# MSD-013
## Socio-Cultural System

Indira Gandhi
National Open University
School of Interdisciplinary and
Transdiciplinary Studies

Block

# 2

## SOCIAL CHANGE

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May, 2016
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*Further information on Indira Gandhi National Open University courses may be obtained from the University's office at Maidan Garhi. New Delhi-110 068 or visit University's web site http://www.ignou.ac.in*
Printed and published on behalf of the Indira Gandhi National Open University, New Delhi by the Director, School of Agriculture.
Laser Typeset by : Tessa Media & Computers, C-206, A.F.E.-II, Okhla, New Delhi
Printed at : Akashdeep Printers, 20-Ansari Road, Daryaganj, New Delhi-110002

# BLOCK 2 SOCIAL CHANGE

This is the second block "Social Change" of the course on "Socio Cultural System". In this block the ideas regarding the evolution of societies and factors responsible for social changes are presented in a lucid manner. The block is divided into 4 units. The first unit is "Resources and Society" in which the importance of resources and how the availability of resources affects the human survival has been described. Since human life has evolved on this planet we have continuously extracted resources for making our lives simpler and better. Unit 2 "Social and Cultural Continuity" throws light on consequences on resource extraction on the social and cultural life of individuals. In due course of time, it was recognized that the modern lifestyle is only adding struggles and leaves no time for leisure and relaxations. Unit 3 "Environmentalism" is all about different kinds of environmental movements that have taken place in the past. It signifies that the people's awakening is the key to address any issue in the society. In this unit mention of various local, regional movements has been made to make the learner understand the movements well. Unit 4 "Impact of Development" discusses the influence of development activities on natural resources, environmental settings and health of human beings. Environmental concerns like water pollution, climate change, biodiversity depletion, mining hazards, etc have been described at length so that the learners are able to understand the issues properly.

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# UNIT 1 RESOURCES AND SOCIETY

**Structure**


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1.1 Objectives

1.2 Concept of Resources

1.3 Hunting and Food-Gathering or Foraging

- 1.3.1 Technology of Foraging
- 1.3.2 Social Organization of Hunters and Food Gatherers
- 1.3.3 Demography
- 1.3.4 Political and Economic Organizations

1.4 Herding or Domestication of Animals

1.5 Shifting Cultivation

- 1.5.1 Social Organization
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1.10 Key to Check Your Progress


## 1.0 INTRODUCTION

In this unit we shall deal with the historical relationship between resources, technology and society as well as will try to define technology and resource describing their interface with society. You will learn the evolution of ways of acquiring resource from the environment, and how society became more and more organizationally complex, as it increased its resource use based upon increasing technological abilities. At each stage of acquiring ability to exploit more and different resources, human society has undergone transformations in the realm of the political, organizational, economic and cosmological domains. Thus this unit focuses on change in human society in relation to resource use.

## 1.1 OBJECTIVES

After reading this unit, you will be able to:

- describe the concept of resources; and
- explain the changes in human society in relation to resource use.

## 1.2 CONCEPT OF RESOURCES

What is a resource? Anything that anyone can use for survival and reproduction is a resource. A resource is not necessarily tangible for example, knowledge is a resource that is most important as humans do not invent technology fresh at every step but use a body of knowledge handed over to them through generations.

For humans resources are not just something that exists in the habitat but things that are culturally produced and socially reproduced. For example every child learns some basic tricks of survival from their elders, usually primary caretakers such as parents and other family members, but these caretakers are part of a group , bonded together to fulfill its task of primary socialization. Such a group can be a boy's dormitory in a tribal society or a school in an urban neighbourhood, once the child has grown out of the infant age, whether it is parents or surrogate parents who teach the child basic tasks and ways of taking care of themselves. Thus while a society provides the institutional structure, the culture provides the know –how.

Human beings depend not so much on materially produced as on culturally produced resources. Marshall Sahlins, a cultural anthropologist has pointed out that for anything to become a resource it must be culturally perceived to be of value, or to be of use. Let us take an example of hunters and food gatherers who may be living in an environment where there are large quantities of minerals buried under the forests that they are using, yet it is of no use to them for they have no requirement for it. Even for the resources normally used by the foragers, not every resource may be used in a uniform manner. For example, although both meat and vegetable foods such as roots, tubers and nuts form a part of their diet, yet as reported animals proteins from hunting form only a small ( 20-45%) of their diet, a fact that rejuvenated discussions about women's superior position in contribution to subsistence among feminist scholars. However not even all kinds of vegetable sources may be counted as food or be equally valued. Although human beings are actually capable of eating and digesting a large number of species they show themselves to be remarkably choosy about what they identify as food and even more so, what they prefer. For example for most upper caste Hindus, animals are not food, even if they are food for some, not every animal, rather only a few species form edible resource.

