Natural Resources Management (NRM)
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Week - 01
Lecture - 07
Approaches in Resource Management

Welcome participant. So, the continuation of resource management, we are going to discuss various approaches in resource management.

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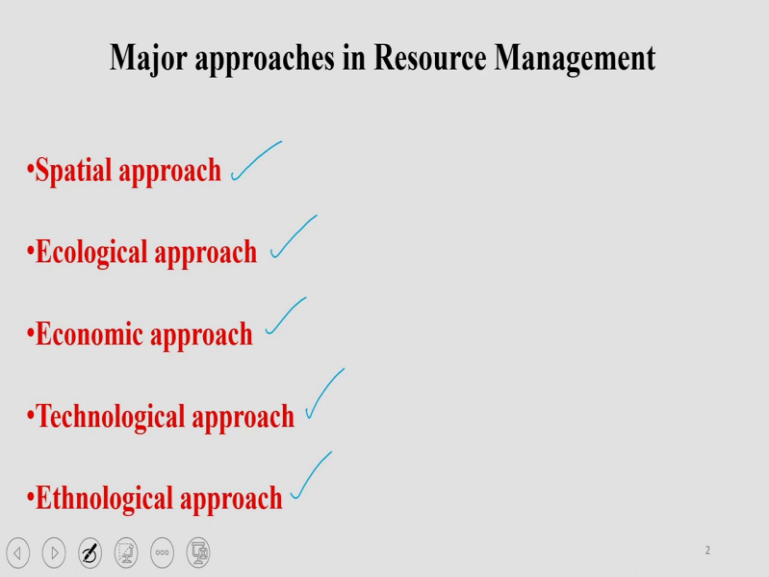

There are different approaches, which are being followed for natural resource management. And if you look at those different approaches, the first one is spatial approach. Means, it depends on space, or distribution or, location of resources. Second, ecological approach. From the name itself it is very clear that it considers the ecology while managing the resources. Third, economic approach. So, that means here it will look at the economic aspect while managing the resources. So, here the value of resources could be critical. Fourth is technological approach, where, the intervention of various technologies is critical for efficient resource management. And finally, we have ethnological approach, which tries to bring the people in the management system. So, we will discuss in coming 15-20 minutes about each one of these approaches, and how these are being carried out in the field, and how they are different from each other. So, let us start with the first approach, spatial approach.

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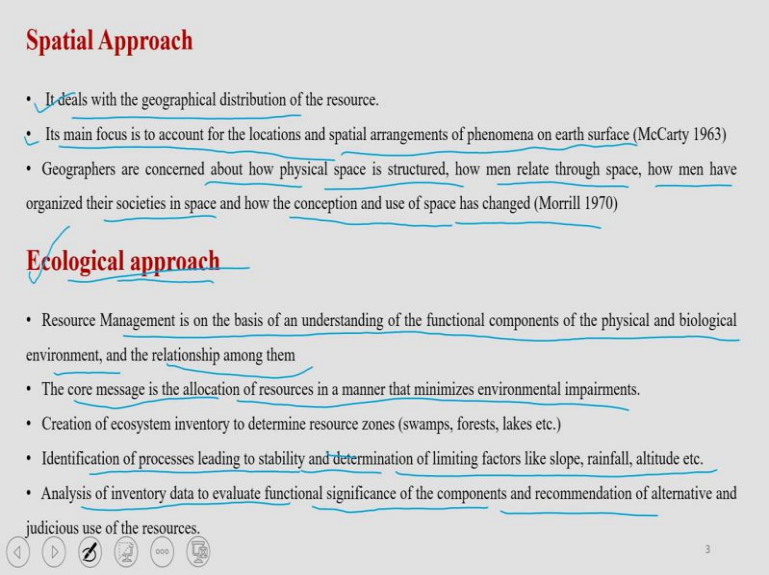

Now, as I said that, from the name itself it is clear that it deals with geographical distribution of the resources. Its main focus is to account for the locations, and spatial arrangement of phenomenon of earth surface. Means, how the resources are distributed in an area. Next, geographers, are normally concerned about how physical space is actually structured. How men relate through space; How men have actually organized their society over a space; and how the conception use for space has changed over an area, or from one area to the other.So, in a sense, in spatial approach, we look at that how things are changing from one area to the other.

