

**NPTEL
NPTEL ONLINE CERTIFICATION COURSE**

Course Name

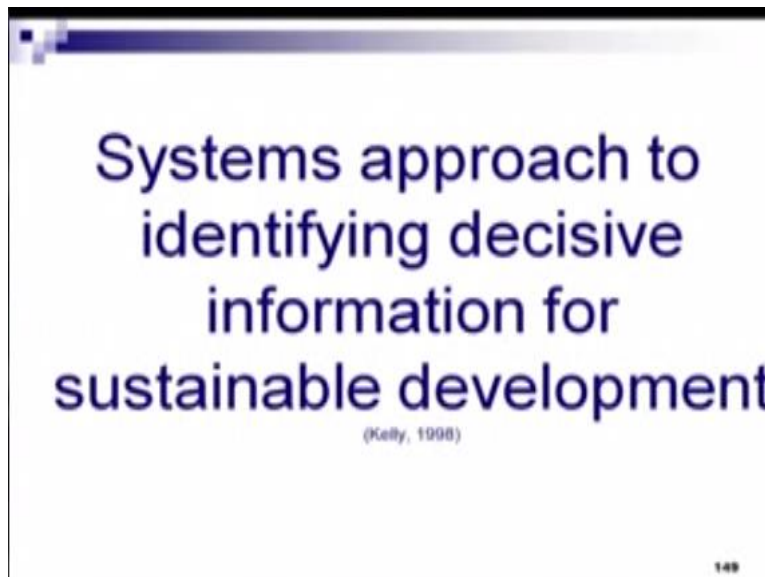
**Strategic Communication for
Sustainable Development**

**by
Prof. Aradhna Malik
Vinod Gupta School of Management
IIT Kharagpur**

**Lecture 15: System Approaches to Identify
Decisions Information**

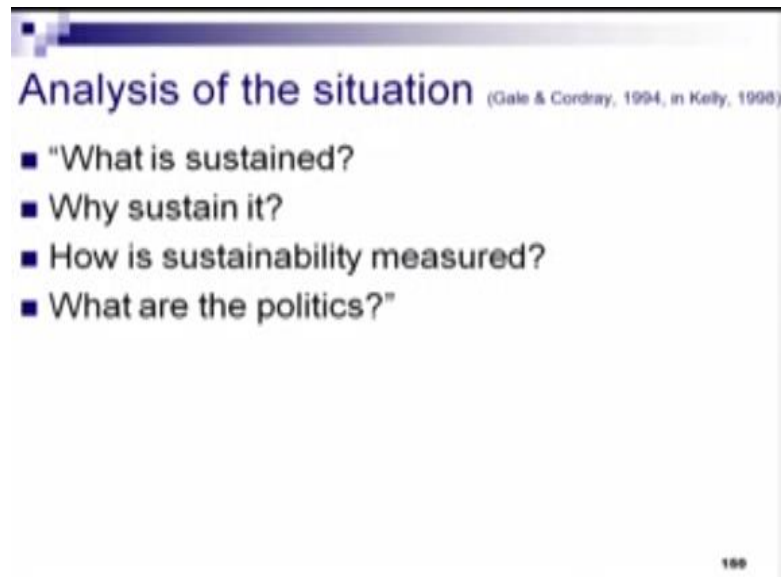
Welcome back to the course title strategic communication for sustainable development my name is Aradhna Malik and I am helping you with this course and today in this lecture we will discuss the system's approach.

(Refer Slide Time: 00:33)



To identifying decisive information for sustainable development and this is based on a paper by Kelly so I will give you the complete reference of this paper you know when as we move on.

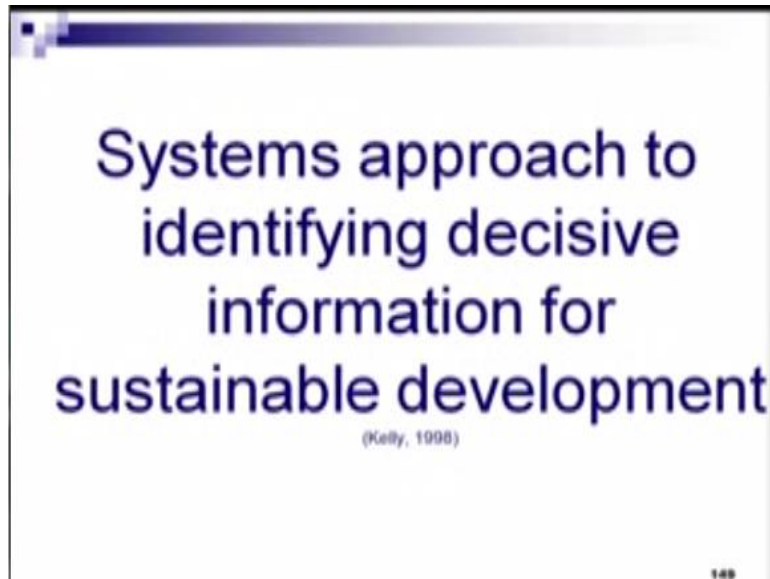
(Refer Slide Time: 00:49)



And according to this perspective the first thing we do when we try to design a strategic a communication strategy for sustainable development is we try to analyze the situation and in doing that we first try to find out what is sustained, so you say okay you know we are talking about communication but we are moving in all directions we are talking about stakeholders we are talking about strategy we are talking about risk we are talking about corporate communications.

