United Nations Sustainable Development Goals
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Lecture 4
Definition of Sustainability, Aspects of Sustainability, Transition from MDGs to SDGs

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Hello, everyone. I welcome you all to this course of United Nations Sustainable Development Goals, in Module 2. In this module, we are going to see definitions of sustainability, aspects of sustainability and transition from MDGs to SDGs.

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So, if you see the dictionary meaning of word sustainable, well, what does it mean? It is an adjective and it means the ability to be maintained at a certain rate, or level. Consuming an

ecological balance, for example, by avoiding depletion of natural resources, our fundamental commitment to sustainable development. Second definition, it talks about able to be upheld or defended sustainable definitions of good education practices or anything. So, well, the thing is, the point is able to be maintained.

So, that means whatever we have, whatever you possess, you are able to maintain it, you are able to sustain it. For example, if you are driving at certain speed per hour, if you are able to maintain that speed without any acceleration or deceleration or jerk or anything, right, so, that is a sustained velocity at which you are moving at that speed you are moving and you are going in certain direction. So, that is, that quality able to be maintained at certain rate. So, you have to maintain that rate.

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So, when this comes with the respect to the whole planet, what we are observing in the last few decades and one or two centuries and of the changes which have started occurring after industrialization.

Now, with that respect, keeping in mind, that respect this whole analysis has started. And this person in the picture over here, she was the prime minister born in 1939, Gro Harlem Bruntland, Minister, President of Norway 1983 to '87, she was the Chair of WCED. And then, well, she has occupied various positions and she has actually, kind of played active role in defining what does sustainable development means. So, in that very famous report, she mentioned to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs.

So, this was actually compelling statement, compelling premise, which spoke of what does sustainability means and how we have to take our development and growths and everything into account, to maintain the space so, that it remains there in future also. What remains there in the future and also in terms of like resources and the whole of this planet, including its living and nonliving means, in its present form, so that they continue to exist tomorrow like we are aware several species have gone extinct.

Well, many of them have occurred because of the natural progression and all of those things, but many of them for them actually responsible is the human society, this economic development, this present form of development and the impacts caused by it. So, how can that can be checked? That is the premise on which we have to work and this is what definition evolved for sustainability, by this person and many others.

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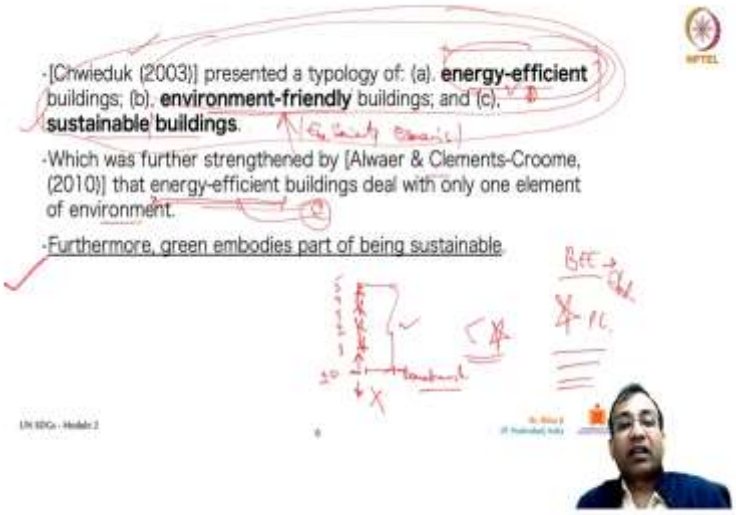

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This researcher maybe you can search them separately, presented a typology of energy efficient buildings, with respect to the buildings like architecture, civil, construction, in manufacturing those respects. Then, environment friendly buildings and sustainable buildings, will they all actually mean different. Usually, in our everyday life, we use these terms synonymously, but they are not the same, right? We have to be very cautious.

