

**INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI**

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**Ecology and Society  
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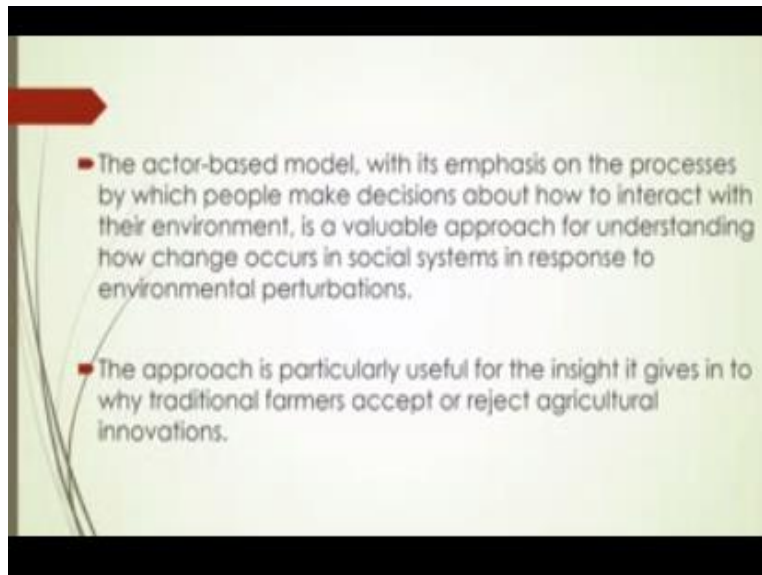
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Well we have because ecology based models in human ecology and also Decker based models in human ecology approach now what we have this discussed in the first part of how ecology should be given importance unlike the pioneer or traditionalists who were engaging in trying to understand the relationship between ecology and human society they tries to understand by trying to inject the sort of cultural adaptation to human environment but rather Roy Rappa portto some extent health drink a new water in terms of trying to understand.

The ecology and human society rather than explicitly giving importance to the cultural adaptation to environment it tries to engage in looking at how equally and the human society rather has interrelate or the kind of relationship with human society is shared with the ecosystems now in that it tries to establish the way humans tries to make sense of the environment by and giving certain kinds of rituals and ceremonies and these rituals and ceremonies to some extent might appears to be something.

Which is maladaptive but rather than if you look at the manifest functions or rather looking at the epic perspective it tends to serve a purpose for the symbol community with strongly or probative in his work pigs father and sisters now in that book in that work with Rappaport has looked at the slaughter of pigs is not to be filmed in terms of the numbers of animals which are killed at one goal at a time but rather it has to be seen as the kind of needs or necessity with death particular social rituals demands for because.

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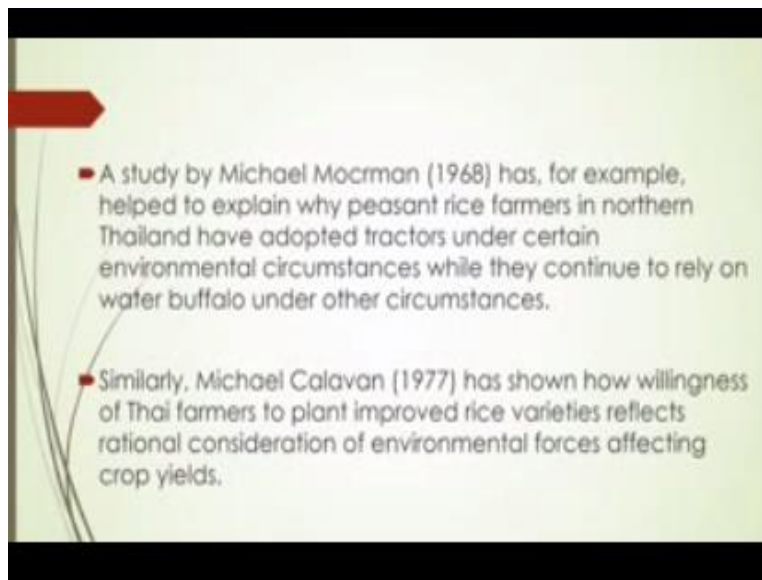


As we had discussed pigs are normally slaughtered when people really come back quite exhausted or they really need some kind of nutrition for conditioned therefore at that point of time when people really need that kind of supply of nutrition a number of pigs are being slaughtered and is being treated now similarly if we try to put that example in the context data based models in human ecology it is also to do with how an individual's success or status in the society is also being defined by the kind of or the number of Peaks and individual rear because.

The more number of peak one has possessed or one as belong then our own rather it tends to sort of gives a lot of value or status where an individual occupies in the social structure now therefore human ecology in human ecology it is also important to identify where an individual's tries to you know situate oneself in trying to make sense of one's positions in relationship with the ecosystem now there can be different processes in terms of trying to maximum of how an individual specs certain decisions in the interest to their environment is perhaps a valuable approach for understanding.

How change occurs in social systems also in response to the environmental perturbations now to some extent this act or base model approach is also useful in order to understand how traditional farmers accept or reject certain kind of agriculture innovations now if we look further.

