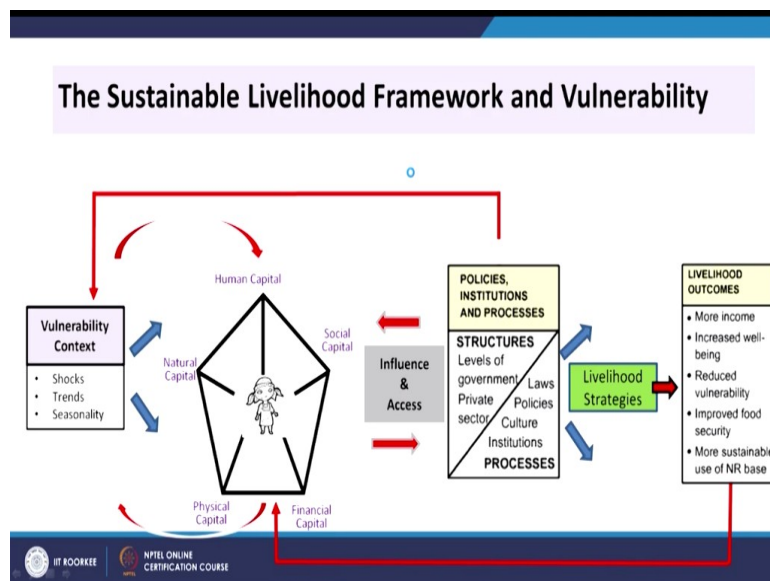


So, transformation structure and process, we call the policies, policies of the government, it could be local, regional or central government that has a great impact on human capital and vulnerabilities like policies of the NGOs, they will come here or not. International like United Nations or institutions like what are the institutions there, what are the conditions of that structure, political, administrative sectors, representative, executive agencies, civil societies and NGOs, political parties and law, commercial enterprise.

The process it depends on who are the decision-makers and how the decision, is it very democratic or not, law, customs, norms, they are strict or not, they are formal or informal, explicit or implicit, these all matter. And language; What language, are they well documented, what language is used. And social stratifications like caste system, class system, the status that all actually define this process.

So, we have vulnerability context, then it is impacting human capital vice versa, and then it is influencing the policy institutions and process.

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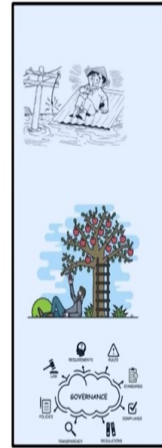


And this framework also influencing the vulnerability and also then it leads to the livelihood strategy people take, and this livelihood strategy ultimately went to livelihood outcomes. So, what is and that again actually affects people's capitals and vulnerability.

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## Livelihood Strategies

- ✓ Considering  
**Vulnerable Context**
- ✓ Using and Combining  
**Livelihood Assets and Capitals**
- ✓ Under the Influence of (Support or Obstruction)  
**Transforming Structure and Processes**



Here are the livelihood strategies people can take. One is vulnerability context and using and combining livelihood assets and capital under the influence of transforming structure and process. So, what vulnerability I am exposed to, and then what kind of capitals and what kind of governance or transforming structures I have that actually define the livelihood strategies.

And so vulnerability context actually influencing the capitals, and capital then also influencing the vulnerability context which are shock, trends and seasonality. And then these two combined are vice versa influenced by the policies, institutions and the process. So, policies, institutions, and process also directly influence the vulnerability and the capital of people and based on this framework people take livelihood strategy or they can take livelihood strategy.

And that livelihood generally have some outcome which also impacted their capitals and also again the vulnerability, so this concept is this way and thank you very much for listening. Thank you.