What does this actually mean? Which was further strengthened by these researcher that energy efficient buildings deal with the only one element of the environments. So, for example if it is energy efficient building, it deals directly with the saving of energy, like you see right here. Like BEE star like electrical, electronic gadgets you maybe aware of for

computing and other devices. They come with star ratings, these star ratings you may have seen electrical gadgets, household gadgets, like fridge, washing machine and air conditioners and stuff.

And then computing devices and many other like software devices. They come with certain rating, they are either 5-star, 4-star, 3-star, 2-star, 1 star. So, before getting launched into the market, they are assessed, they are evaluated and they are tested, for their efficiency and based on the benchmark, this benchmark is the scale, is that parameter from which it is if this is my 00 level, like plus minus 00 level, so from here the product should be in the positive side that it is efficient, it should definitely does not go in the negative side and definitely it should not be at 00 level, at least it should acquire at least 1 star like here, then 2 and then 3 and then 5, 5 being the maximum.

So, accordingly it achieves these number of stars and it gets like market worthy. So, this is one way of contributing to this whole phenomena by talking only about like energy. But there are multiple factors. So, if it handles environment, if it includes environment, if it takes care of the environment, it becomes environment friendly buildings.

So, energy efficiency becomes a subset of environment friendly approaches. So, of course it will take care of this, plus environment, what does environment include? The surrounding landscape, the geography, the topography, the water, the air and all of those things. The moment it goes even beyond this, this environment friendly also becomes subset of this bigger set of sustainable building.

And sustainable building, the moment this word actually comes, it is not just about the environment anymore, it is about the society and economics also. So, if your product your design, if your entity is serving to these three together, you may call it as like a sustainable building and so on. There are multiple such derivation, definitions.

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So, the ability to maintain or support a process continuously over time another very simple definition.

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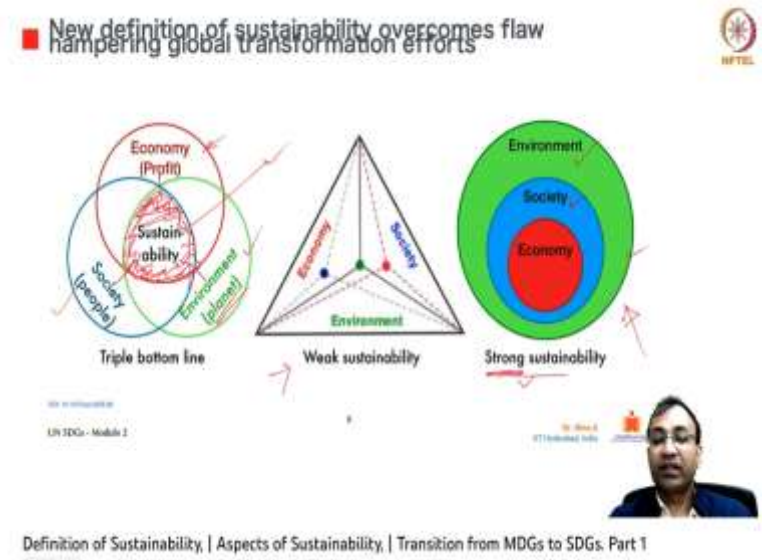