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By the study which is made by Michael Bachman's where back in 1968 he cite an example of how an individual tries to explain all those pigeons rice farmers in northern Thailand tends to explain the kind of adaptations which they have under goes over a pair of certain times now usually the kind of evolution which takes place in agriculture in terms of technology is the finer the technology people stems to engage in using certain kind of heavy machines like tractors now for instance what Michaels tends to you know find out from his study is in northern Thailand there are a lot of farmers.

Who adopted to these tractors under certain kind of certain specific environments while others still continues to use the traditional modes of plumbing for instance by using this water buffalo on the other circumstances now in this you can actually see how an actor or the individuals tends to reorient or tries to make sense of the changing circumstances of the environment by exploiting

or adapt into exploiting certain kinds of technology by adapting to certain environmental circumstances.

Now it is also interesting to you know see certain kinds of societies where they tends to come up with different modes of behavior in terms of relying on certain nearby technology in order to adapt or to overcome certain kinds of obstacles in their environment circumstances which I love course tries to explain in the upcoming lectures in a further more detail of certain case this which are being conducted now similar to what Michael has explained these kind of practices in terms of how the farmers in a way are receptive.

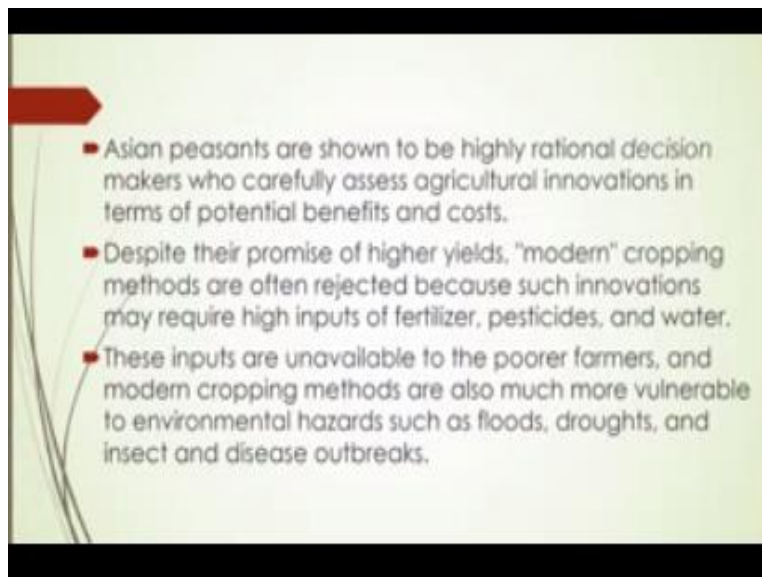
To changes and also still continuous with the kind of traditional modes of farming as to some extent tends to show that how an individual's revolves oneself in terms of the changing environment circumstances he also for thus tends to so that there is an Irving willingness from the farmers in the country of Thailand they tends to you know and give in improving rice plantations by adopting two varieties of you know food crops like for instance the rich rational extra considerations of environmental forces which in essence affect the crop yield.

Which means in order to have a much more bigger output the farmer stems to engage in trying to use different kinds of food grains food grains all together which in essence in the long run enhances to their productivity now by saying so there is been a sort of a presumption that most of the farmers from the Asian countries attempts to be seen as with a not compliant or sort of resisting this modern technology but then from this particular case study which is being carried out by Michael in the contents in the context of Thai farmers it is written that the pigeons tends to possess that they are highly receptive.

To change if not they are rational decision makers who tends to carefully observe and assess the kind of Agriculture innovations in terms of the potential benefits and cost now usually traditional farmers are not really attuned to you know measuring these benefits and cost because for instance many of the studies, that if you look at terms of the squats and bond agriculture or student agriculture or shifting agriculture in this type of farming if you actually see from an economic perspective the amount of labor or investment.

Which is being done in terms of the cultivations and if you tend to measure with output there is the sort of like an imbalance because usually the output is slow in compared with the kind of investment which is or labor which is being invested in that part of farming but in the context of this the type farmers it is interesting to see the kind of how they are willing to you know evolve themselves.

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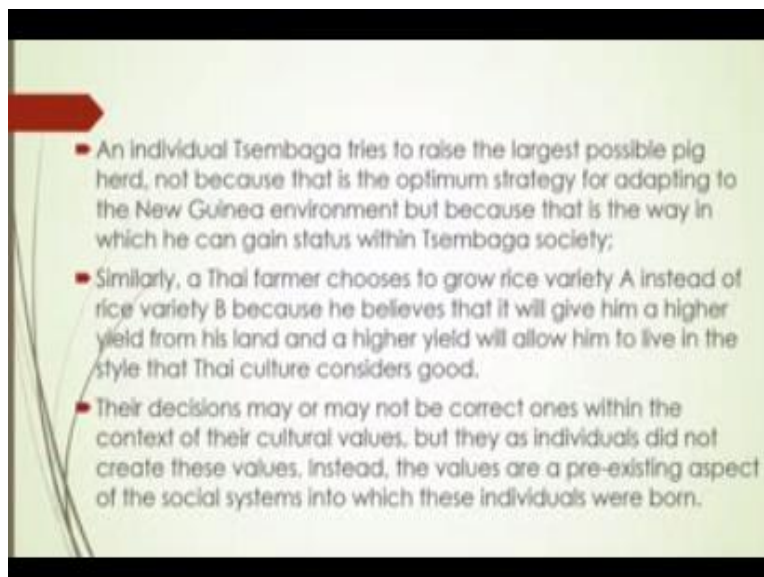
And to bring out certain kind of innovations in the context of this agriculture now because they have been following these modes of trying to see the potential benefits and of course the cost now in this very context despite of the promise of higher realist modern cropping methods are often rejected simply because such innovations may require high inputs of fertilizers pesticides and water and these are something which of course is being witnessed across the globe now for instance when we talk about vulnerable no doubt the benefits and the kind of output the productivity is enormous.