Now very you know not a lot of literature exists on the application of the principles of strategic communication to sustainable development situations and that is an attempt I am making through this course I am trying to bring all of these things together, so in this strategy this strategy has been discussed.

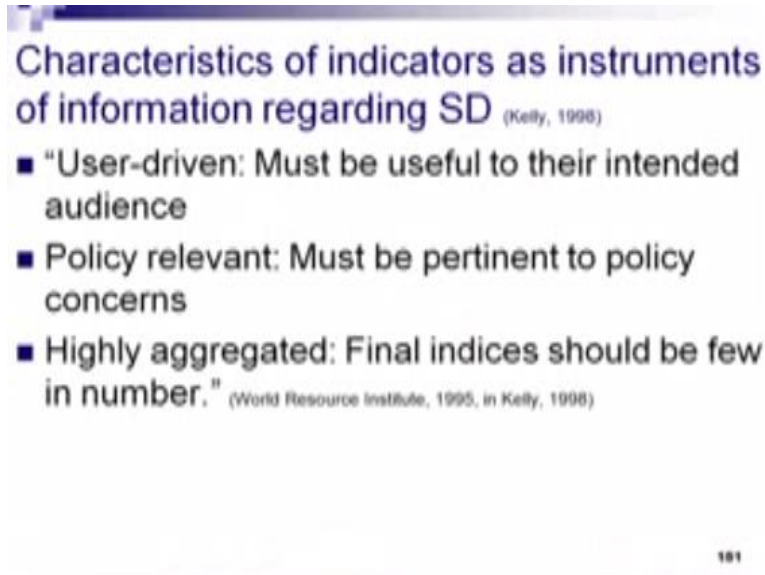
(Refer Slide Time: 01:06)



In the context specifically in the context of sustainable development, so what do we do here the first thing we do is analyze the situation and in analyzing the situation we ask some questions the first thing we ask is what is this animal called sustainability what does what is being sustained what are we trying to sustain why are we trying to sustain it how are we going to measure this concept of sustainability what are the politics involved who is going to influence whom and how and why..

So what all will be the dynamics of the communication processes that will be going on in the community when we are having this discussion about sustainability what are we trying to do here that is a big chunk that is the analysis of the situation and that is step one of this process.

(Refer Slide Time: 02:42)



Characteristics of indicators as instruments of information regarding SD (Kelly, 1998)

- "User-driven: Must be useful to their intended audience
- Policy relevant: Must be pertinent to policy concerns
- Highly aggregated: Final indices should be few in number." (World Resource Institute, 1995, in Kelly, 1998)

181

This when we when we talk about what is being sustained and how to measure sustainability we look for indicators we look for things we look for concepts and ideas we look for markers that will help us measure the impact of what we are trying to do here, so we look for indicators within the community and some characteristics of indicators as instruments of information regarding sustainability so when we ask the question what is being sustained why is it being sustained why are we talking about it what are we going to measure we are looking for information regarding sustainability and how do we identify this information we identified through indicators.

And how do we know what is an indicator of sustainability we look for concepts and ideas that are user driven so the indicators that we choose for identifying as instruments of information regarding sustainability needs to be user-driven they must be useful to their audience the indicators must be policy relevant they must be pertinent to the policy concerns they must feed into the policy they must be relevant to the policies that or to the issues that drive the formulation of policies to the issues to what the policies are going to influence.

They must be highly aggregated, so when we look for indicators there could be many indicators excuse me there could be many indicators of sustainable development in bits and pieces we mic

at the micro level and a macro level there could be many, many indicators what we need to do is we need to categorize these indicators and come up with aggregated categories the final indices the final categories of indicators that are measurable should be few in number and these are some of the characteristics of indicators that we will use for information as instruments of information regarding sustainable development.

So in a previous class I told you that I am not very comfortable with the idea of sustainable development being measured but in order to satisfy our stakeholders who are the people who are going to fund the sustainability development sustainable development efforts we have to have some measurable outcomes and how do we assess these measurable outcomes by first assessing what is out there what is a problem quantifying this gap or this problem and then doing something about it and then measuring what we have done in terms of assessing the situation in quantified terms and saying this is the number.

For example let us take education in a village on an average from the year 1990 to 2000 on an average 12% girls were going to the school every year 12% of the girls were graduating with a class 10 certificate from the local high school from the year 2000 to 2010 because of this interventions we said okay why are these girls going we go and we find out why only 12% of the girls in the village are coming out with a class 10 certificate we go and find out that parents do not want to send the girls the girls do not get time to study etc..