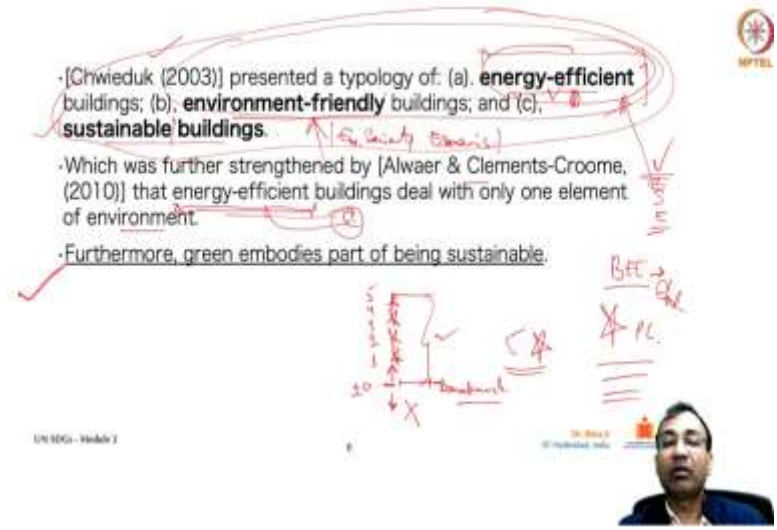

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Now, with respect to the three aspects environment, society and economics. So, here in this one you can see the new definition of sustainability overcomes flaw hampering global transformation efforts. So here we have environment, which is roughly our whole planet. Then, we have society, society includes all the people, the households, the communities, the multiple communities, and the country, maybe multiple countries at a time. So, all of this set of humans, which are existing in different pockets across the world. And then, the economy, the profitability, the demand and supply like that chain, manufacturing, disposal all of that chain actually comes under economics aspect.

And interestingly, if you see at the cusp of these three, lies the sustainability. So, if something which is serving to all of these three, you may call it as sustainable. So, it should not go into the negative, you see in this diagram, it illustrated environment is getting separated, society is getting separated, economy is getting separated and there is no common overlapping region coming together. So, that cannot be called as a sustainable one.

For example, if I go back, a gadget or a device which is energy efficient, of course it is doing something, it is good, but it is not sustainable, unless it is addressing to the social and economic dimensions also, and other environmental dimensions also. So, that is the difference. I hope it is clear now. And very strong sustainability in this scenario, where environment actually encompasses the rest of the two, where society encompasses the economics of things. So, this here you can observe strong sustainability, where this has the highest presence across all of the domains, all of the aspects.

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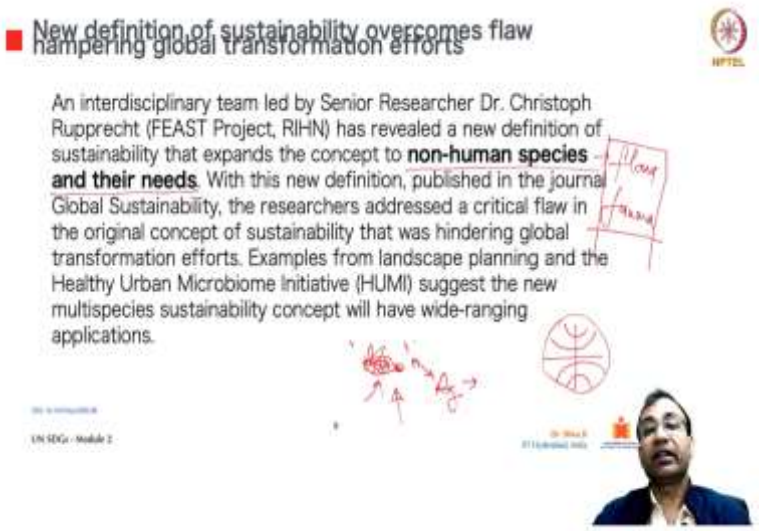

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So, under this topic an interdisciplinary team led by senior researcher, Dr. Christoph Rupprecht, FEAST Project, RIHN, has revealed a new definition of sustainability that expands the concept to non-human species and their needs. With this new definition, published in the journal Global Sustainability, the researchers addressed a critical flaw in the original concept of sustainability that was hindering global transformation efforts.

Examples from landscape planning and the Healthy Urban Microbiome Initiative suggest the new multi species sustainability concept will have wide ranging applications. So, it says the very key term used over here is non-humans species and their needs. What are non-human species and their needs? Well, rest of the flora and fauna.

So, how about their existence? Well, they are also kind of habitants of this planet, not only the humans. So, how their wellbeing, welfare is being taken care of, is the responsibility of the human species also. Well, human species is one of the advanced species where we can think and do lot of stuff. And since we have the human society is has reached into a commanding position on this planet. So, of course, they have this responsibility, they cannot leave all of the other species behind, because there is a very integral relationship between our existence and their existence.

