United Nations Sustainable Development Goals (UN SDGs)
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Module 7
Casual Mapping, Systemic Mapping and Problem Identification

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Hello everyone. So, I welcome you all in the Module 7 of this course UN SDGs. So, in this module we are going to learn about Casual Mapping and second Systemic Mapping and Problem Identification.

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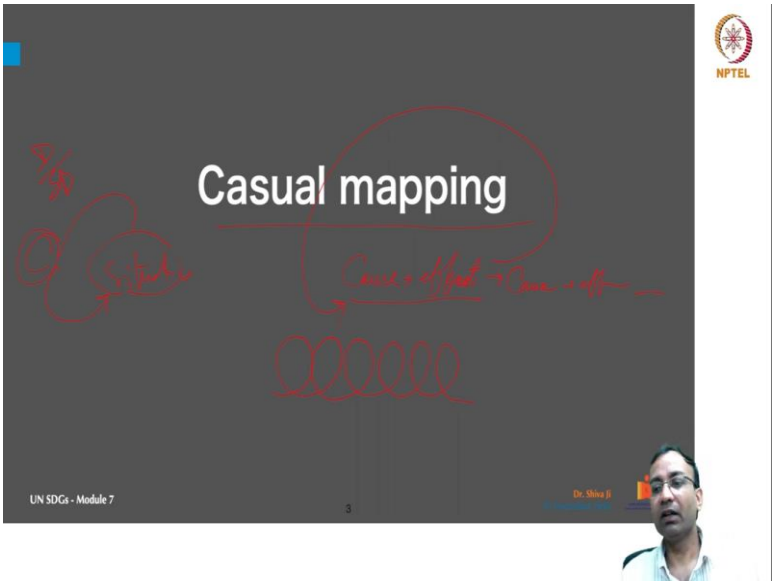

So, what is casual mapping? I suppose, already, I will inform, I will give some more inputs on that. Well, you may have heard behind any cause there is some after there is any cause there is some effect and this effect also leads to some cause and then there is another summary fact and then it keeps on actually going, maybe in a cyclic manner or so.

So, it suggests like there is something behind each and every action that becomes casual. If I maybe light or matchstick, it is going to cause fire. And depending upon what do I put that fire too, that may also lead to some other events. If I put it off, it will go down and we will die. So, there are impacts of our actions and this world is running with lots of actions which are coming in and combined manner.

So, this aftermath of industrialization what we are discussing through this course, why do we need S D, in place of like just D, development is because it is now established that something something has caused such and such havoc and now the proportion of that havoc is increasing in such a gigantic scale that may become catastrophic for the whole human society to survive.

So, there is some cause which has brought us this situation. So, what is that cause if you study it, you will go to the root causes of that. And if you rectify that, again, that problem might be taken care of. And similarly, this is applied into analysis of variety of things in everyday life and even in scientific activities also.

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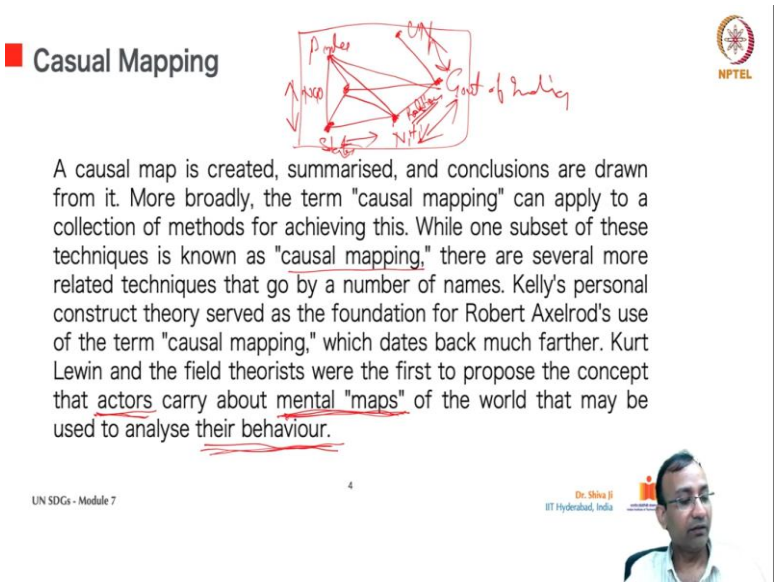

So, a casual map is created, summarized and conclusions are drawn from it. More broadly, the term casual mapping can apply to a collection of methods for achieving this. While one

subset of these techniques is known as casual mapping. There are several more related techniques that go by a number of names Kelly's personal construct theory served as the foundation for Robert Axelord's use of the term casual mapping, which dates back much further.