Some interventions are put in somebody funds these interventions somebody goes and educates families and then because of these efforts the number of people the number of girls who come out with class 10 certificates goes up to say 20% I am just making a hypothetical example here that is a measurable indicator it is user driven it is going to be useful to the intended audience.

So the person who is funding the effort wants to know ultimately what will happen or how will their efforts benefit the community and this is how their efforts will benefit the community the problem was fewer girls are coming out with class 10 certificates as a result of the money that was pumped in as a result of the efforts that were put in the number went up in the next 10 years

the number went up from 12% TO 20% will say this is a very, very pessimistic understanding I would say that this is a very realistic sort of example here.

Okay they must be policy relevant so if an intervention has helped the intervention is to maybe build schools closer to the homes of the girls to have a say a bus service only for girls from every village or from the village square to the nearest school and just by lying those buses which is a doable thing, okay. So these things are policy relevant policy cannot drive how parents treat their children policy cannot drive what the girls do in their homes policy can definitely drive the facilities that are provided to the children in the schools that can make their lives easier.

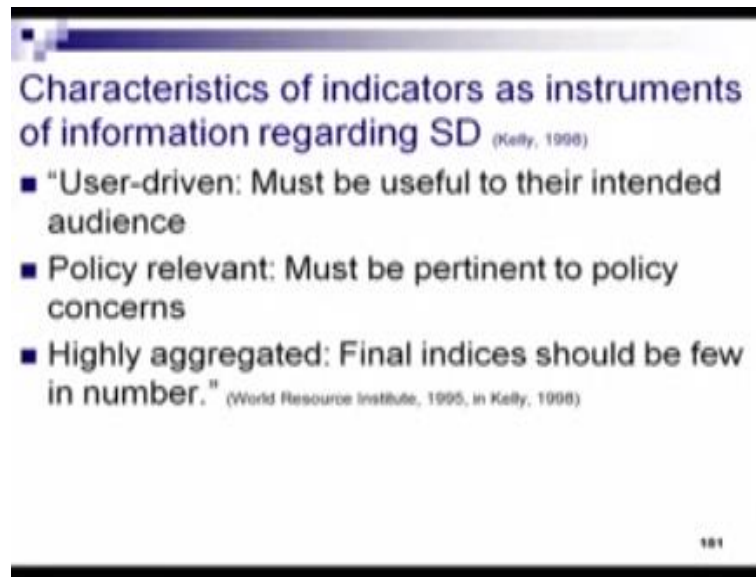
So various problems must be contributing to girls not finishing their class 10 certificates various problems must be there number of siblings, parents need help girls, girls are told right from the time they are born that they have to get married look after somebody else's home, so that is being discussed in the house and at that time you know we cannot interfere with those things we will say we will have social workers going in.

Raising awareness but we still cannot control how what goes on or what kind of discussion goes on in the families of these children, but we can definitely provide facilities one of the problems that is visible there is less of let us say this is just a hypothetical example that there is there are fewer buses parents are concerned about the safety of their girl children they say we do not want our children to walk four or five kilometers on their own.

So the government says okay this is where we can help, so the policy is to ensure that there is some form of safe public transportation maybe a bus driven by a woman bus driver, so that parents feel comfortable and safe and so the bus takes the girl children from the village square where parents come and drop them they go in that bus to the nearest school they are brought back in the same bus.

And not only that attendance is taken when they board the bus and it is taken when they get off the bus, the conductor maintains a record of who is in the bus at any given point of time that is an implementable policy, okay.

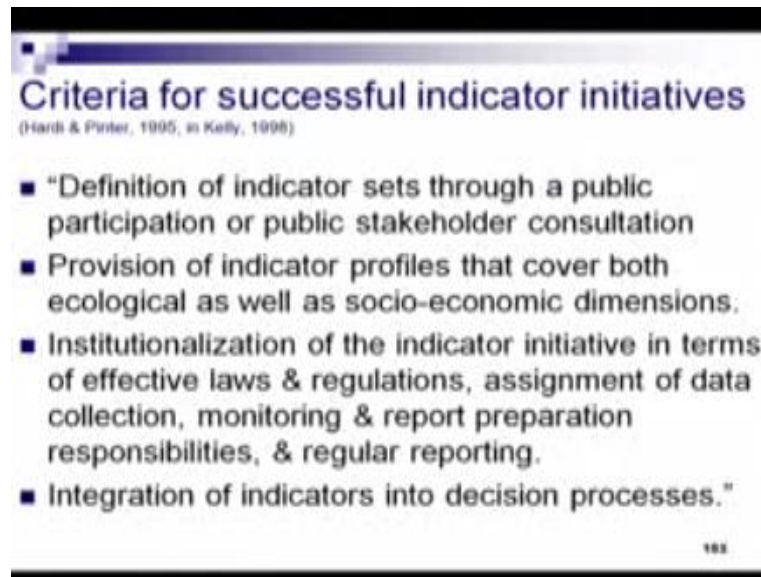
(Refer Slide Time: 10:11)



So policy-relevant highly aggregated so a lot of problems so we say okay parents have this discussion that discussion you know there is a problem of facilities we categorize these facilities put one group of were sorry we categorize the problems put one group of problems into say family discussions the other group of problems is facilities for transportation third group of problems is schools or electricity in schools.