We know very small creature of these like honeybees and their existence they are so much crucial for human society and the whole of the agriculture, or the pollination. So, coming down to each and every aspect if you see, their existence is immensely crucial, it is just important, it is crucial, it kind of it is deciding factor, that our agriculture is going to continue

in future or not. It depends on their existence also. So, this is the direct interconnectedness, direct relationship, direct dependence. So, other non-human species also must be taken care of, and this is what this means from this approach under sustainability over here.

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The team of 19 researchers identified a contradiction at the core of sustainability. Its resource management approach ignores that the well-being and needs of all living beings is interdependent in ecologically complex ways. To overcome this critical flaw, they combined recent advances and multi species ethnography with research by indigenous scholars and insights from cybernetics.

Based on this work, the team formulated a set of six principles and a new concept of multi species sustainability defined as meeting the interdependent needs of all species while enhancing the ability of future generations of all species to meet their own needs. The researchers then showcased potential applications that help enable human wild life co-existence and radically rethink urban greenspace design based on recent microbiome and public health insights.

So, very important points coming over here like how if you see, rethink urban greenspace designed based on recent microbiome and public health insights. So, all these important keyword are important. New concept of multi species (())(14:15). Again, this is being reiterated over here and now we are coming into the smaller finer points, for example microbiome.

Well, what is microbiome? Microbiome is that small cusp in which multiple interactions of different elements, species, and things happen. And they actually get nourishment, and they nourish each other also, they help other species also to survive. For example, in the food chain, we are all aware, the predators come at the top. But it does not mean the species which are at the bottom, they are not important, and only the predator is the important.

So, and another one predator is not important, only the large volume these not predating species is only important. Well, none of these two statements are, can take place in isolation, both are interdependent and both are equally important, both are necessary for the survival of each other. So, we know like bigger fish eat the smaller fish.

So, both actually help each other to grow, even bigger fish is not just eating these smaller fish, it creates cohesive environment for the smaller fish to survive also. So, there are latest researches which suggest such kind of dependence, interdependence of different species at different scales. So, this is beautiful balance, we can call which is very important to be maintained.

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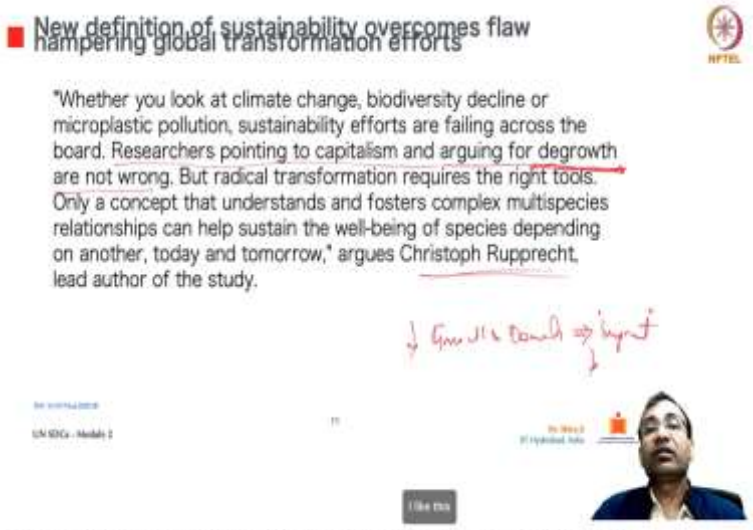

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Further, whether you look at climate change, biodiversity decline or microplastic pollution, sustainability efforts are failing across the board. Well, there are efforts but some of these efforts are not truly actually able to bear the fruits, the intended fruits. And this where this constant evaluation and assessment becomes essential.

Researchers pointing to capitalism and arguing for degrowth are not wrong, but radical transformation requires the right tools. Only a concept that understands and fosters complex

multispecies relationships can help sustain the well-being of species depending upon another, today and tomorrow, argues Christoph Rupprecht lead author of this study.