Kurt Lewin and the field theorists were the first to propose the concept that actors carry about mental maps of the world that may be used to analyze their behavior. So, it was proposed there are some connections some reactions from certain certain agents, certain certain actors, you see this term over here, that is causing him something. And it establishes a relationship.

Now, it was broadened further and then it got developed fully fledged into a casual mapping. And another version is there, we call it systemic mapping. So, you can establish through these mental maps, those connections. So, actors means those important notes or stakeholders who are part of the any particular system. If this is the system boundary, so, perhaps, if we see in SDGs and its implementation at world level.

So, it is coming from United Nations. Then it is coming to the Government of India. Government of India appoints NITI Ayog. NITI Aayogtalks to states and then there are people like you and me. Then there are some NGOs, another research organizations and all of those kind of other actors.

And they are all, if you see, are interrelated somewhere, these NGOs are connected directly with the Government of India, perhaps, not with the even directly but people are connected to Government of India, people are part of the states, here directly, and from states, yes, we are connected to NITI Aayog and NITI Aayog directly connected here, Government of India is connected here.

NGOs sometimes, they are connected to that states also connected to an UN and things like that. So, there is a pattern, you can find key which are the actors? Those are in direct relationship and some indirect relationships or maybe even tertiary third-degree relationship or something. And what is happening in between this relationship?

So, this relationship, you need to identify what is happening between this and this node, this and this node, similarly here, similarly here, and things like that. And then you will be able to lay the whole detail clearly on this mental map. And you can check what is going on between like these.

So, how UN is corresponding these things to hear, how government is proactively taking to this entity from here, how actively it is getting distributed to the like states and district level authorities and how people are coming into the picture, are people directly also related to the NITI Ayog, is there a no mechanism or way where NITI Aayog is seeking legislations from people or NGOs? So, those connections also you can establish and then you can understand how this whole thing is working. So, in a way it kind of lays out those important actors associated with the implementation of SDGs in India, for example. And similarly, for other things also you can like put on.

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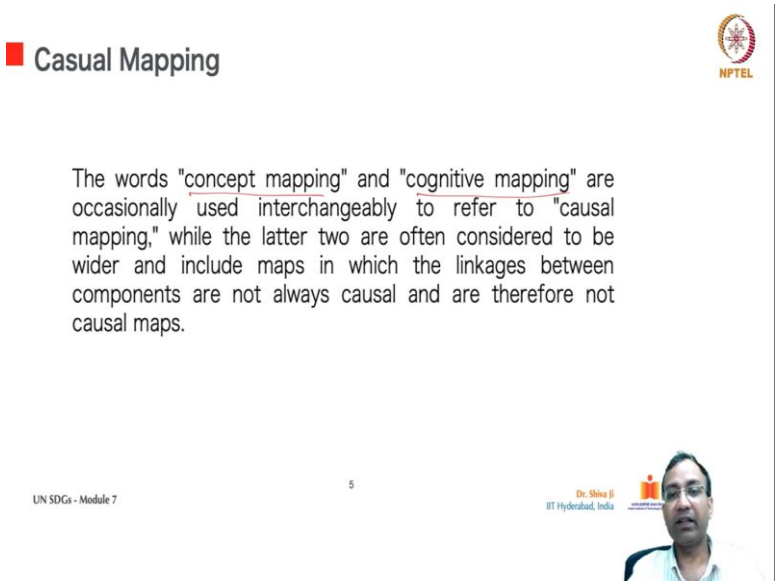

The words concept mapping and cognitive mapping are occasionally used interchangeably to refer to casual mapping, while the latter two are often considered to be wider and include maps in which the linkages between components are not always casual and are therefore not casual maps. So, it may be off few types depending upon some variations.