Next ecological approach. Here, resource management is done on the basis of understanding on the functional components of physical, and biological environment, and their relationship. So, as I said that the principle of ecology plays an important role in ecological approach of natural resource management.

The core or important message is the allocation of resources in a manner that minimizes the environmental disturbances. So, in ecological approach creation of ecosystem inventory in determining the resource area, resource zone is also important. It tries to identify what actually leads to stability, and determination of various limiting factors like slope, slope of land, rainfall, altitude, etcetera.

So, finally, the analysis of inventory data for evaluating the functional significance of various components, and recommendation of alternative judicious use of natural resources is an important part of ecological approach. So, participants as you see that, between these two approach, there are one or two very significant difference. In spatial approach it is looking at as I said, from one space to the other, how resource type, and resource characteristics are

changing. The ecological approach, it looks at the relationships between the resources surrounding environment, and most importantly, it looks at the allocation of resources. Because, allocation of resources is actually going to decide that how you are going to utilize, or how an individual, or a society is going to utilize the resources, and will take care of their environment. So, the allocation is key here in this ecological approach.

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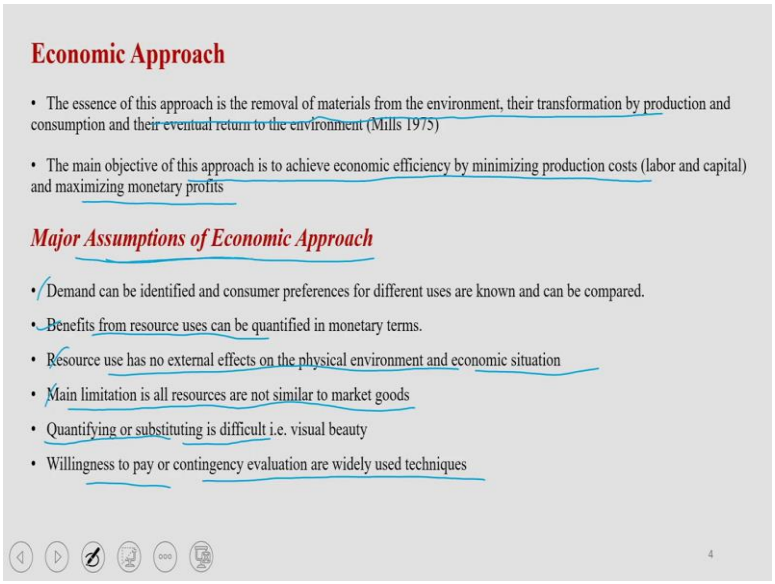

Next, economic approach from the name itself, it is very clear. So, this approach will mean business. So, the essence of this approach is a removal of material from the environment, and their transformation by production and consumption of their eventual return to the environment. So, here we look at the economical benefit of a resource.

The main objective of this approach is to achieve economic efficiency by minimizing the production cost, and maximizing monetary benefits. So, this approach, naturally, you will need some kind of intervention of technology. Because, advance technology, or efficient technology will reduce your cost. So, here in economic approach, you will see that there will be lot of intervention of different type of technology.

Now, what are the assumptions that are considered under economic approach? First, the demand can be identified, and consumer preference for different uses are known, and can be compared that is already assumed. Next, benefits from the resource uses can be quantified in monetary terms, because that is important for economic analysis. Then, resource use has no external effects on the physical environment and economic situation. Main limitation is all resources are not similar to market goods. Next assumption, quantifying or substituting is

difficult, means, you will find difficulty in quantifying a particular resource, and substitute that resource by another one.

Suppose, as an example, coal, suppose you need coal as a resource for a certain activity in the society. And now, to substitute coal by another resource for continuing that particular activity may not be feasible, because that particular activity only can happen when you provide or you take coal from the nature. So, the substitution of sometime, there is natural resource by another one could be difficult.