Fourth group of problems is provision of school supplies, so it is not books and pens and pencils and notebooks and computers and computers come ask later but you know drinking water and bathroom it is just school facilities, so we know what we can use as an indicator, okay.

(Refer Slide Time: 10:57)

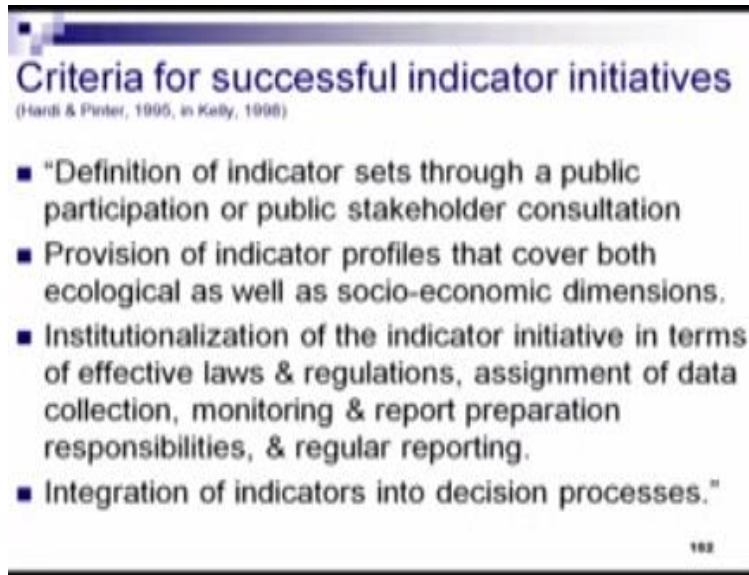


Alright criteria for successful indicator initiatives, when we talk about indicators we are talking about you know putting in some or identifying things that can help us or identifying ideas that can help us point out exactly what we need to do and where and how much, so how do we identify these indicators we define the indicator sets through public participation or public stakeholder consultation.

I want to do these things maybe I have the power and authority and the money to do these things but I am not part of the community that I want to help I live in a different kind of setup, so what do I need to do? I may be an expert I may have published millions of paper or hundreds of papers I may be well known in my field but I may not be a part of the community that I am going to go in and sorry and help excuse me.

So what do I do? I go and talk to the people the first thing for finding out what an indicator or what kinds of indicators we should use is going and talking to the concerned people and taking their advice taking their suggestions asking for their inputs on identifying these indicator sets.

(Refer Slide Time: 12:27)



Criteria for successful indicator initiatives
(Hart & Pridemore, 1995, in Kelly, 1998)

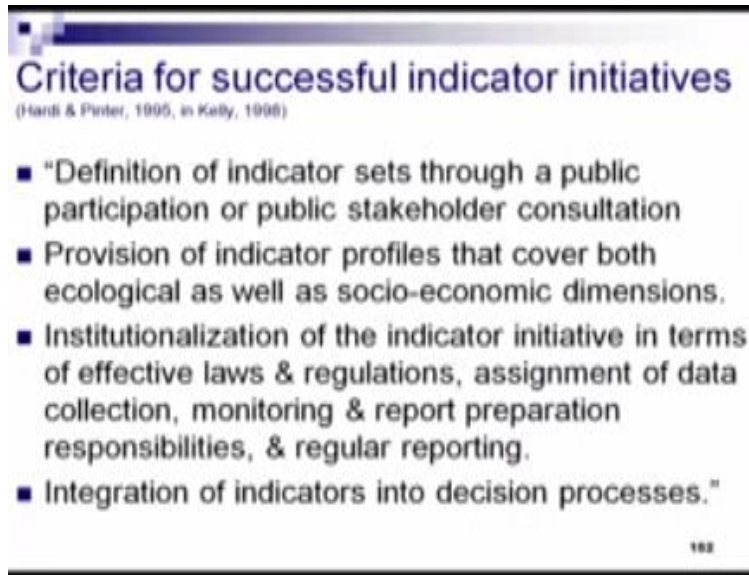
- "Definition of indicator sets through a public participation or public stakeholder consultation
- Provision of indicator profiles that cover both ecological as well as socio-economic dimensions.
- Institutionalization of the indicator initiative in terms of effective laws & regulations, assignment of data collection, monitoring & report preparation responsibilities, & regular reporting.
- Integration of indicators into decision processes."

182

Then provision of indicator profiles that cover both ecological as well as socio-economic dimensions, so we find out what kinds of indicators we are looking at and then we pick the ones that cover a larger ground, institutionalization of the indicator initiative in terms of effective laws and regulations assignment of data collection monitoring and report preparation responsibility and regular reporting.