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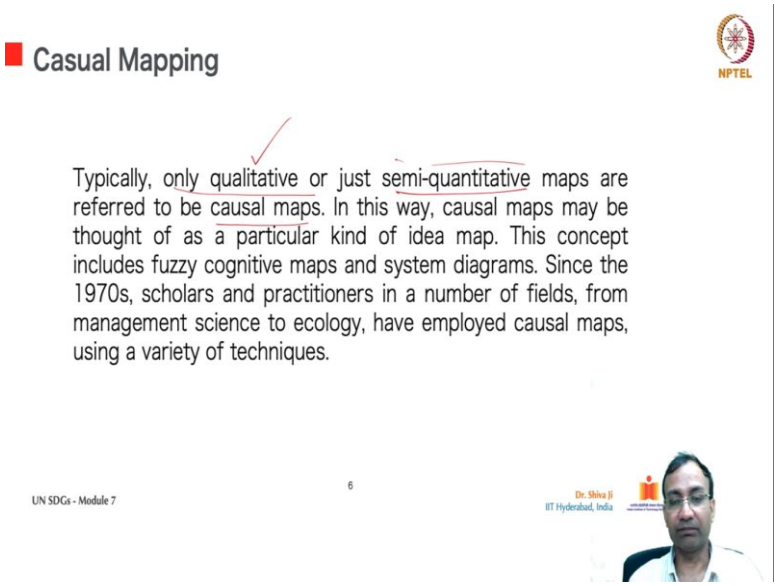

Typically, only qualitative or just semi-quantitative maps are referred to be casual maps. So, you can see, in this way, casual maps may be thought of a particular kind of idea map. This concept includes fuzzy cognitive maps and system diagrams. Since the 1970s, scholars and practitioners in a number of fields, from management science to ecology, have employed casual maps using a variety of techniques.

So, you see casual maps actually are more useful in case of qualitative like entities, quantitative elements which are coming in the scene. Or maybe up to semi-quantitative. Perhaps, it is not more suitable or appropriate app for only quantitative kind of thing. Because there is another type of maps correlation. So, you can draw using statistics and all that. So, this helps in such kind of scenarios.

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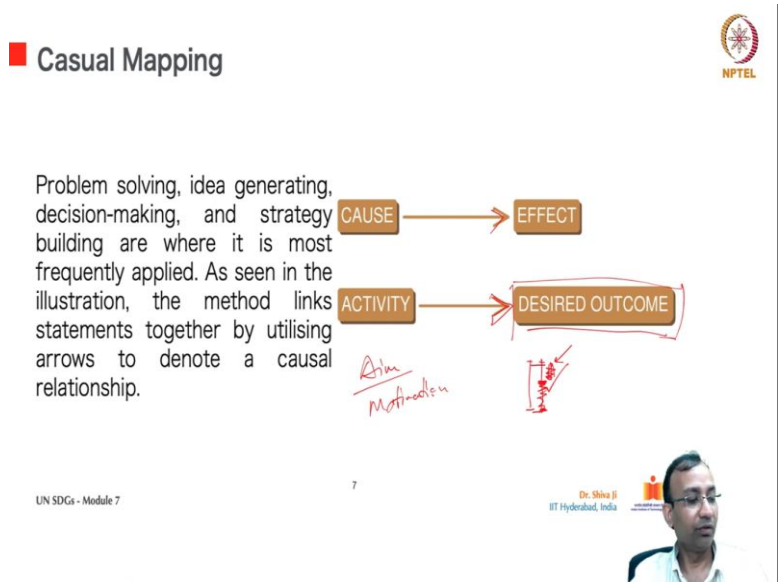

Problem solving, idea generation, decision making, strategy building are where it is most frequently applied. As seen in the illustration, the method links statements together by utilizing arrows to denote a casual relationship. So, you can see that cause and effect, there is a direct relationship. From here also, activity to desired like outcome. So, you did something. Why you did something?

There must have been like some motivation, some aim, some objective behind that activity. And then there are some like results some outcomes. So, you will evaluate those outcomes, how successfully those outcomes are as per the intended plan. So, if it is matching perfectly, then it is the most perfect situation. But, if there are a certain shortcoming and all, definitely with this, where to intervene, what to work on in, all of that. So, it helps you establishing those factors.