Finally, willingness to pay or contingency evaluation are widely used techniques in case of economic approach. Willingness to pay, so, if you are taking some natural resources from the nature for utilization of your benefit, so, you are expected that you will be willing to pay for that. So, these are some major assumptions, that are considered under economic approaches.

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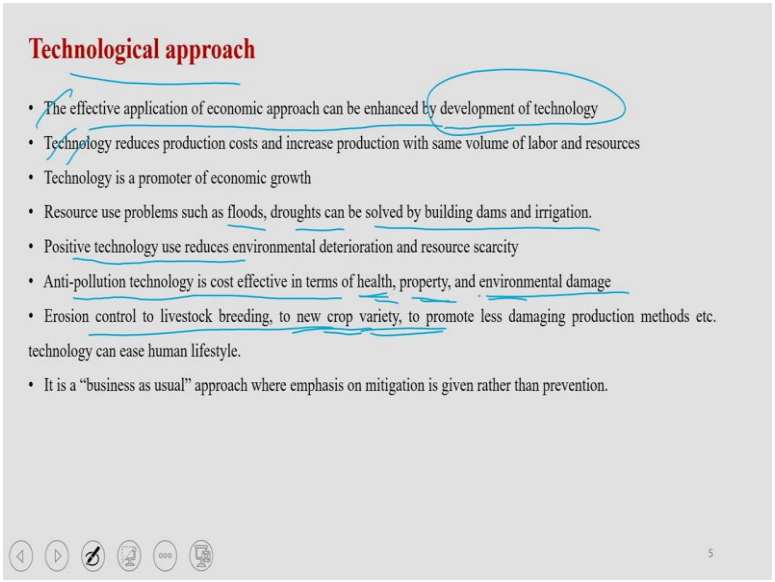

Next, technological approach, as I said that, when economic benefit you want to achieve that means, you need to reduce your cost to increase your benefit. So, technology is required. Now, technological approach, it looks at the effective application of economic approach that can be enhanced by developed, or development, or intervention of technologies.

Technology, it can reduce the production cost, and increase production with same volume of labour or resources. So, if you bring in a new technology, which is much more efficient, energy efficient. or it can actually produce the product within less time, so, definitely that is going to enhance your production rate.

Technology is also a promoter of economic growth, there is no doubt about that. Then, different kind of resource uses are often affected by floods, droughts, these kinds of natural event, which can also be solved by different kinds of utilization of technology, like bringing in dam, irrigation channel. So, positive technology interventions will definitely going to reduce the environmental deterioration. And also, it will at the same time can manage the resources in a better manner. So, that there is no sudden kind of resource crunch in the vicinity.

So, role of technology is also important to reduce pollution. Anti-pollution technology is cost effective, in terms of health, property, environmental damage. If your technology is environmentally clean, then definitely the health will be in a good or maybe, the health will not be affected negatively. So, the expenditure associated with your medical will not be there. So, there are various other positive effects; environment will remain relatively better if your technology is good.

So, there are various other roll of technologies like new crop variety. Suppose, you produce a crop variety, which requires less water. Then definitely, you are going to save a important natural resources that is water. So, an advancement of technology basically, would enhance the efficiency of resource management from economic point of view, from environmental point of view as well.

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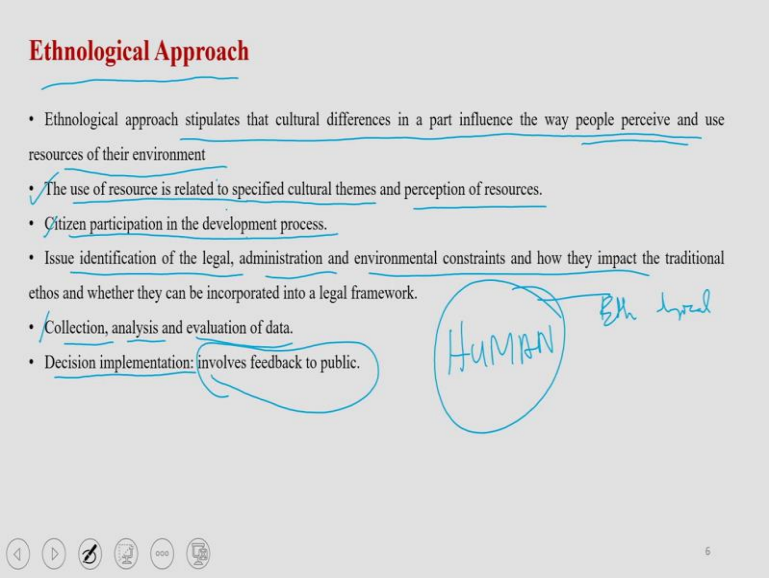