Now this is very essential now I am actually coming to the nuts and bolts of implementing sustainable development strategies through effective communication, we need to take our efforts and formalize them we need to depute we need to tell people what we want from their effort so we identify the initiative.

(Refer Slide Time: 13:19)



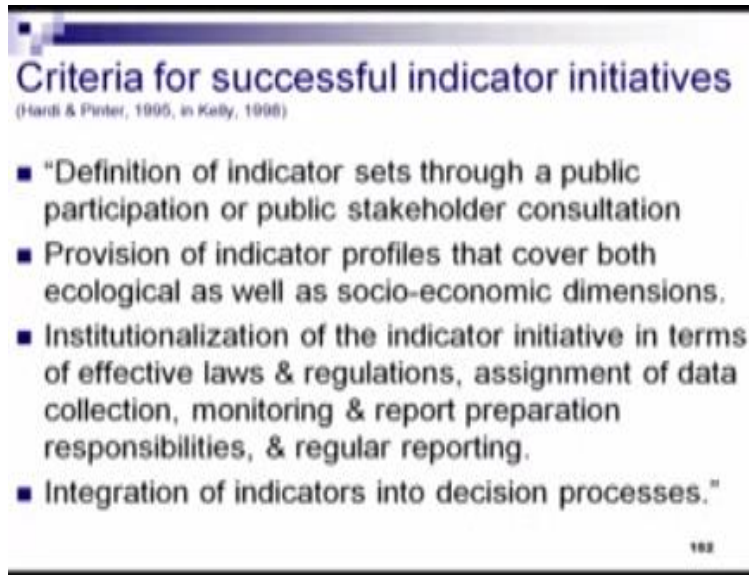
Criteria for successful indicator initiatives
(Hards & Pinder, 1995, in Kelly, 1998)

- "Definition of indicator sets through a public participation or public stakeholder consultation
- Provision of indicator profiles that cover both ecological as well as socio-economic dimensions.
- Institutionalization of the indicator initiative in terms of effective laws & regulations, assignment of data collection, monitoring & report preparation responsibilities, & regular reporting.
- Integration of indicators into decision processes."

182

We put laws and regulations and policies in place and we depute people to collect data and we depute people to monitor and prepare reports monitor the data collection and prepare reports and we ensure that the reporting happens on a regular basis, so that the indicators are formalized and the results are visible to us.

(Refer Slide Time: 13:51)



Criteria for successful indicator initiatives
(Harris & Pinder, 1995, in Kelly, 1998)

- "Definition of indicator sets through a public participation or public stakeholder consultation
- Provision of indicator profiles that cover both ecological as well as socio-economic dimensions.
- Institutionalization of the indicator initiative in terms of effective laws & regulations, assignment of data collection, monitoring & report preparation responsibilities, & regular reporting.
- Integration of indicators into decision processes."

182

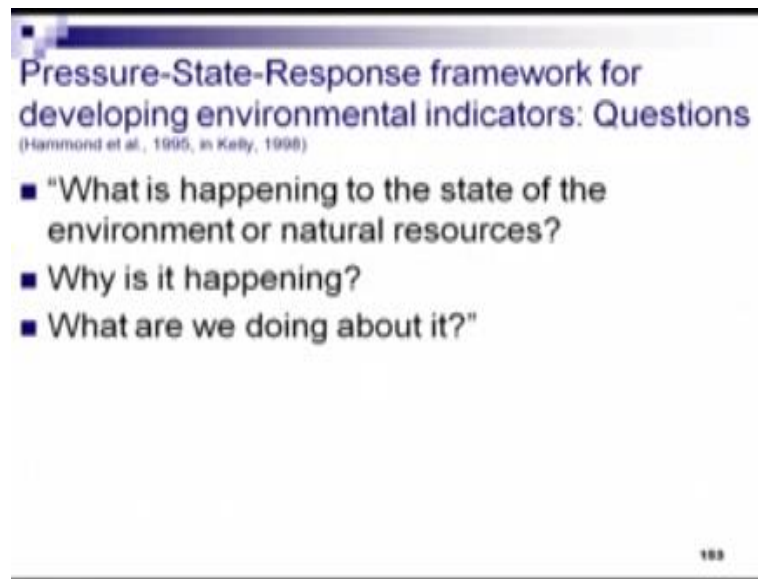
Integration of indicators into the decision process we collect all this data we write papers we publish papers people do their PhDs you know so yes we get lots of money to do this but what happens ultimately you make beam writer reports and then the reports just gather dust in some office, sometimes this happens sometimes the data the report actually reaches the person who can make a decision based on the reports that are generated as a result of all the efforts that have gone in.

And at that time that, that report can help influence the future policies so the example that I was telling you I think it is already been done in some places but you know something like this we collect data we find out how many children are not going to school because of lack of adequate transportation facilities we keep a record we maintain documents we find out we talk to people we reinforce you know whatever we thought was happening is reinforced.