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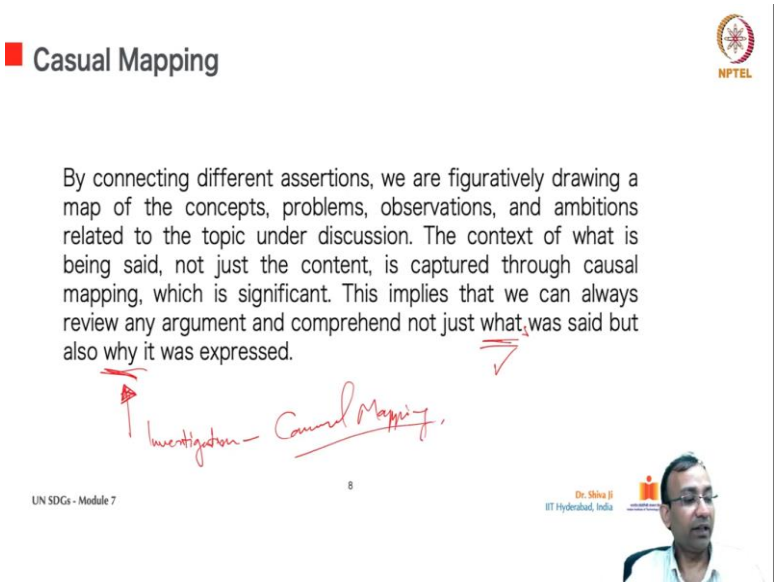

By collecting different assertions, we are figuratively drawing a map of the concepts, problems, observations and ambitions related to the topic under discussion. The context of what is being said, not just the content is captured through casual mapping, which is significant. This implies that we can always review any argument and comprehend not just what was said but also why it was expressed.

So, not just words even wise and this is very important. Because typically, what kind of things are known but why kind of things needs investigation. So, this investigation you can definitely carry out with the help of like this casual mapping is one of the amazing tools which helps you layouting any scenario and dig deeper onto that.

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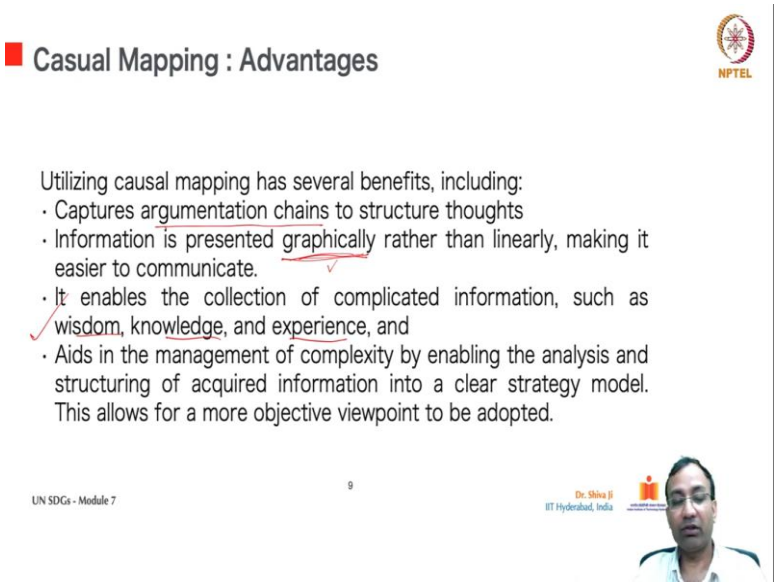

Some advantages. Captures argumentation chains to structure thoughts. So, there are reasons you can kind of take out from this nalysis. Information is presented graphically rather than linearly, making it easier to communicate. So, visuals are much stronger way to express certain things compared to a regular textual like things.

So, visual things have long lasting like impressions. You can easily grasp, you can see the whole picture in one and you can again further zoom down into the detail. And for reading, like big text you need to go through the whole thing and then only you will be able to make something. It takes time.

So, this is also kind of very smart tool where you present things graphical. It enables the collection of complicated information such as wisdom, knowledge and experience etcetera. So, you can see, these things are a little difficult or subjective to quantify but in their own qualitative flower, you can get to know and get to experience like these subjective qualities also of like some phenomena. So, casual mapping helps even in establishing such subjective things. Aids in the management of complexity by enabling the analysis and structuring of acquired information into a clear strategy model. This allows for a more objective viewpoint to be adopted.