Next, ethnological approach. So, this approach, as I said at the beginning, that it brings in people in the centre. Ethnological approach, it stipulates that cultural differences in a part

influence the way people perceive and use resources of their environment. So here, the human component comes in. So, ethnological approach, it considered the cultural differences.

Suppose, there are two place, in one place, people worship certain natural resources, like say trees, or water body. In the other place, suppose they do not follow that culture. So, in one place, you will find out that, people are utilizing those resources like trees, and water for their uses, but at the same time culturally, they worship those natural resources as a part of their culture. So, there is an inherent conservation practices is being followed.

Whereas, in the other place, that is not happening. So, the cultural difference also influenced the way people perceive, and use their resources. The use of resource is related to specified cultural theme, and perception of a resource. Very true, as I just now mentioned, that when one place to the other, one country to the other, the culture of people changes, the way people perceive towards a particular natural resource could significantly change from one culture to the other culture.

So, next citizen participation in the entire development process is a key component in ethnological approach. So, as you see that in every point is the human component is coming and playing a important role. Issue identification of the legal administration, environmental constraints, and how they are going to impact the traditional ethos, culture, and whether those can be incorporated even within a legal framework can also be tested, or studied, or analysed under ethnological approach.

Then collection, analysis, and evaluation of data is also often carried out keeping in mind, that those natural resources are being used for the good of society. So, they should be managed, keeping the principle of sustainability in mind. Finally, decision implementation, this involves the feedback to public.

So, in ethnological approach, as you see that human is actually in the centre of all activities, which are associated with this approach. Alright, whereas, in other previous approaches, the role of human is not that much significant, or significantly highlighted.

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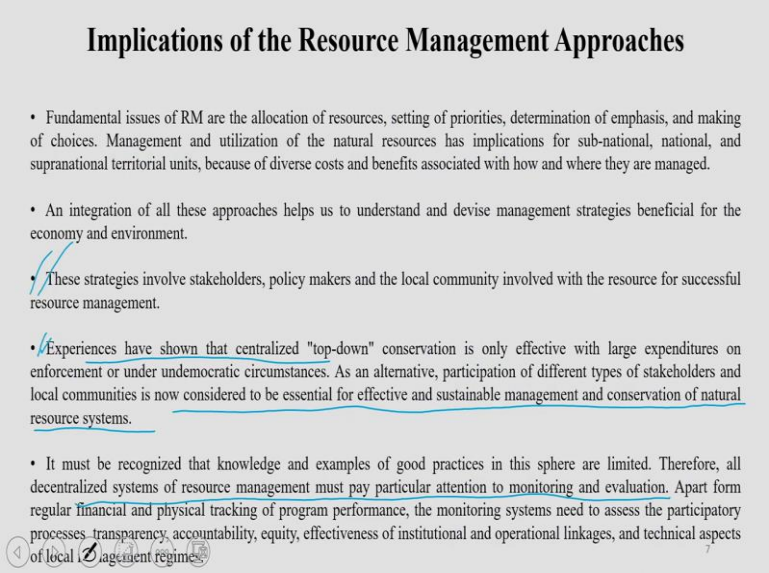

Now, if you look at this implication of all these resource management approaches, you will find that the fundamental issues associated with natural resource management are the allocation of resources, then setting the priorities, determination of emphasis, making of choices. These are some important aspect where these resource management approaches often play a role. An integration of all those approaches that I have just discussed could help us to understand, and also prepare, or devise a management strategy which can be beneficial for the economy, or economic benefit of the society, but at the same time it will also take care of the environment.