But they cannot do a baby down relying on this kind of you know using fertilizers pesticides and of course different kinds of technology and having known all these to some extent the many of the farmers are you know not receptive to such kind of innovations because or open to the poor

economic backgrounds and therefore this mode on cropping networks are also much more in a way harmful or vulnerable.

To the environmental hazards such as floods droughts and insects and disease outbreaks now these are some of the you know are the negative the possible negative outcomes if one end gifts in using these the modern cropping methods and apart from this it is also evident that once a different kinds of variety of seeds of crops is being grown or introducing introduced in a new area or geographical space there are chances of you know of altering the kind of soil Newton's and also at the same time there is an excessive width which come along with this kind of food crops so these are some of the sort of apprehensions.

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Which are usually being encountered when a farmer stems to introduce some kind of annuities which were normally not usually practiced in that particular area now going back to the examples of what we have seen from the sender community in new jean individuals in a seminal community in a in a way tries to you know raise the largest possible extent of Peaks not because that is the optimum strategy for adapting to the kind of environment which these people have lived on but rather.

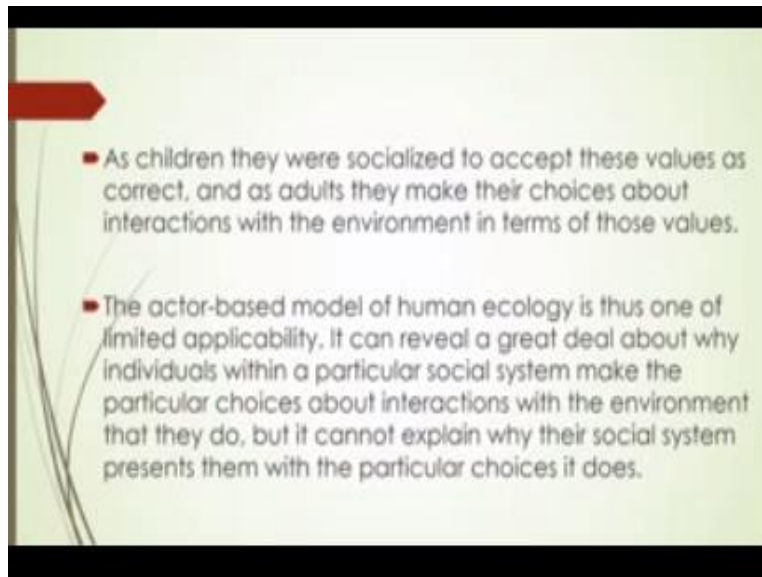
Because that is perhaps the way in which he can as I said enhance in terms of improving one status in the social structure of that particular society that is the symbol of society now exciting that parallels examples if we see in the context of the things farmers again they choose to you know grow a variety of Rises for instance the variety A instead of the rice variety B because the farmer believes that it will give him a higher output from his agricultural land.

And also a higher yield will allow him to you know give him a much more standard of living which in a way is considered to be good in terms of the Thai culture now when we talk about culture it is also about the social acceptability or the kind of values which was the individuals but other members of the society also gives equal meaning and values to that particular practices now when a Thai farmers in a way engaged in this kind of agriculture innovations or in trying to practice different forms of cropping systems or farming rather.

It is considered to be a good in terms in relationship with the high society now therefore these kinds of decisions may or may not be justified or correct one within the context of their cultural values but they as an individual did not create these values then who preached this value in skills the values are free a twisting aspect of the social system into which this individual to a bond now sometimes the kind of decisions with an individual's tends to engage a pond may not be confirmed or may be accepted from that particular culture values but in script.

These values are seen to be which is more of a pre-existing aspect of the social system into which and individuals are socialized.

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And born now as a children as human being tends to grow up they were socialized to accept these values as something which is seen to be correct and which needs to be confirmed by the other individual members and as adults they tends to grow up and then when they become adults they make the choice about their interactions with the environment in terms of those values now those values are not something which is embedded within the culture but it is being a learning process an ongoing process the way in which individuals as they become an adult interact with the environment and so is the kind of value which is being sewn upon the environment.

So people stems to in a way evolve themselves in sort of socializing at the same time interacting with their environment in terms of the kind of values it is being added now the farmers maybe 50 years back might associate themselves to their environment not necessarily in terms of the amount of the crops between is going to be yield or the output which is to come rather it is more of a regular practices because those days they were being guided by the idea of sort of subsistence but as time seems and then.