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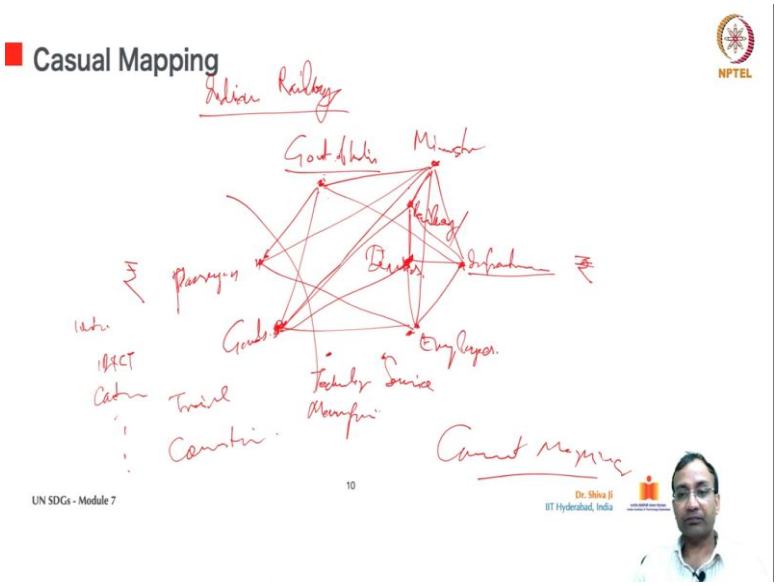

So, yeah, for example, if I talk about like railways, Indian Railways, so, Ministry of Railways, Government of India, of course, here, then Ministry here, then there is like these infrastructures like stations and all of those things, like employees and then passengers and goods, like this travel and all. And there is a, for example, technology evolution, manufacturing and all of those kind of things plus maybe service related like things. Like in the recent years, there is a lot which has changed in the Indian Railways. So, Government of India directly related to Ministry of Railways.

And through other departments with the infrastructure also ministry takes care of these, its employees and there is a Railway Board in between, you can draw over here, Railway Board and then there are further divisions in the railways you may have seen, there are several divisions across India which take care of their own segment.

So, from maintaining the stations to the like train management their timetables and all of those things. So, the origin destination, all of those things literally they take care of. So, these divisions, these divisions, these employees are also actually placed according to the divisions. Then from here, we have passengers and goods.

So, yeah, this Railways ka direct connection, then employees ka issse, then here, yeah, Government of India ka, also some representation to this side, good ke liye policies, passengers ke liye policies. So, in a way you can see a kind of n evolving this thing. So, how it, this whole thing is kind of related to like these important actors and then what is going on between them.

For example, for infrastructure we need money a lot of investment. But passengers, you cannot charge them more. So, it is a contradictory kind of situation, infrastructure is demanding a money but here you cannot charge more, you cannot raise your own a ticket prices and all that.

So, that becomes kind of sometimes a political decision also, Ministry or a Government of India also intervenes, how much to raise or whether they raised a train a charges, passenger charges or not and all of those kind of things. So, here you can establish a connection, what happens in this whole big Railways.

And inside this also further, you can populate with the respect to a passengers maybe those local trains connectivity, station, facilities, a IRCTC that ticketing facility and catering facilities, linen and all of those kind of things and waiting halls at the stations, booking efficiency, all of those things if you see, can be a part of depending upon what objective do you want to take forward for your analysis.

And you can draw this casual mapping for understanding. So, just as an exercise, maybe you guys can attempt a one such activity or phenomena which you are deeply aware of because you need to know all of those actors, then only you will be able to putting all the information with justification.

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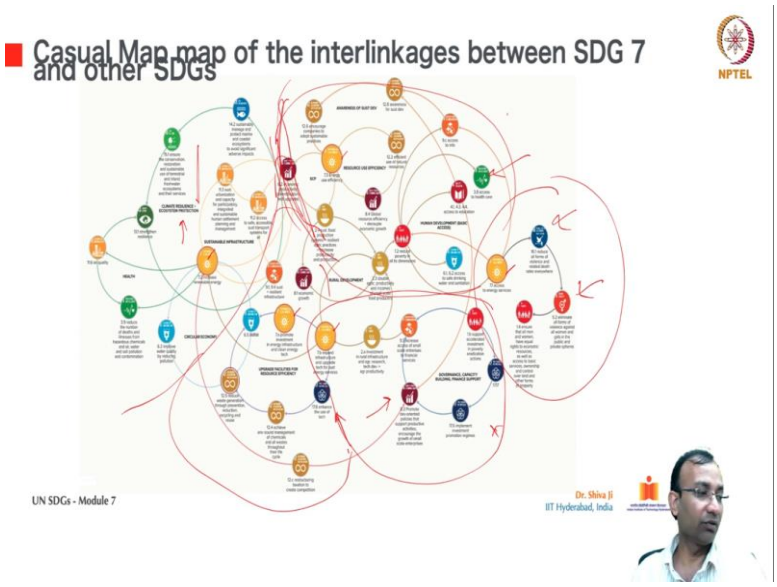