So, actually the researcher very pin pointedly underlines this interdependence and mentions how this can be done, a very strong forceful implementation of policy is essential for this thing. Arguing for degrowth are not wrong. So, if you see some of the researchers they are talking about reducing the growth, the growth and development what we know of.

So, there is a direct relation between growth and development to the impact which is getting generated by human society on the planet. So, this direct relationship, this impact can only be reduced if there is a reduction into this. So, well, not necessarily you have to change everything, but change in such a way that it addresses those key issues. Well, meeting the demands of the human society is also essential but at the same time, what about other species, that is the question, that is the dimension this researcher and these set of people are posing. So, these are the dimensions, these are the various concepts around sustainability.

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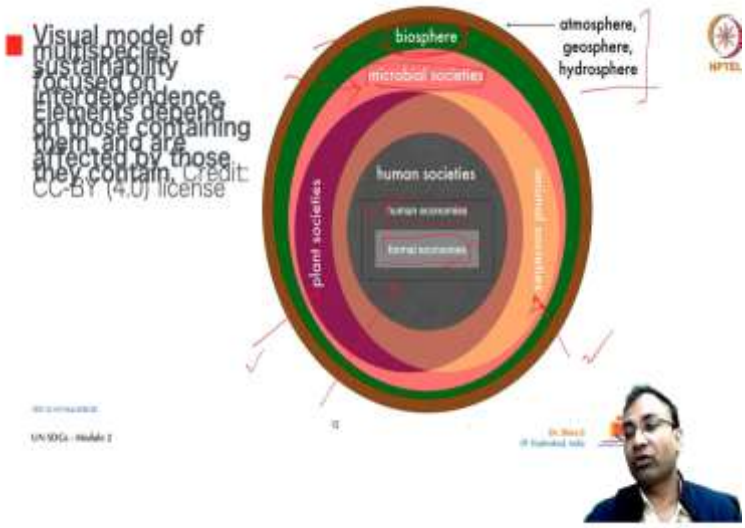

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Further, this is one visual model of multi species sustainability, focused on interdependence element depend on those containing them and are affected by those they contain. So, if you see it is kind of interdependent model, one contains another and some of these are subsets and parallelly they are co-existing and helping each other.

So, this relationship you can see at the top one we have this atmosphere geosphere, hydrosphere, and all of them. Under that, we have this living habitation zone, biosphere and then inside that we are kind of inhabited inside this microbial societies, these microbes how

essential they are for our human survival also, well, some of them are like pesky and they create issues, but majority of them are essential also for the human survival and survival of other species.

Inside that, we have two kingdoms, plant kingdom, plant societies and animal societies represented by these bubbles. Inside that at the cusp of that human societies are surviving. We need both, it is not that we do not need any of these plants. It is not that we do not need any of the animals. They help.

I just gave the example of one honeybee, similarly there are number of species which are crucial, their existence is crucial for the survival of humans. Inside that we have this economics going on, human economics, inside that also we have formal economics, there are multiple in informal economics and things like that. So, this is the kind of set and subset, you can see for your own understanding.

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Further, an analysis says, of how the sustainability concept has been visualized in the literature underscores the teams findings. In the sustainability concept environment society and economy are given equal weight, despite the later too depending entirely on the former. This is interesting.

In contrast, in the new study, the conceptual models developed by the researchers involve taking a nested approach focused on the interdependence of human, animal, plants and microbial societies. A nested approach, we just saw before.

Another model emphasizes how the earth system including landscape, cities and the bodies of living things is shaped by shared agency. So, the question put up by researcher over here is if environment is the one which nourishes the rest of the other two, how can these two take the equal share while paying attention, while dealing with it, while distributing the source and other stuff.

So, that is a very just demand, because environment definitely comes at the priority because it contains society and economics inside it. So, definitely it hold the commanding position, it should be addressed adequately.