So as an individual evolve the kind of environment they tends to perceive about also changes because they tend to see any ethical tool and as something it is obvious giving them a subsistence



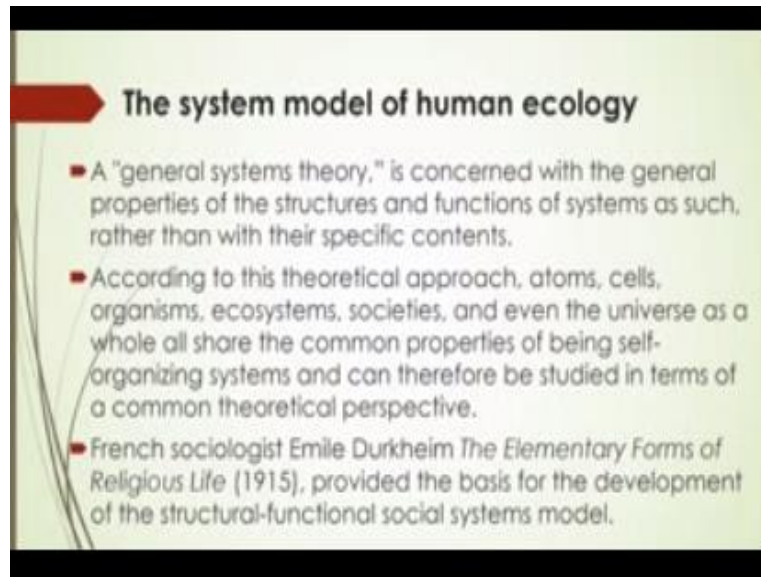
adequate for their means of livelihood rather they tend to measure in terms of the kind of surplus value which also will give them from that particular agricultural land now in a way people are no longer being guided by their subsistence modes of ideas but rather in terms of the market oriented of the modern market systems is how an individual's ideas or modes of behaviors are being influenced therefore under.

This in this very context it is important to see or locate their to base models of human ecology and this percept can be seen as one of the limited applications of this particular models and also it can reveal a great deal about why individual within the particular social system makes such kind of particular choices about their interactions with the environment that they do is because one cannot really explain why their social system present them with the particular choices it does now this is perhaps.

One thing which cannot be explained by this actor based model of human ecology and that perhaps is the kind of limitations of that particular model now also discussing the ecology based models of human ecology and actor based model of human ecology will try to see the talon that is the system models which is much more of a generalized or general Systems Theory which in essence is concerned with the general properties of the structures and functions of system remember.

The structures and functions of system as such rather than within the specific content rather than giving a specific explanations of maybe the lesson functions or many first functions in this particular system model it tends to look at both the structures and functions of systems in a much more generalized structure now according to these particular theoretical efforts.

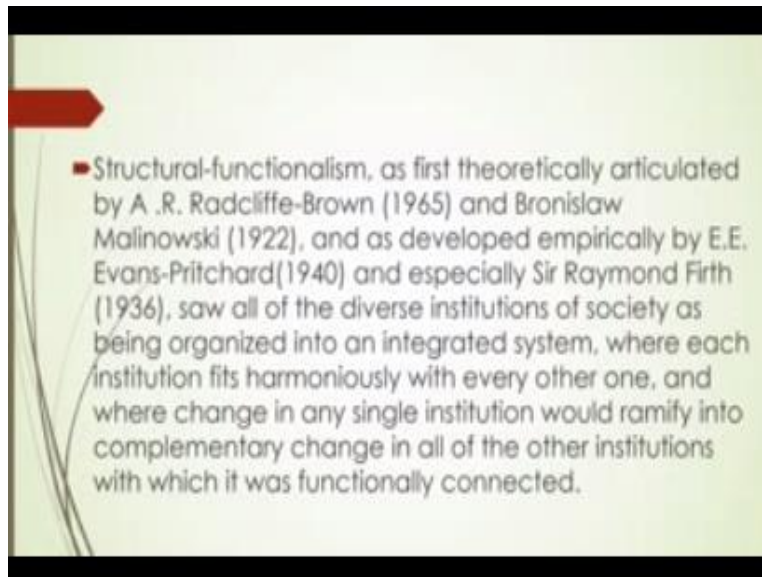
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For example Schley say atomic cells organism ecosystem societies and even. The universe as a whole together share the common properties of being self-organizing systems and can therefore be studied in terms of a common theoretical perspective that is by using a particular single theoretical perspective we can study all these in a much more holistic or as a whole because they are sort of a properties which is self-organizing systems now let us begin with trying to see from a French sociologist my little time were in the he was sort of the miner in terms of looking at these functionalist perspective or structural functionalism.

Now do time were back in 1915 come up with his work for the elementary forms of religious life that is how primitive societies and get upon bringing up certain kinds of their religious beliefs or what perhaps can be the basic rudimentary forms of religion what are the kind of functions it comes to religion has played in the context of societies even in the most simple form of society now these particular works perhaps provide one of the basis for the development of the structural functional social system models.