So, just for example, it is given over here with respect to the SDG 7 and other SDGs, how it is related that is given in this casual map. So, you can see different SDGs coming in the side,

here, and there are interrelationships which are drawn. So, you can see here, here, here. And from these, there are small clusters, if you see, like this is one cluster here, this has become this side one cluster, one small one, this is largely has kind of isolated.

This side, I think it is taking all of it into one. And then perhaps, from here to here is the another one. This one includes in the top one. So, more or less you can draw a kind of subset which are impacting to which one in it what ways. So, that interlinkage is you can study over, let me read a few, like climate resilience plus ecosystem protection. So, 15.1, target ensure the conservation, restoration, assessment will use of in terrestrial and inland freshwater ecosystems and their services. And similarly, you can see like which one is impacting like which one and what are those impacts.

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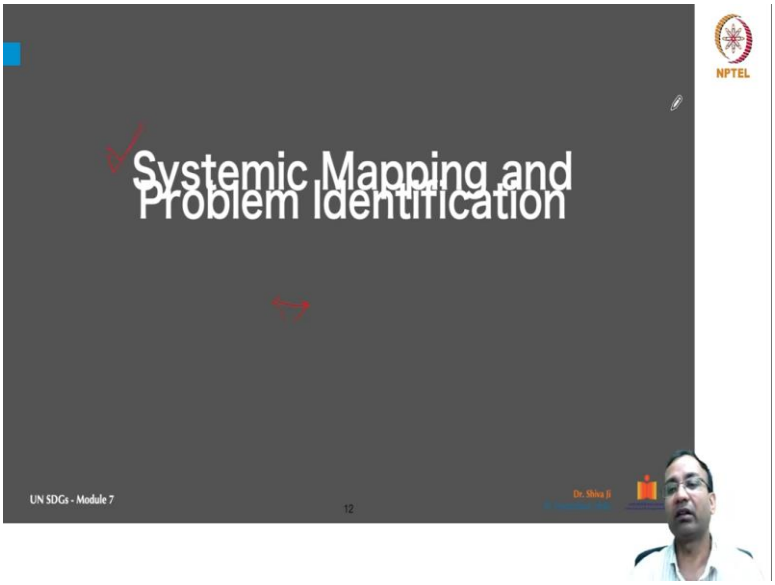

Now, let us move to the systemic mapping and problem identification. So, a step ahead of a casual mapping, you may call it as a systemic mapping. So, in systemic mapping, of course, there will be actors who are reasons behind some activity. But in systemic mapping, it may not necessarily be that all actors are directly related or they have not direct some impact, quantifiable impact. Even if there is no direct relationship but if it is relevant to the that problem, that entity can be considered as a subset of systemic mapping. So, systemic mapping actually takes things at a much broader scale.

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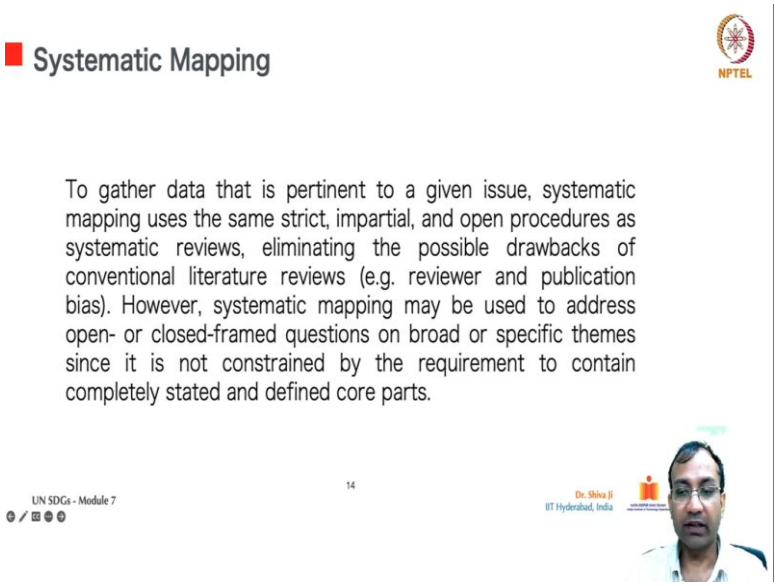