Going back to the example of the hunters and food gatherers, Richard Lee who had done intensive work on the! Kung Bushmen in the fifties and sixties, when they were relatively less transformed. The! Kung could identify and name 200 plants and 220 animals in their environment and they considered 85 of these plants as edible and 55 animals. Yet what they really ate as part of their daily diet was 9 vegetable species and then too what they ate in really large quantities was the mongongo nut. Thus what we learn from this example about resources and their use by the human population are the following:

1) Although all resources are more or less all present in our environment something becomes a resource or is used as one when it is identified as a resource by the society and this is culturally determined.

2) It is through culture that our needs for a particular resource are identified, like it is cultural food preference that will determine whether or not something is exploited or used as food. Like any number of animals present in their vicinity do not qualify as food for a vegetarian community, but the milk of some animals may be. Then again for some other group of people like say the Japanese, while meat of cattle may be food but their milk is not.

3) To transform a resource available in raw form into usable form one needs a certain technology. The level and range of technology available to human

societies shows an upward trend over the time scale. In other words human societies have been mastering new technologies over time and thus expanding their range of resource use.

4) Expansion of resource use is determined again more by culture change by which new needs are introduced into the society that trigger off desire for more and more resources. Thus the modern age and its intensified consumerism is seen as the motivating force behind increasing and unmanageable exploitation of natural resources that is now bringing our globe to the verge of an environmental disaster.

5) The evolutionary expansion and intensification of resource use is associated with changes in society, its institutions and the world –view and cosmology that accompanies each social form. Thus societies have been becoming more complex, more interconnected and bigger in terms of size, both in terms of absolute population increase and size of such units as qualify to be called as identifiable societies.

To understand this process, let us first examine one by one the various levels through which human societies have passed. In each of these we have to understand the relationship between technology, economy and the exploitation of resources. While technology is an aspect of culture and refers to a body of knowledge, economy refers to the set of social relationships through which the technology is operationalized. The economy has three major aspects, production, consumption and exchange. In more complex societies, we also have distribution of resources that is an aspect of power relationships, therefore as societies become more complex, the economic relationships become part of the political issues.

Thus according to Ellen 1994, a mode of subsistence is "the aggregate of extractive processes characterizing a particular population". The variables that are included may be listed as:

1) Technical practices
2) Environmental modifications
3) Long term genotypic changes in plants and animals.
4) Movement Strategies
5) General Cultural information
6) Population Control
7) Specialization of skills and knowledge
8) Exchange practices, including outside trade.

Let us begin from the simplest and earliest form of human society.

## 1.3 HUNTING AND FOOD-GATHERING OR FORAGING

This was the way by which humans have lived most of their existence as *Homo sapiens* and even before that. The food procuring activities of proto-humans goes back to almost 2.5 million years. The human population who foraged for a living was initially found in the savannas and open forests of the Old world.

They were mostly located where food in the form of edible species of animals and vegetation was abundant. However as the human population expanded and Man searched for more resources and entered different parts of the globe by crossing over an earlier existing land mass into the New World and into Australia by crossing the sea. The expansion of human populations led to increasing use of biomes of all varieties and that is why we find such a diversified resource base of even foraging communities as they range from hot deserts, like the !Kung bushmen , to rolling grasslands of Australia like the Australian Aborigines and cold deserts like the Tundra, inhabited by the Eskimos. Thus even by the simplest and earliest technology, humans were able to exploit a variety of resources.

The ability to expand, a process that Mashall Sahlins has described as adaptive radiation is based upon the capacity of humans to make and use tools for extracting resources from the environment and be able to transmit and accumulate the knowledge of tool making. Thus the human ability to communicate using symbols, in other words speech has been one factor that has enabled them to enrich their resource base far beyond that of any other species.

Although hunters have been understood as relatively static yet there has been considerable transformation undergone by them over the huge time span that this mode of subsistence has existed on this earth. There is evidence to show that prehistoric hunters who depended on very large games had more complex social organization than modern day foragers. The later day foragers may also be such populations that have been pushed out of earlier more complex modes of subsistence like agriculture or even urban cities by conquest or other historical factors like famine, floods, etc. A fact that supports such a view is that most contemporary foragers are found in marginal habitats, populations that either fled political oppression or were spared centralized control because of their frontier locations.

### 1.3.1 Technology of Foraging

Foraging or hunting food gathering is what may be called as an acquisitive economy, in other words the technology is just enough to enable people to procure food and other things from the environment without transforming them in any way. Thus hunting may range from trapping small animals to hunting larger game yet the dependence is on the naturally occurring animal species as they exist in the wild. True, the nature of weapons required to kill game may depend on the nature of animals hunted and the type of habitat. Like the famous boomerang of the Australian Aborigines, used to track down kangaroos in rolling grassland where the boomerang was able to hit the prey because of the open expanse. The boomerang is a curved piece of wood so cleverly made that it has the perfect aerodynamics to float through the air and stun its prey. The returning variety even returns back to the thrower.

