

**Natural Resources Management (NRM)**  
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**Week - 01**  
**Lecture - 06**  
**Resource management Paradigms- Part 2**

Today we will continue from the previous class on different paradigms of resource management. So, if you recall the previous class, we discussed about the different paradigms, 4, 5 paradigms on resource management.

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**Management issues associated with key natural resources**

A sustainable utilization of natural resources is must for social and human welfare.

Their management must be such that resource utilization is maximum with minimum depletion.

In the pursuit of sustainable resources management and conservation, it is necessary to analyze and incorporate multifarious factors into the design of a comprehensive strategy.

The major factors or issues associated with natural resource management are:

1. *Individual factors* ✓
2. *Socioeconomic factors* ✓
3. *Politico-economic factors* ✓
4. *Institutional factors.* ✓

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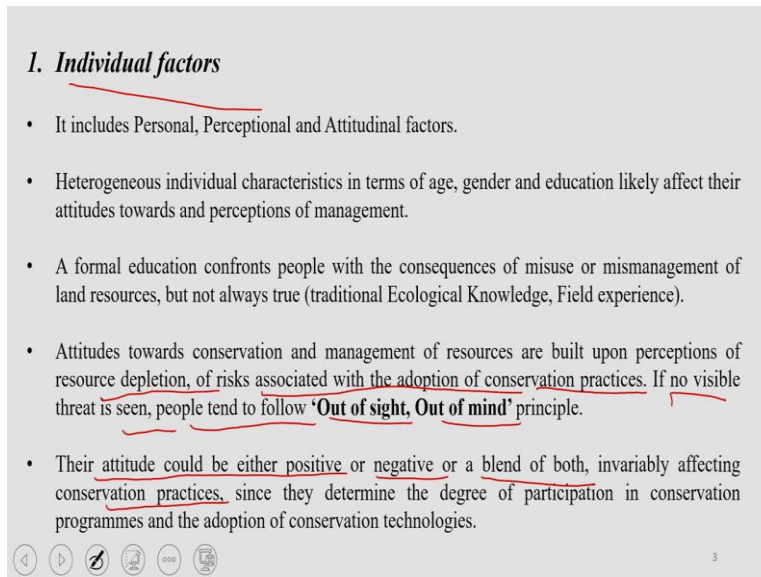
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Today we will look at the management issues that are associated with the key natural resources. If you look at a sustainable resource management, or utilization of natural resources in a sustainable manner is actually very important for social and even human welfare. And, their management must be in such a way that we can utilize it to the maximum, but at the same time with minimum depletion of those resources. And naturally, that would be a challenge in utilizing in one side. And at the same time, managing it in an appropriate manner, so, that we do not completely finish it from the ecosystem.

To address this challenge, sustainable resources management and conservation practices are being followed. And, it is also very pertinent to analyse and incorporate different factors into the design of natural resource management in a very comprehensive manner. So, the major factors or issues associated with natural resource management are, individual factors,

socioeconomic factors, political economic factors, and institution factors. Each one of these factors are critically important in devising the natural resource management strategy.

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**1. Individual factors**

- It includes Personal, Perceptual and Attitudinal factors.
- Heterogeneous individual characteristics in terms of age, gender and education likely affect their attitudes towards and perceptions of management.
- A formal education confronts people with the consequences of misuse or mismanagement of land resources, but not always true (traditional Ecological Knowledge, Field experience).
- Attitudes towards conservation and management of resources are built upon perceptions of resource depletion, of risks associated with the adoption of conservation practices. If no visible threat is seen, people tend to follow 'Out of sight, Out of mind' principle.
- Their attitude could be either positive or negative or a blend of both, invariably affecting conservation practices, since they determine the degree of participation in conservation programmes and the adoption of conservation technologies.

Now, we will look at all these factors individually. First, individual factors. It includes the personal, perceptual, and attitudinal factors. People or human attitude is very important for the appropriate utilization of resources. We discussed in the previous classes also, that how much of amount of resources that one requires, it depends on that individual's attitude also. Heterogeneous individual characteristics in terms of age, gender, education, income, means financial status, are likely to affect their attitudes towards the perception as well as the management of natural resources.

A formal education policy or education system, it normally confronts people with the various consequences of misuse, misutilizations, management of different resources like land, water. But, here the utilization of resources by people in some cases could be a very sustainable and it is inherently into their behaviour.