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Further, he adds, our work would not have been possible without building on indigenous knowledge. Very important point over here, what is indigenous knowledge? Well, across the world, societies have been surviving and different unique geographical climatic cultural background and scenarios, uniquely.

So, they have supply of something over here which is not available maybe here, something unique is available over here, which is not available over here and so on. So, but several societies have survived in all of these places in their own unique ways. What are those knowledge sets which deal about those local characteristics, that comes under these indigenous knowledge, which is coming from generations and generations of humans and other species. Many best practices have been developed by indigenous people and are part of traditional ecological knowledge systems.

So, now we are coming onto the traditional ecological knowledge systems, a very interesting key word, it carries a lot inside it. It talks about traditional word, talks about ecology word, it talks about knowledge here and the system. What is system? So, system I will go backward, system actually includes all of those relevant and interdependent stakeholders, their acts, their activities and their interrelationships.

Knowledge is the set of information's which are crucial to know things like physical, psychological, all of those material, like knowledge sets about things, how it functions in between species. And then ecology, the existence of all of it together that ecology and traditional which is getting passed over generations, because that is essential for survival and those are the survival knowledge sets which are getting passed from generations to generations to help the new generation to cope up. So, these are the very essential part to develop a sustainable (())(23:32) system.

Well, you must think about it, maybe you can look for your own place based traditional knowledge ecological that system set, and maybe you can prepare a case study, which societies and cultures have the best track records in coexisting with each other species. Lot of such examples you can see from Asia, Africa and South America many of the places where how they have coexisted together and how they have helped each other to survive. And the same knowledge sets actually why it is essential to mentioned over here, the same knowledge set is going to help us even in future.

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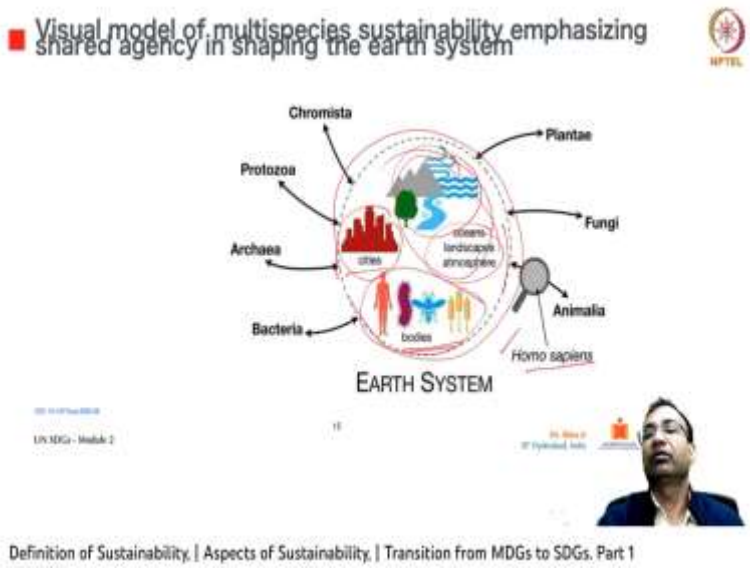

So, this is this model, this visual model of multi species sustainability emphasizing shared agency in shaping the earth's system. You can see different stakeholders. So, this is this earth, like earth system, where we have cities, bodies, ocean, landscapes, atmosphere, and other natural elements together. So, this is how our earth usually functions, this has been functioning for a long, long time.