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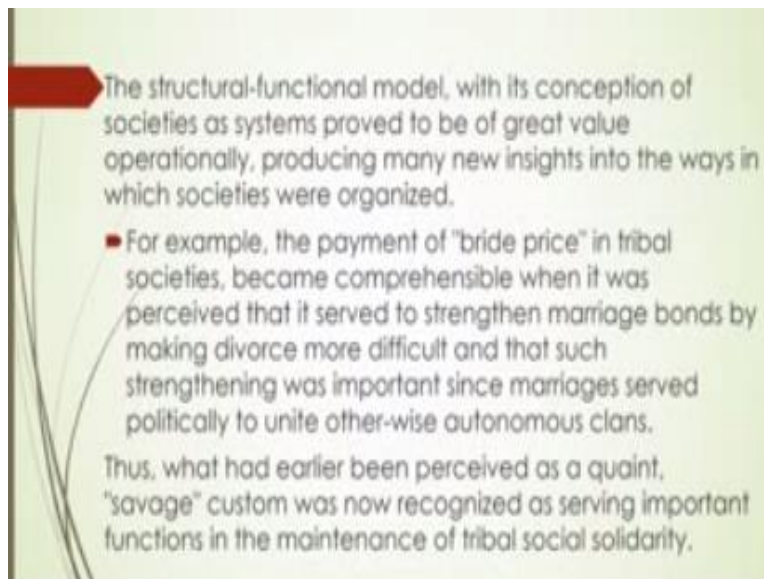


Now do time tends to see how people's engage in looking at the kind of belief system they have for instance the tokenism now what is tokenism is a religious belief that you tends to sort of give sort of respect or a belief that some certain kinds of super natural forces or spirit dwells in certain kinds of say plants animals or any kind of what is certain objects and then you give certain kind of reverence to this and this perhaps in essence guide that particular individual if not the society now in this elementary forms of religious life do come tries to see explain how a religion is pretty much to be sinned from the kind of functions it served to the society as a whole now the second form of approach.

So to say the structural functionalism were also firstly articulated by some of the finer anthropologists like Red Cliff Brown Malinowski and also being empirically studied by a one speed set and also by Raymond's work so all these diverse institutions of society has seem to be organized into an integrated system where it is institutions fits harmoniously with every other one and which in any single institution would sort of verifying to a complementary change in all the other institutions with which it was functionally connected now what do kind actually put it was he tends to see society as the first form of organization.

Where how religions in a sense is being created now for the time society perhaps if the society itself in a way is a religion and it is through these religious belief the members of the society are being integrated and certain kinds of sort of solidarity is being manifested in the context of what the kind tries to look at now let us try to explain further what structural function model strives.

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Which proved to be of great value not just operationally but also by producing many new insights into the ways in which societies were perhaps being organized now for instance a certain kind of practices which were prevalent in the traditional society can be given here as an example now one of the you know like simple so to say or maybe are outmoded in the modern parlance for instance the payment of bright price if you look at in many of the tribal societies which lessons can be antithetical to the dowry system.

Which is practiced in the caste Hindu society now this kind of bright price which was pretty much prevalent tribal societies in essence became comprehensible when it is was perceived that it is in essence sort of served to strengthened the kind of meta model bonds which exist in terms of for instance the making the divorce more difficult and that such strengthening was important

since marriage served politically to unite otherwise autonomous one now I am sure you must have come across certain term such as meta model alliances.

Where in olden time sudden Kings used to you know as a sort of homage if not an honor tends to give away their daughters to certain kind of neighboring things in order to have sort of a cordial relations politically now not adequate to that but in a way you can give an example of that now similarly they are different whirring I mean the wiring communities and they attempts to exchange the daughters.

So that it also ensures some kind of a peaceful environment because they tends to share some kind of kinship relations as a practice of peace now as a result of this it serves some kind of a functional perspective or a functional purposes now this sort of practices which was predominant in earlier societies where perhaps perceived to be sin as a quaint or something which is a savage constant.

But if you look at of those practices now those who are now recognized as assessing a serving a very important function in the maintenance of a tribal social solidarity now those kind of practices if you looked at well the kind of latent functions it served that is the Attic can to some extent be seen as sort of the backbone of how social solidarity is being established between different planning groups in the same maybe a tribe or maybe across defense right now.

Those kind of practices if you see from a structural functional model it does serve a purpose and it has to be seen from that particular context now going further the kind sum up with a terminology called social facts now what does social facts means social facts to their time has to be sort of explained only in terms of other social facts that is how things has to be seen in relations others that is one cannot fix or explain the causes of social change outside the boundaries of the social system itself it has to be explained and seen in the context of that particular social system now therefore.

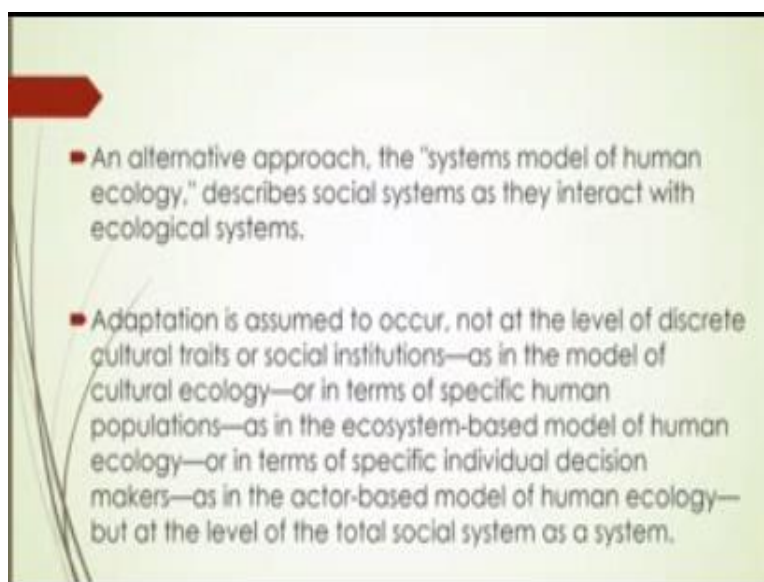
It is important to you know interpret or Maxim's of an explanations from this particular context of that society now similarly the development of human ecology also has to be located or sinned

in a way as an attempt to escape this particular theoretical and impacted by treating social system has opened rather than closed systems now it has to be seen in a much more vibrant and how less is the social system is also being influenced by the existing ecosystem.