To gather data that is pertinent to a given issue, systematic mapping uses the same strict, impartial and open procedures as systematic reviews, eliminating the possible drawbacks of conventional literature reviews. Reviewer and publication bias. It is those kind of things. However, systematic mapping may be used to address open or closed frame questions on broad or specific themes, since it is not constrained by the requirement to contain completely stated and defined core parts.

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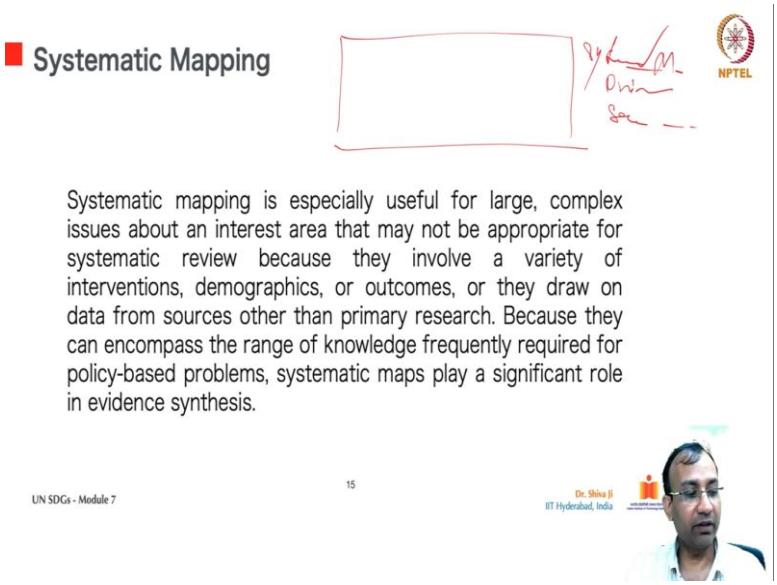

Systemic mapping is especially useful for large, complex issues about an interest area that may not be appropriate for systemic review because they involve a variety of interventions,

demographics or outcomes, or they draw on data from sources other than primary research. So, if you see, this suggests in a very large scale a setting, systematic mapping can be involved where there is a primary data as well as secondary data also. So, all sets of data and all sets of interest areas and all of those things. So, systemic mapping is an appropriate tool to use in that kind of situation. Because they can encompass the range of knowledge, frequently required for policy-based problems, systematic maps play a significant role in evidence synthesis.

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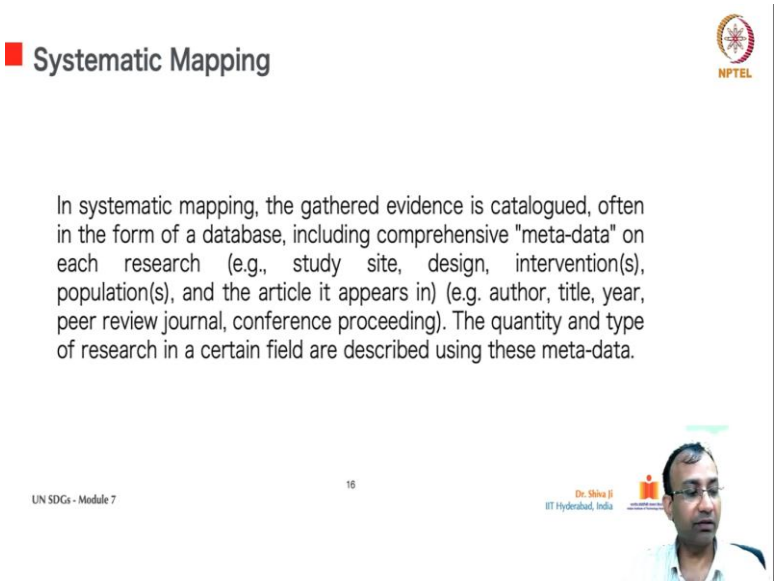

In systemic mapping, the gathered evidence is catalogued, often in the form of a database, including comprehensive meta-data on each research, like study site, design, interventions, populations, etcetera, uthor, title, year, etcetera, and these kind of details. The quantity and type of research in a certain field are described using these metadata.