It may sound a little contradictory to you, let me explain it. Say the example of traditional cultivation system like shifting cultivation, there are I mean, people argue that shifting cultivation is not good from the point of natural resource management. But if you look at the history, and the philosophy of shifting cultivation, you will find that, that is not only one traditional ecological knowledge, it also based on a very tested field experience. So, if the shifting cultivation is done in the appropriate manner, a sense of sustainability is already there. So, that is why, when we say that continuous utilization of resources may be termed as

mismanagement, but this may not be true in some cases where the resources are used through some traditional practices, which inherently are sustainable in nature.

Attitudes towards the conservation and, management of resources are built upon perception of resource depletion, of risk associated with the adoption of different conservation practices. If no visible threat is seen, people always tend to follow out of sight, out of mind principle. If they see that there is no immediate threat is there, so, definitely they become a little bit casual. So, people try to just follow that principle out of sight out of mind.

Now, their attitude, individual attitude could be either positive, or negative, or a blend of both. And, this would invariably affect the conservation practices, because they determine the degree of participation of an individual in the conservation programs. And also, in the adaptation of various conservation technology.

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**2. Socio-economic factors**

- Modern medical facilities has led to a considerable decrease in mortality rates and higher birth rates. The resultant population explosion has aggravated environmental problems in many ways; mainly in decrease of land for agriculture and household.
- Given the availability of natural resources, and them being open to all and meeting demands for various purposes, the use and management of forests, pastures etc. gives rise to interpersonal, interclass, intercommunity and inter-institutional conflict.
- Such conflict may arise over resource management for a variety of reasons:  
**the failure of planners and policy makers to identify the requirements of the public concerned accurately; the vested interests of various subgroups; unequal access to resources; skewed distribution of land resources; inadequate farm labor supply; the absence of popular leadership; and the mechanism of the political culture.**
- Whatever the cause, any such conflict is detrimental to resource conservation and management, since it leads to poor participation in management planning and programmes and to illicit use or overuse of 'commons'.

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Next, is the socio-economic factors. Now, if you look at modern medical facilities, which actually has led to a considerable decrease in mortality rates, because of good medicines, good medical cares, hospital. So, all those things has somehow brought down the death rate. So, when death rate goes down, then if you recall that concept of carrying capacity J curve, S curve.

So, when death rate goes down, so, definitely, even if the birth rate goes at the same pace, you are bound to have a larger population. So, larger utilization of natural resources. Here, I am not being judgmental, I am just sharing with you the fact of advancement of science and technology, how actually it could affect.

Given the availability of natural resources in an area, or in a country. And suppose, they are open to all, and they are meeting the demands for various purposes, for our individual or community aspiration, and that leads to some exorbitant uses of different resources like forest, pasture, etcetera. And these, raise to interpersonal, interclass, intercommunity, and inter-institutional conflict.

Because, when the resources are in limited amount, and you have different kinds of aspiration, or expectation at the individual level, at the class level, community level, institutional level. So, there will be a kind of conflict, and this kind of conflict at times could raise some kind of problem in the resource management. And, in certain cases, it could even lead to kind of an interstate, or inter-district, or intercountry conflict even.

So, the failure of planners or policymakers, in identifying the requirements of the public concerns, what is the public requirement in a appropriate manner, instead of they give at times more importance to some of their vested interest for various subgroups, unequal access to resources on the basis of various categories, skewed distribution of land resources, inadequate farm labour supply, the absence of popular leadership, then mechanisms of political culture.

So, these all actually also work as a ingredient of a potential conflict with regard to natural resources, availability and utilization. Whatever may be the cause, any this kind of conflict could be very-very detrimental to resource conservation and management. Because, this ultimately leads to poor participation of people in the management, planning, and programs. And to illegal uses, or over uses of common property like water, river water, forest, pasture. So, this particular issue can lead to a situation where, at times people call it tragedy of commons. We will also touch upon this tragedy of commons in future class.