We put a bus in place we see the attendance going up we see the participation going up we see the past result going up we see these children being gainfully employed in professions outside of their villages coming back to help their villages, so we have mountains of data that we use and then we say okay, this one initiative helped raise the quality or the inclination to go in for formal

education in this particular village, so it should be integrated into the system and the next time it is not a policy decision it is sorry it is not a matter of policy or an experiment it is a decision for that area. This unit starts with an experiment and then it becomes a final decision for that area, okay.

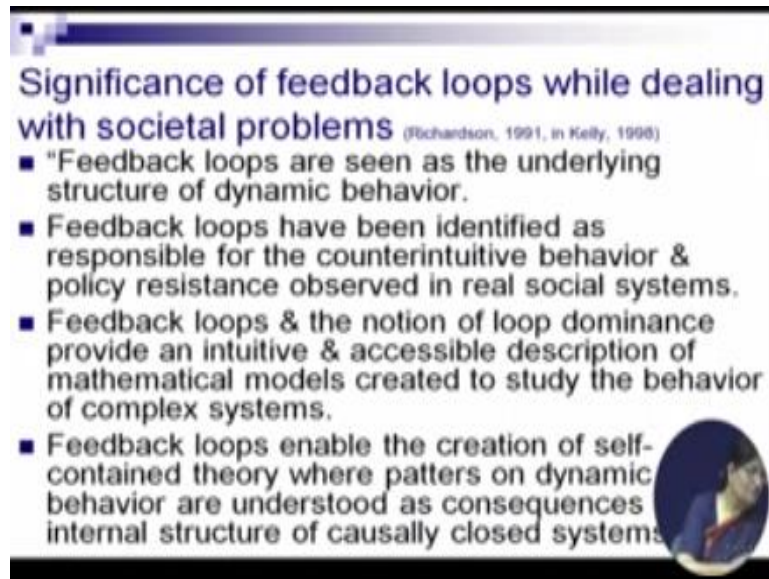
(Refer Slide Time: 15:40)



Pressure state Response framework for developing environmental indicators, so we find out what is happening to the questions that we ask for developing in environmental indicators are what is happening to the state of the environment or natural resources, why is it happening what are we doing about it three things what is the concern at hand right now? Pressure state why are we concerned about it?

What is happening what is bothering us and then we find out the reason for whatever it is disturbing us as far as the environment is concerned and then we ask ourselves what are we going to do about it, this seems pretty logical this is called as the pressure state Response framework, we identify the pressure state we identify whatever it is that is causing us discomfort and we respond to it.

(Refer Slide Time: 16:42)



Significance of feedback loops while dealing with societal problems (Richardson, 1991, in Kelly, 1998)

- "Feedback loops are seen as the underlying structure of dynamic behavior.
- Feedback loops have been identified as responsible for the counterintuitive behavior & policy resistance observed in real social systems.
- Feedback loops & the notion of loop dominance provide an intuitive & accessible description of mathematical models created to study the behavior of complex systems.
- Feedback loops enable the creation of self-contained theory where patterns on dynamic behavior are understood as consequences internal structure of causally closed systems.

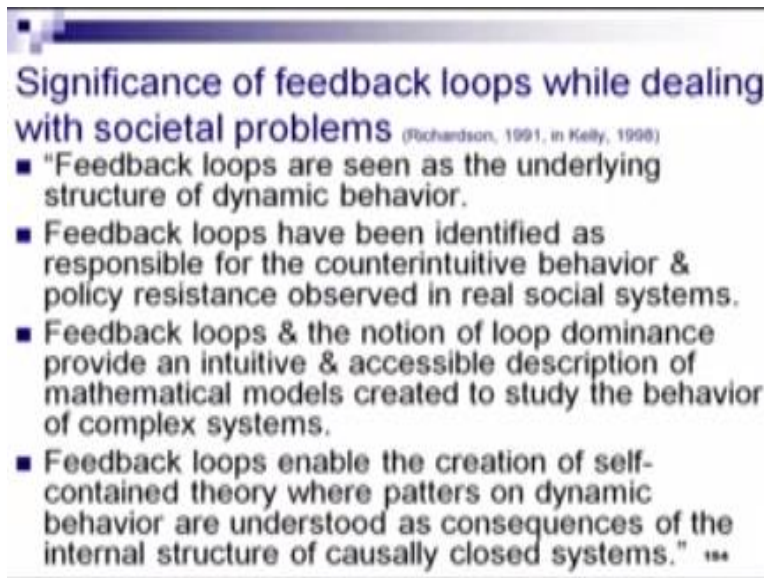
Now in all of this you must have seen whatever I have discussed till now right from the beginning I have talked about participation I have talked about community I have talked about getting together with the community I have talked about asking for their advice you must have realized that my focus my emphasis through this course is to highlight the impact of the feedback from the community on our policy decisions. So let us discuss what these feedback loops do when we deal with social problems the feedback loops are seen as the underlying structure of dynamic behavior.