Now, these strategies should involve various stakeholders, policymakers, local community involved with those particular resources, that are actually available in their area. So, without the role or participation of those local people or community, no natural resource management practices will be successful.

Next, the experience have shown that the centralized top down approach conversion is only effective where large amount of project, or expenditures on enforcement are under some kind of undemocratic some circumstances, this kind of top down approaches of natural resource management you can see.

As an alternative, the participatory approach of various stakeholders, including local community is now at present considered to be the essential for effective and sustainable management, and conservation of natural resources. So, this understanding is now clear among the various section of society that participation of every stakeholder is key for an efficient resource management.

And, it also said that it must be recognized that knowledge of good practice are actually very limited. And here, the knowledge of indigenous people, or traditional indigenous knowledge should also be considered while making a plan for resource management. A decentralized system of resource management must pay particular attention to monitoring, and evaluation.

Apart from regular financial and physical management of program, different project or performance monitoring systems, participatory process transparency, issues of equity, effectiveness of various institutional mechanism, linkages, these are some of the important aspects, that need to be kept in mind while devising a natural resource management policy for any area.

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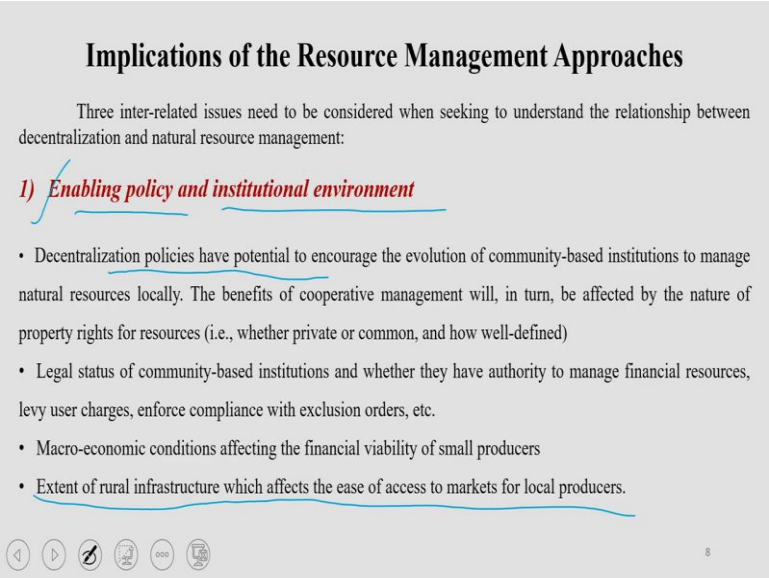

Now, three interrelated issues I would like to discuss here, which need to be considered when you try to understand the relationship between decentralization system, and natural resource management. The first one is enabling policy and institutional environment. A helpful policy and a good institutional support is very-very important for resource management.

Decentralization policies have potential to encourage the evolution of community-based institutions. It also encourages the participation of community, the local people. So, the benefits of cooperative management in turn will be affected by the nature of property rights of various resources. So, if you look at the legal status of community-based institutions like self-help group, farmer produces company, water user group, whether they have authority to manage financial resources, or different other issues these need to be also evaluated.

Now, macro-economic conditions affecting the financial viability of small producers also need to be checked. Extent of rural infrastructure is another critical aspect, because it is the infrastructure, in the rural areas especially could affect the access to various resources. So even if suppose some resources are available, and could be made ready for utilizations but just because there is no appropriate access to that particular resources, many a time the community would be deprived of utilizing that resources. So that is also another aspect that need to be looked at.