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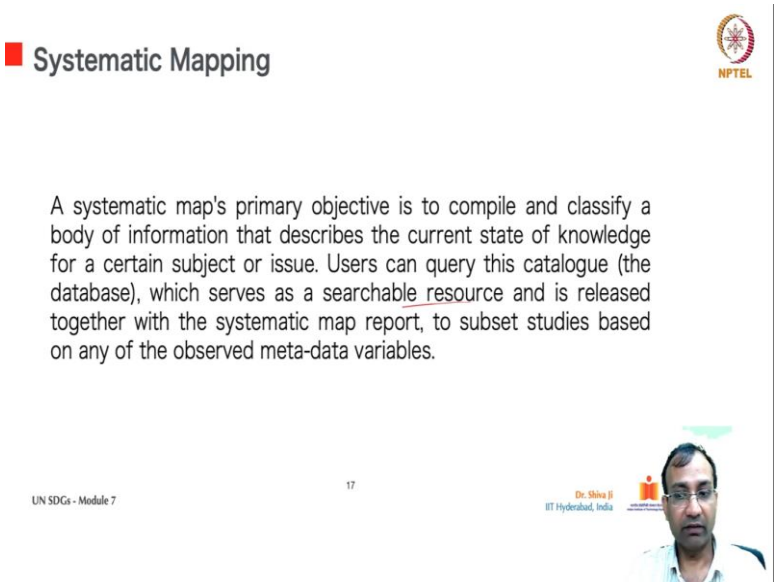

A systemic map's primary objective is to compile and classify a body of information that describes the current state of knowledge from a certain subject or issue. Users can query this catalog, the database which serves as a searchable resource and is released together with the systematic map report, to subset studies based on any of the observed meta-data variables.

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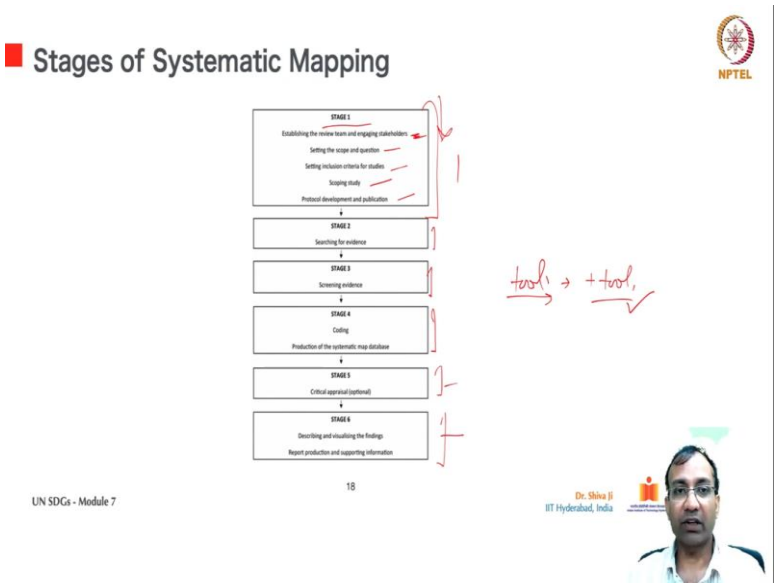

Yeah, these are the different stages you can refer over here. Stage 1, it talks about establishing the review team and engaging stakeholders. Setting the scope and question. Setting inclusion criteria for studies. Scoping study. Protocol development and publication.

They are all in the stage 1. Then searching for the evidences, screening evidences, coding, systematic map database. Then critical appraisal.

And then finally, describing and visualizing the findings, and report production in a dissemination etcetera. So, you can search separately for some systemic mapping, systemic maps, you will get interesting assignments, maybe you can use this as a tool in your assignments in your projects. It will be a good as a tool for you to explore. So, with this we have come to the end of this module. Thank you all.