Now similarly therefore the works of Julian's keyword which we perhaps have discussed in the context of this how cultural ecology has emerges now what did not see what as tries to explain or rather a profound is it tends to recognize the social facts and this social fact must be explained not only in terms of other social facts but also in terms of ecological effects then now what then is ecological facts now ecological facts also has to be premised in their particular ecosystems as what do crime has used in social facts that is to be signed within that social system.

Now as we had given an example of that bright price the bright price has to be explained in terms of the applicability within that context how attends to you know sort of kettle to the needs of in bringing the social solidarity of that particular society and similarly in cultural ecology things has to be sinned in terms of how the human society their cultures are more or less related with the ecology or how ecology is adopting or making sense or functional of that environment now in this general system approach it is to be seen as more of an alternative approach.

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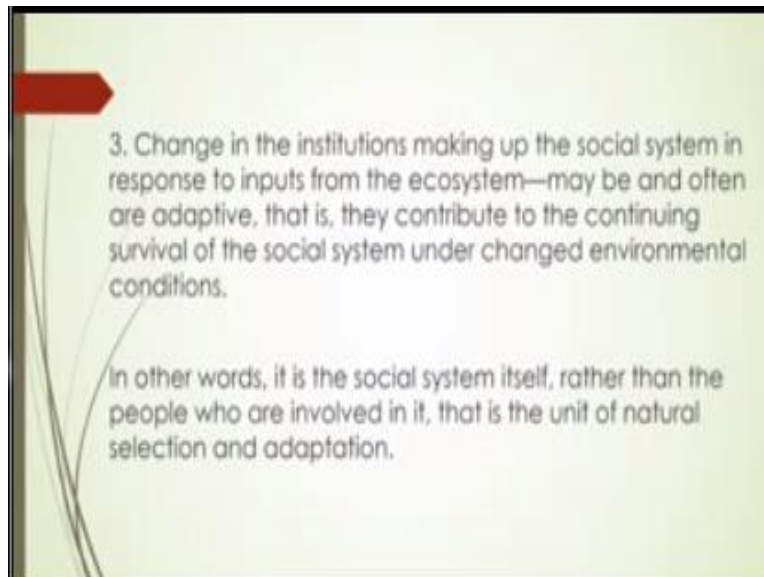
The kind of the system model of this human ecology in essence tends to sort of emphasize the social systems as they interact with the ecological systems now for instance usually we talk about what adaptations is assumed to occur not to be seen as not just at the level of discrete cultural traits or social institutions as in the models of cultural ecology or maybe in terms the specific human populations as in the ecosystem based models of human ecology rather it has to be seen in totality that is the total system the total system as a system.

One should not engage in trying to see breaking up with coming up with different espousing different kinds of models but rather it has to be seen as a total social system this is something which is being missed from the system models of human ecology now going back to what the scheme word innocence explained or trying to bring in this cultural traits in trying to maximum of the environment cultures treat does not innocence necessarily tries to function to ensure the welfare of either individuals or the local populations but.

Instead it primarily tends to ensure the survival of the social system itself which means it gives primary importance the social systems rather than the individual or the local populations now it wants tends to see from this perspective if we give it I mean the we set an example of the same burger community where the ritually regulated war fear of the same burger is not to be seen as something which indirectly benefiting a the most of the individuals or the local population as whole right.

Now either the individuals nor the local population innocence benefit from this kind of an gazing in warfare rather in this system of this model of this human ecology both the social systems and the ecosystem with which it interacts remember the interactions between the social system and the ecosystem retain their integrity as a system it is changing its structural configurations according to its internal dynamics.

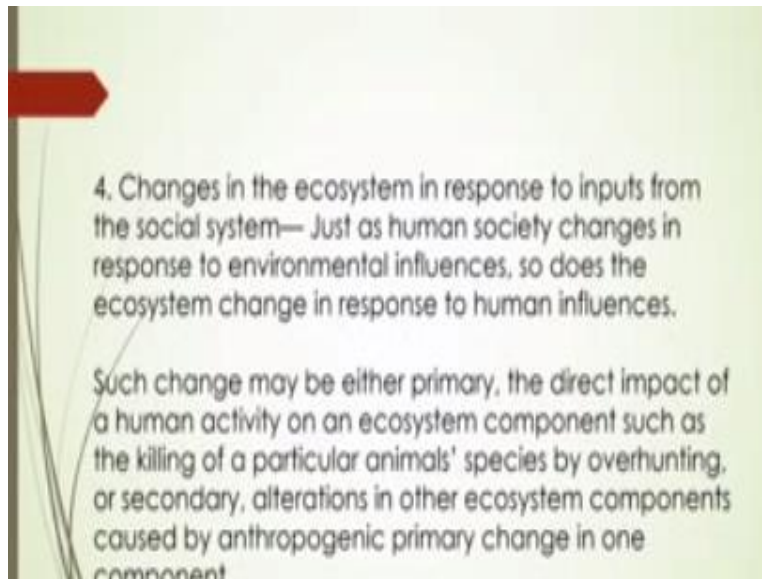
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Now when we talk about the structural configurations we can see that amount of the numbers of fixed bits are being slaughtered and the internal dynamics is something which death slaughtering of the pigs serves the purpose for that particular community which they engaged in that particular rituals now the system models of human ecology as we have discussed further emphasizes for relational aspects.