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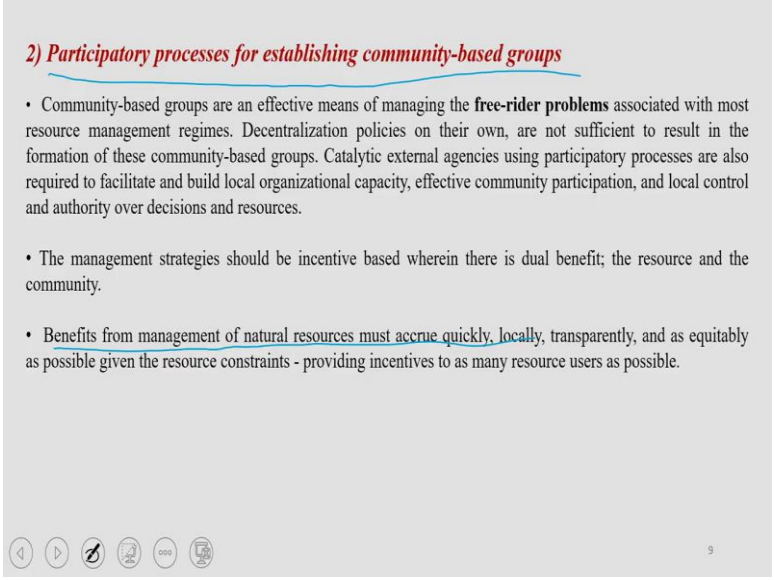

Second point, participatory processes for establishing community-based groups. These are actually the new learnings that are being now applied in the field of natural resource management across the world. Community based groups are being formed because they are more effective, they are more efficient in case of managing resources which are available in their own area, they are more decentralized in nature.

The management strategies also should be incentive based, where there you have kind of dwell benefit, the resource and the community, both are taken care of. Because they are dependent on each other, the community should take care of resources, resource is also taking care of communities' need.

Now, the benefit from management of natural resources must accrue quickly, locally, transparently, and as equitably as possible, because the equality issue of resource allocation is another very-very important aspect which needs to be looked at with a very sensitive mind. Otherwise, the entire exercise of resource management could be a futile one.

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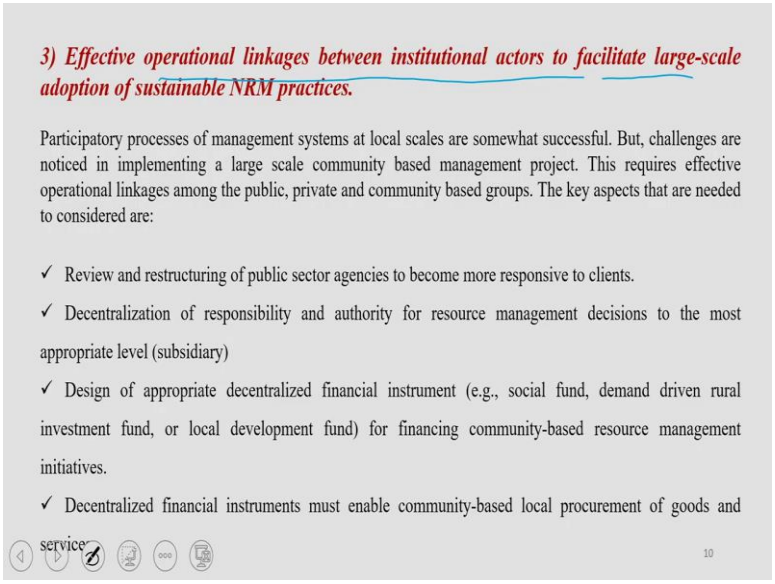

Effective operational linkages between institutional actors to facilitate large scale adoption of sustainable NRM practices, natural resource management practices. So, here you will need to review, restructure the public sector agencies will become more responsive to their clients, decentralization of responsibility, and authority for resource management decisions.

Then, design and appropriate decentralized financial instrument like social fund, demand driven rural investment fund, local development fund, and then decentralized financial instrument must be enabled on the basis of community based local procurement of goods and services.

So, essentially, what you find here, that the natural resource management practices if we want to be successful, then the role of community, participation on community, thinking people into every planning exercise is critical for the success of any natural resource management policy, strategy of any place.