Whatever we do is influenced by how we have experience the same situation in the past or some aspect of the situation in the past, so they form the structure of our ongoing behavior feedback loops have been identified as responsible for the counter intuitive behavior excuse me, and policy resistance observed in real social systems. Policies are implemented but unfortunately feedback is not taken as to how that implementation serve the community or did not serve the community or what changes could have been made to the policy so people become vary, okay.

So feedback loops have been sorry, so if the feedback loop is not used is not utilized to the fullest extent possible, people feel uncomfortable about some policy decisions the way people respond

to policy decisions is dependent on the effectiveness of the feedback loop if the feedback loop is utilized properly the policy becomes more acceptable any policy that is implemented in a particular region becomes, becomes more acceptable to the people in that region. On the other hand if feedback is not taken from the community or is not utilized the way it was promised to be utilized people become very, people do not either they realize that their feedback will not be sort or they realize that whatever they say the implementers will do exactly as they please so they become uncomfortable with giving feedback okay.

(Refer Slide Time: 19:13)

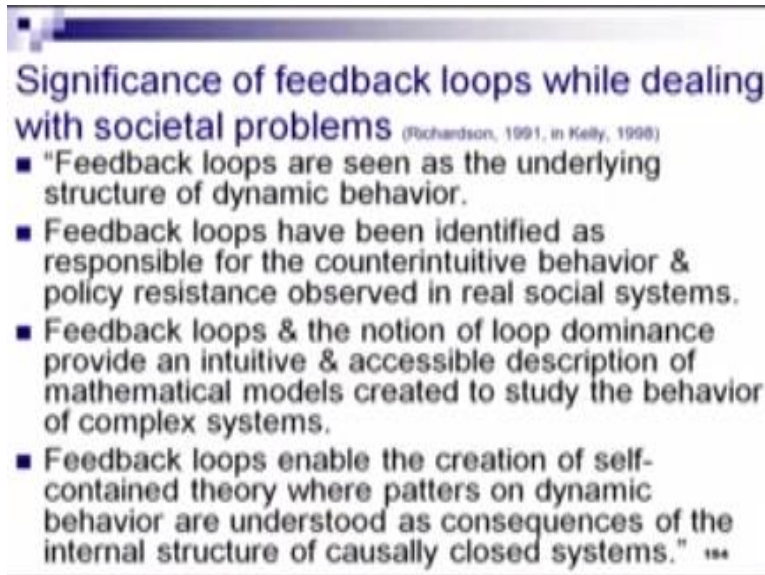


Significance of feedback loops while dealing with societal problems (Richardson, 1991, in Kelly, 1998)

- "Feedback loops are seen as the underlying structure of dynamic behavior.
- Feedback loops have been identified as responsible for the counterintuitive behavior & policy resistance observed in real social systems.
- Feedback loops & the notion of loop dominance provide an intuitive & accessible description of mathematical models created to study the behavior of complex systems.
- Feedback loops enable the creation of self-contained theory where patterns on dynamic behavior are understood as consequences of the internal structure of causally closed systems." 188

Feedback loops and the notion of loop dominance provide an intuitive and accessible description of mathematical models created to study the behavior of complex systems. So there are researchers who have quantified the feedback loops the way the feedback loops function and they form the basis repetitive patterns that are observed through these feedback loops then become the basis for quantification of these processes. Feedback loops enable.

(Refer Slide Time: 19:48)

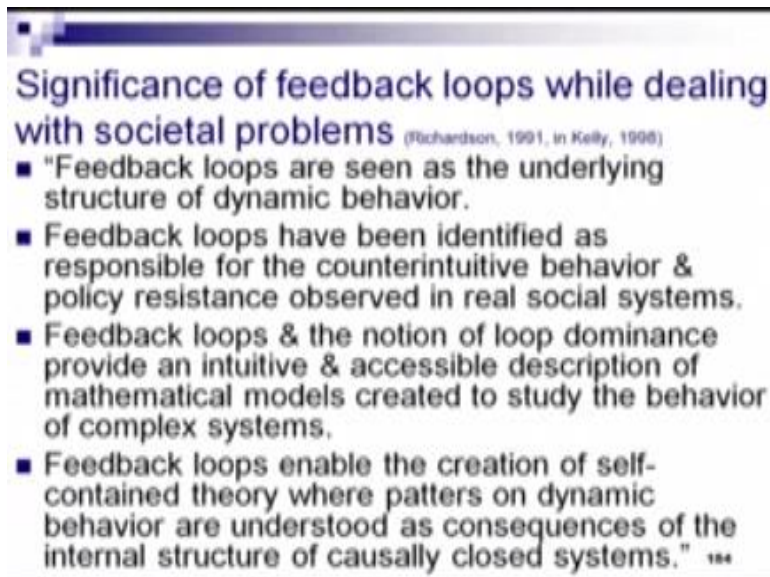


Significance of feedback loops while dealing with societal problems (Richardson, 1991, in Kelly, 1998)