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### 3. Politico-economic factors

- Natural resources are by no means recently institutionalized features. They are thought to have originated with the inception of communal hunting and gathering activities of primordial humankind, and were very systematically maintained and rationally used, adhering to institutional regulation throughout history.
- With the inception of urbanization and industrialization, and also agriculture, the destruction of natural resources like forests and pastures set in for additional demand for cereals and raw materials to sustain an ever more rapidly growing urban population and to supply thriving industries.
- The declaration of all public resources as 'crown lands' or 'government lands' barred their utilization from the major groups of population in numerous; the small or marginal farmers or the landless and poor. However, a small but powerful group of people - politicians, social leaders and administrators - arranged for themselves to retain access to such lands.
- Despite the much echoed rhetoric of political freedom and socioeconomic equity, the majority of people in are still trapped in a vicious cycle of poverty and dependency due to this political imbalance. Since resource redistribution programmes have not been implemented effectively, increasing numbers of households have been moving downward in a process of pauperization from a state of poverty to a state of misery, forcing them to deplete remaining resources illegally at ever accelerating rates.

Next is politico-economic factors, one of the most important factors for efficient and, sustainable natural resource management. If the political environment is not conducive, or helpful, even if the natural resource management system has been designed, it may not work. Because, you need a conducive political environment, a supporting financial tool should be there.

So, natural resources are by no means recently is institutionalized. And, they are thought to have originated with the inception of communal hunting and gathering activities. But those days are gone. Now, natural resource management has come a long way, and this demands a scientific and technical approach to manage natural resources.

So, with the inception of industrialization, urbanization, and also the development of intensive agriculture, there are a lot of destruction of natural resources like forest, pastures, has taken place. Because there was a demand for food crops, like cereals, raw materials, like cotton. So, on the basis of the demand of people, or population, there was a change during the industrialization time, or intensive agriculture, the land use also got modified.

Now, if you look at the declaration of all public resources as kind of a crown lands, or government lands, then what happened is that only few privileged people will be allowed to utilize those resources which are coming under the crown lands, or so-called government lands. So, that could also generate certain amount of differences, and conflict in the society. However, a small but powerful group of people like politicians, some leaders, administrators; they will actually arrange themselves to retain the access to such land.

Now, these are happening, I mean, all of us, we are aware of the fact but the challenge is how to address these issues so that the resources which are available in a particular geographical area, are accessible to the maximum number of people. So, that is why political and economical environment is very-very important, whether the natural resource management will be efficient for a particular area.

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**4. Institutional factors**

- Common ownership as the single most important cause of depletion of natural resources, since all members of a community have certain rights to exploit them. These often leads to mismanagement rather than common use. Each user only concerns themselves and ignores the user cost of extracting a unit today.
- The management of these resources for sustainable production in an institutional level requires:
  - ✓ Adequate investment in production and management
  - ✓ Systematic and scientific extraction from the available stock
  - ✓ Efficient utilization.
- Institutional steps like Social forestry projects, Marketing facilities, Market centers, Extension services, Irrigation facilities as well as credit facilities have been implemented to boost judicious use of resources.
- However, these projects fail to attain their goals, owing to poor community participation, lack of understanding, political pressure etc.
- Thus, there is a need for provision of adequate and efficient extension services are a must for natural resource management.

Next, let us go to institutional factors. Now, common ownership as a single most important cause for depletion of natural resources. Because anything, any resources, which are designated as common, definitely it will be exploited to the maximum. And, no care could be taken because, that does not belong to anyone. So, nobody wants to take care of that resources. And this often leads to mismanagement, rather than common use. Each user is only concerned about their interest, their utilization, their benefit.

And, most of the time they ignore the user of extracting a unit today. The cost of extracting a unit today has to be considered, and one should, even if the resources is common for all, it should be utilized in such a way that the future generation also can get the benefit of that particular resource. But that does not happen in most of the cases and that is why, we need an efficient management system for natural resources.

The management of these resources for sustainable production is an institutional challenge. And it requires adequate investment in production, and management, systematic and, scientific extraction from the available stock in any particular area. And finally, efficient utilization of those resources.

Now, institutional decisions, or steps like social forestry projects, marketing facilities, market centre, extension services, irrigation facilities. So, these are all actually, or normally being implemented to encourage, or to boost the judicious use of natural resources. However, in many cases, you will see that these projects failed to attain their goal because of various reasons. One is that very poor participation by the community, the reason could be that they are not aware of the initiative, proper extension work has not been carried out, lack of understanding on the importance of a natural resource, political pressure, social unrest.

There could be various reasons for what actually the community participation actually is not that much as it should be. Thus, there is a need for provision of adequate, and efficient extension service which must look for natural resource management. Awareness, people participation, because without the community participation, natural resource management cannot be a successful exercise.