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Now the first one is the inputs from the ecosystems into the social system these inputs for examples are in the forms of flows of energy maybe the fruit or maybe the petroleum the NN also it has metal aspects like protein constructions so on and so forth or maybe an informations like the sounds the visual stimuli so all these things in a way is partly the kind of relational aspect which is being focuses in the system model of human ecology.

Now the second is the inputs from the social systems into the ecosystem the first one is the Co system into the social system and the second is the social system into the ecosystem again these in a way can take the form of the flows of energy materials or information generated by human activities now the third is changing the institutions making up of the social system in response to the equation that is how the institutions tends to see the social system in response to the ecosystem maybe an offense are adaptive.

That is they contribute to the continuing survival of the social system under the chains environmental conditions in other words this social system itself rather than the people who are involved in it that is the individuals that is the unity of natural selections and adaptations now the social system in essence is given much more important here again now the fourth types of this

operational system is the changes in the ecosystem in response to the inputs from the social system.

Now this is human society changes in response to the environmental influences so does the Co system changing response to human influences so there is this sort of a wise versa kind of relationship remember the environment also has changes because of the influences of humans the kind of activity any amount of activity has certain kind of implications on the ecosystem and such genes in essence may be aided primary or may be the direct impact of a human activity on an ecosystem.

Component such as the killing of a particular species may be avert may be uprooting may be small plant or may be animal species by over hunting or a secondary alteration another ecosystem components caused by anthropogenic primary team's income in one component now therefore we as an individual or as a human the kind of activity which we normally and gives upon minimally to some extent has changes on the ecosystem.

Now the point of what we have discussed in this for emphasis within the system model approach is the point of discussion is that the kind of relationship between the social system and the eco system is both complex and dynamic now why is it complex and why is it dynamic because the virtue of the system of these models of human ecology is that it focuses attention on the processes of change and adaptation rather than emphasizing the static structural characteristics of the social and ecological system.

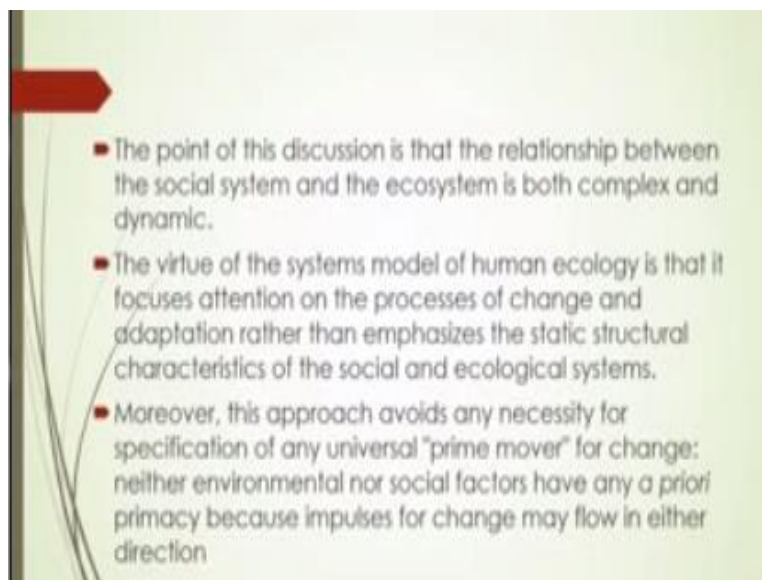
It tries to see the process of change and adaptation rather than emphasizing on the static structural characteristic moreover this system approach avoids any necessity for specification of a universal prime mover for change Naida environmental nor social factors have any a priori primacy because impulses fortunes may flow in either directions it can be negative it can be positive.

So the impulses 14 can flow in any particular therefore there is no inherent contradiction between the system models and the actor model of human ecology because uh apparently it might sound

that the extra base model of based approach and the system model approach may contradict because the later approach is simply one among many that can be incorporated with the larger social system framework certainly the kind of decision-making it with an individual participants.

It may be in the context of the tie farmers as we had discussed affects both the character of the social system and its interactions with the ecosystem but has already been discussed all these decisions are being made within the context of this system and within this perhaps the greatest virtue of the system model of human ecology is that it tends to espouse of certain kind of specific guidelines for doing research on human interactions with the environment it doesn't limit itself in to a single specific models in terms of looking at the relationship.