- "Feedback loops are seen as the underlying structure of dynamic behavior.
- Feedback loops have been identified as responsible for the counterintuitive behavior & policy resistance observed in real social systems.
- Feedback loops & the notion of loop dominance provide an intuitive & accessible description of mathematical models created to study the behavior of complex systems.
- Feedback loops enable the creation of self-contained theory where patterns on dynamic behavior are understood as consequences of the internal structure of causally closed systems." 184

The creation of self-contained theory where patterns on dynamic patterns of dynamic behavior sorry, it should be patters I have made a spelling mistake there, where patterns of dynamic behavior are understood as consequences of the internal structure of causally closed systems. So you know when we see repetitive patterns in the feedback loops we realize that there is an ongoing cause and effect sort of loop within that society, within that system and this is.

(Refer Slide Time: 20:27)



Significance of feedback loops while dealing with societal problems (Richardson, 1991, in Kelly, 1998)

- "Feedback loops are seen as the underlying structure of dynamic behavior.
- Feedback loops have been identified as responsible for the counterintuitive behavior & policy resistance observed in real social systems.
- Feedback loops & the notion of loop dominance provide an intuitive & accessible description of mathematical models created to study the behavior of complex systems.
- Feedback loops enable the creation of self-contained theory where patterns on dynamic behavior are understood as consequences of the internal structure of causally closed systems." 184

The patterns of dynamic behavior are understood as consequences of the internal structure of causally closed systems in any community by looking at the feedback loop we can find out what is causing what especially these patterns are very clearly indicative of what the causes and how that cause effects or what is the effect of a particular activity or some factor and that can be quantified that can be studied to improve the situation in any society especially in closed social systems where external influences are not that many or where the system is resistant to are reluctant to let outside influences affect it at that point.

These loops become very helpful for us in identifying these cause and effect relationships within that system, okay.

(Refer Slide Time: 21:28)

Stages & steps in model development	
(Vennix, 1992, in Kelly, 1998)	
Stage	Step
Problem	Define time horizon; Identify reference modes; Define level of aggregation; Define system boundaries
Conceptualization	Establish relevant variables; Map relationships between variables; Identify feedback loops; Generate dynamic hypotheses
Formulation	Develop mathematical equations; Quantify model parameters
Analysis/ Evaluation	Check model for logical values; Conduct sensitivity analyses; Validate model
Policy analysis	Conduct policy experiments; Evaluate policy experiments

Some stages and steps in model development the first stage in this model development where we can actually quantify these fit the feedback loop and use it to develop theory that will help in the policy-making and that will help in policy implementation and eventually sustainable development efforts is, the first stages problem, problem would be and the steps in this our definition of time horizon when did the problem start how long has it going on extra. And then define the time horizon identify reference modes so what is the problem related to how do we know it is a problem define the level of aggregation, what is it related to how is it a problem who consider, considers it a problem extra.

Define the system boundaries where all is the problem spread who sees it as a problem where what is the, you know who is being affected by this problem, how far is the problem spreading. Then comes the conceptualization, we establish relevant variables, we map relationships between the factors affecting the problem we identify the feedback loops we generate dynamic hypotheses these are the steps.

(Refer Slide Time: 22:54)

Stages & steps in model development	
(Venntix, 1992, in Kelly, 1998)	
Stage	Step
Problem	Define time horizon; Identify reference modes; Define level of aggregation; Define system boundaries
Conceptualization	Establish relevant variables; Map relationships between variables; Identify feedback loops; Generate dynamic hypotheses
Formulation	Develop mathematical equations; Quantify model parameters
Analysis/ Evaluation	Check model for logical values; Conduct sensitivity analyses; Validate model
Policy analysis	Conduct policy experiments; Evaluate policy experiments

So we first establish the factors affecting the problem then we find out how these variables are connected to each other then we identify the feedback loops and we find out how these feedback loops are informing us about the variables and the problem that is being affected and then we generate hypotheses to solve the problem using the information that we get from feedback loops. Then we formulate mathematical equations because the patterns have become very visible to us and they are more or less consistent that is why we call them patterns.

Then we develop mathematical equations we quantify the parameters then we analyze the model for logical values we conduct sensitivity, analyses we validate the model and then we conduct then the net the last stages policy analysis we formulate a policy we conduct policy experiments and we evaluate the policy experiments now for steps four and three four and five I think for more details on how models are developed in social situations maybe you might want to go through a course on statistical techniques or connotative techniques for social research and that would give you much more information.

But going into those details is beyond the scope of this course, so I just wanted to show you one more method that we can use to assess or to deal with, with problems of sustainable development.

(Refer Slide Time: 24:33)



And that is where we will stop as far as this lecture is concerned this is one more way because the purpose of this course is to, to show you how many in how many ways we can approach the problem of sustainable development using strategic communication as a tool for dealing with, with the issue of sustainable development. So this is what I wanted to show you thank you very much for listening.