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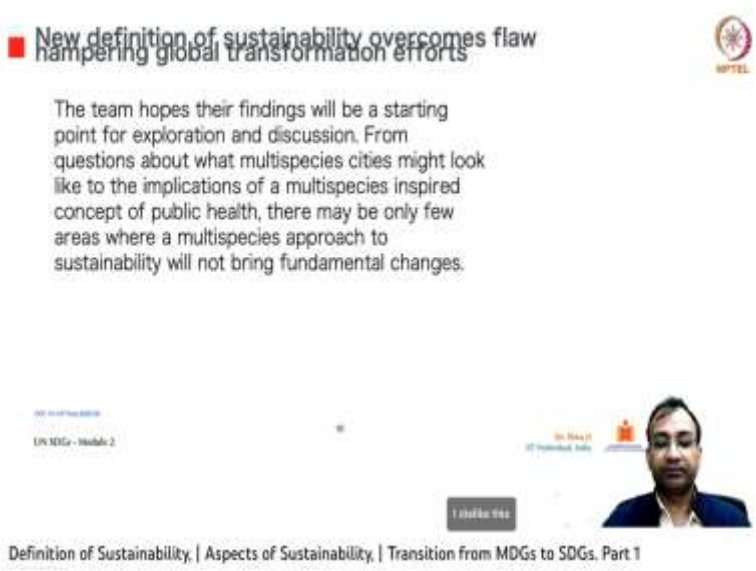

The team hopes their findings will be a starting point for exploration and discussion. From questions about what multi species cities might look like to the implications of multi species inspired concept of public health. There may be only few areas where a multispecies approach to sustainability will not bring fundamental changes.

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This is the word cloud; you can have a look. Well, it depends from place to place, entity to entity and what focus you have, what do you desire, what sort of information you want to desire, want to derive out of knowledge system around sustainability. So, mostly you will be getting these keywords, as the very good group of keywords, maybe you can have a look.

We have ecology, energy, carbon neutral, sustainability, emissions, resources, climate change, biosphere, future, we have consumption, inequality, transport, alternative, world urban planning, earth, emissions, government, then we have law, human needs, biosphere, management, carbon neutral, global warming, then we have renewable recycling emissions, biosphere, global warming, consumption, management, crisis, economy, crisis, then we have urban planning, production, human needs, future. So, these are some interesting key words which pop up around the different aspects of sustainability. And they bring fresh perspective, they bring some concerns in this whole pool, which needs to be addressed and catered to.

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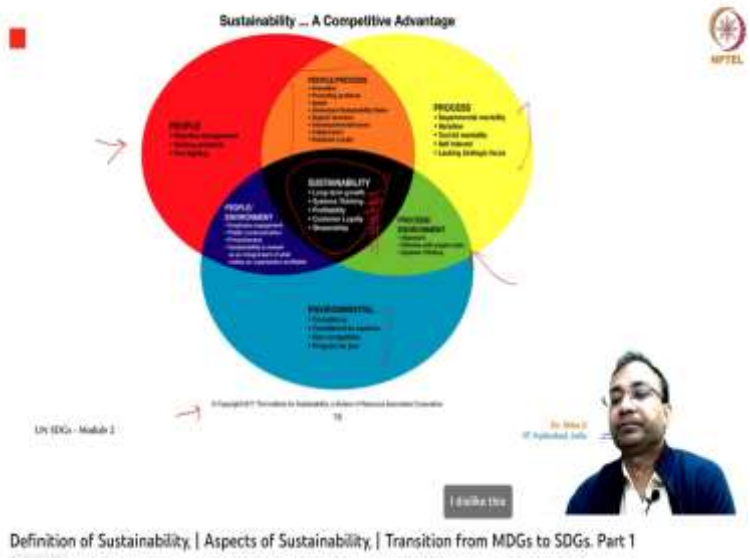

Well, what is the competitive advantage? You can see this illustration over here, source mentioned. People environment processes and the cusp of these, how different other elements have come. So, in the people we have reactive management, solving problems, firefighting. In the process we have, departmental mentality, variation, tool kit mentality, self-interest, lacking strategic focus.

In environmental we have, compliance, considered an expense, noncompetitive, program (())(28:01). The cusp of these two, people and processes, we get innovation, preventing

problems, speed, understand sustainability vison, support structure. And then, we have inter departmental teams, collaboration, employee loyalty.