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Between human and equality rather this system model approach in a way can usher in different kinds of understanding for further holistic understanding of doing research in terms of the human interactions with environment now as we have discussed the different forms of models of human equality and how all to what extent the different models are being followed in transformations of human ecology that is the society or vector base model efforts or maybe society based model of human ecology all these are to be seen in the context.

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How it tends to sort of to be located now as we have seen in the Census and Asp there is an emergence of certain kinds of radical culture relativism and in the 1990s again the ecological anthropology rejected this extreme form of this cultural relativism and accordingly tend to disagree with the modernist dichotomies that is body in mind action and thought and nature and culture this was argued by Milton in way back in 1977.

Now recently in ecological anthropology of ecological studies they tends to include the political equality aspect as well by uniting more traditional concerns for the environment technology social organization Nexus remember these incorporation of new ideas that is how technology is brought in trying to understand all the relations between environment and social organization the Nexus of this particular system with the emphasis of this political economy on power and inequality since historical day.

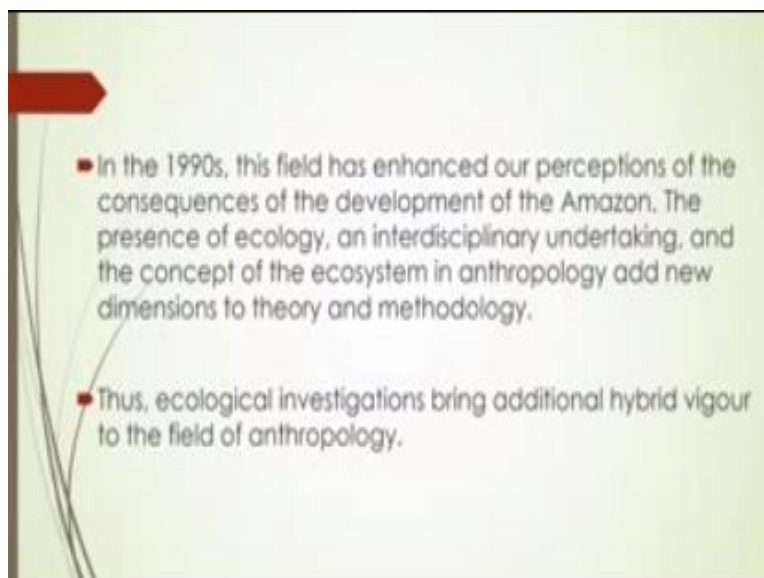
The evaluations and critic of how the third world development and the analysis of environmental degradation now when we talk about political ecology or the political economy on power it tends to see how maybe the kind of trade-off which actually happens in the context of environment and

development discourse and who actually benefit and then who actually is taking the decisions in terms of certain kinds of policies and programs.

Which are being initiated by the policy makers now these are partly something which are of neighbor field where the ecological and populist studies also tends to delve upon it now what does to watch this or what kind of situations are we in - and then the zone is so far then anthropological knowledge has been advanced by ecological approaches the applications of these biological ecology to cultural anthropology in essence as a new scientific perspective to the disciplines and also ecological anthropology contribute to the development of extended models.

Sustainability for humankind through research and study with indigenous people in an ecological framework and properties and give upon learning more about the intimate interactions between humans and their environment now perhaps as in the beginning lectures which I gave I talked about why in these modern problems in the context of ecological crisis why is it important to or bring in the ecological anthropological and supplier disciplines in trying to make sense of how the indigenous peoples are to be located in the context of a particular.

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Ecological framework and through this kind of continuous engagement scholars are and gives upon learning more about the kind of sort of inter relationship or the interactions which is shared by the humans and their environment and within this framework one tends to you know posit equations of how sustainably they were able to use or management many scarce resources now in this newer forms of understanding and development in the 1990s.

This field that is the ecological anthropology has enhanced a subjective understanding or perceptions of the consequences of developments of the emergent now today usually how do we perceive development and then how do we try to locate development in the context of the illness people and how is development to some extent benefiting or being a destruction through many of those indigenous society now development is also highly debated and mostly if we try to see from in the context of Environment and development the perception or the understanding of development in the context of the north.

That is the developed countries and the south that is the third-world countries is also different a kind of engagement which people tend to perceive about the natural resources is also different now the management of natural resources in the north that is mostly in the developed countries is seen as something more of a romanticization or if not recreational framework or even as more of enhancing their means of livelihood or well-being.

But in the context of the South that is in the third world countries resources are seen as something which is pretty much embedded with their means of livelihood now in this particular debate and discourses one also needs to locate or understand the debate of this environment and development now this presence of this perhaps talks about how in the Amazon or the Amazon forests are being depleted as a result of the kind of development projects.

Which are being initiated now this presence of ecology or an interdisciplinary understanding which are being initiated by the within the discipline of ecological anthropology it's sort of a new dimensions in terms of the theory and the methods with the research in this particular paradigms one is to look or maybe this ecology and ecosystem and anthropology heads up a new

dimension into this approaches thus ecological investigations innocence bring sort of an additional hybrid.

We go to the field of anthropology and we will try to look further into some of the works of the equal and topologies in particular and anthropology in general and also some of the works of the philosophers who works in the field of ecology and environment and also some environmentalists who deeply engaged upon in trying to make sense of the human environment interactions now this would be cover upon the upcoming lectures and I will stop here.

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