Then at the cusp of people environment we have employee engagement, public communication, proactiveness, substantiality is viewed as an integral part of what makes an organization profitable. Then at the cusp of these two we have process and environment, alignment effective with the supply chain, systems thinking. And then at the cusp of these three lies the sustainability aspects and then here we have the advantages, long term growth, systems thinking, profitability, customer loyalty, stewardship.

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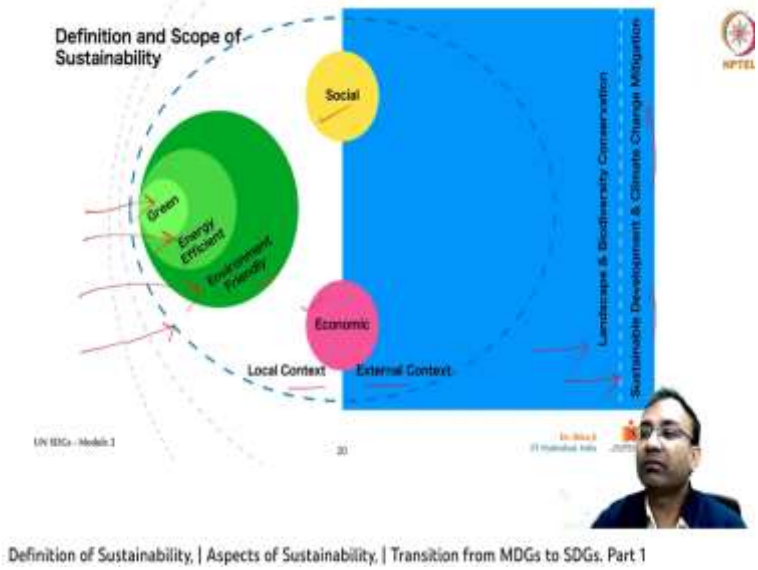

Now we will see some of the aspects of sustainability. So, here we have definition and scope of sustainability. So, you can understand where does this sustainability lies. So, a green

design, then comes energy efficient, environment friendly, then it becomes sustainable one this dotted circle what you are seeing which includes environment, society and economics. In local and in external context depending upon the need and the situation or maybe a connected context.

Beyond this also there is a possibility, that it goes to the landscape and biodiversity conservation. Even beyond that at global level, we have this humongous frame working, sustainability development and climate change mitigation. So, how this whole (())(29:59) of climate change can be studied and how mitigating policies and action plans can be implemented and this can be corrected.

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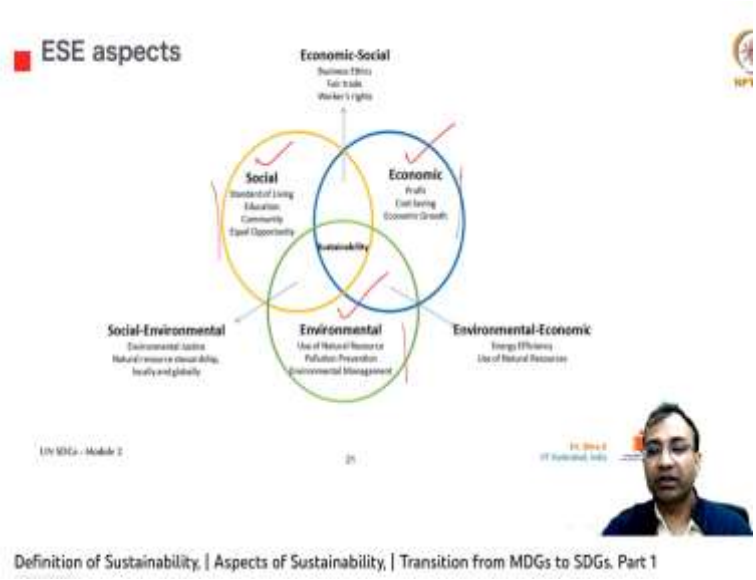

The three different ESE aspects, society helps for improving standard of living, education, community opportunities etcetera. In economics, we talk about profits, cost saving, economic growth. In sustainability, we talk about use of natural resources, pollution prevention, environmental management etcetera.