Thus one thing that we must note is that when we say a technology is simple it does not refer to the efficiency or the skill involved. As Ellen (1994: 197) puts it, a restricted tool kit does not indicate a ‘primitive’ technology. The know- how that a hunting society uses to explore its environment may be way beyond the capacity of even the most accomplished scientist. What we mean by simple is that the process of transferring resource from its natural to its consumable stage is direct. Like in foraging, there is only one step between the resource and its

utilization; that is its procurement from the environment by the producer. Thus all a hunter has to do is to throw his boomerang and hit the prey, and then consume it. Compare this to the manufacture of a motor car and you can see the difference. The number of steps involved in getting together the variety of raw materials and to transform them through many stages is a highly complex process though not necessarily more skilful than making a trap or a boomerang. Thus some traps collected from the Australian Aborigines were so complicated that it became very difficult for the scholars who had collected them to decipher how they actually worked.

Thus in a tropical rain forest the more common weapon is a bow and arrow as the arrow can find its prey even through a thicket. The Eskimos use harpoons to hunt seals and large fish in the Arctic seas. The foragers use whatever raw material is found in their vicinity and they are also limited by the nature of their habitat that they are unable to transform. Thus the Eskimos for example depend mostly on hunting and have little access to vegetable foods in their icy environment. The Bushmen of Kalahari are organized around water holes that are the key resources in the desert. They have little use for weapons to hunt large animals and depend upon traps to hunt small game. The foragers have technology to hunt, trap, gather and collect and their material culture reflects that apart from hunting, cutting and digging tools they have containers for storing water and food. Common containers use naturally occurring resources to be transformed into carriers, like ostrich egg shells in the Kalahari and gourd containers in Middle India.

Although foragers leave least impact on the environment, yet the presence of any human groups is bound to be felt on the environment; and so it is for hunting societies. The very fact that they gather fruits and tubers and hunt, leads to a progressive depletion of these resources in their vicinity. There is a pile up of garbage in the form of waste generated by the camp. The animals tend to run away from this region fearing for their life and also feeling the impact of the human presence. There are seasonal changes in availability of resources, so that the only available strategy for the group is mobility. There have been very few societies that have been able to maintain a sedentary life style using this mode of subsistence, the only exception being the N-W coast Indians because of an abundance of resources in their locality. Most others are what we term as nomadic. They have to use movement as part of their adaptive strategy to keep up the adequate flow of resources. For this, such groups have a specialized kind of social organization and population limits.

### 1.3.2 Social Organization of Hunters and Food Gatherers

The foragers live in what we call as bands. These are small familial groups but not necessarily families as such that live together and exploit the environment. Each member of the band has the responsibility to share food and cooperate with all other members of the band. Thus sharing and cooperation is the basis of their social organization. Poly Wiessner has shown how the! Kung Bushmen have the institution of Hxaro to teach small children how to build up relationships by exchanging gifts. Such relationships that cross cut and augment kinship relationships, have the advantage of a quick setting up of relationship when required, thus adding more flexibility to resource options. Since foragers can neither store food nor modify their environment according to their needs they

invest in what may be called social capital, or relationships to tide them over their food crisis. Such crisis may occur because of famines, pests or any other conditions that deplete natural food and water supply. In deserts where water holes are the most important resource, Weissner has shown how any individual has a number of links to a particular water hole, by rights inherited through grandparents, and parents, of self and of spouse and also by association or residence.

In short the greatest tool for adaptability under foraging conditions is flexibility, something that is achieved by living in bands whose composition is very flexible. Although scholars like Julian Steward had given the concept of patrilineal bands, yet data from actual foraging societies has shown that bands are only loosely based on kinship for any kind of lineal rule would impose too much restriction on band composition, that would make it impossible for it to adapt to the changing resource availability in the environment. For optimum advantage in adaptation the band size and its composition has to continuously adjust to environmental conditions. Thus if resources are abundant in any area, the band can take in more members and people can evoke any kind of link like kinship, or friendship or ritual to join in. The sizes of bands vary according to the general resource availability in any region. They may range from as few as a ten to as many as fifty, yet the limit is put by the requirements of mobility and potential availability of food and water.

### 1.3.3 Demography

The foraging societies for technological reasons are unable to support large populations. They have certain cultural mechanisms for controlling population and some may be induced by their life style and environment. Marjorie Shostak , in her biography of a !Kung woman, Nisa describes how mothers have a choice of keeping or discarding their infants when they go alone to the bush to give birth. Some other means of spacing is by prolonged periods of breast feeding because there is little weaning food in the bush. Also since all movements are by foot, nomadic populations cannot have too many children who are below the walking age. Women who are constantly on the move may also lose larger numbers of foetuses.

In addition we may also consider what scientists have called co-evolutionary processes. Thus Lewontin, a population geneticist has shown that living organisms not only react to their local environments but they also alter their environment by their own activities, thereby creating a reciprocal relationship between organisms and the pressures of natural selection. Thus organisms and their environments co-evolve and co-determine each other by way of their mutual inputs and outputs. Thus over a period of time a genetic change is likely to occur in response to a phenotypically induced feedback cycle between organisms and their environment. Thus a mutual relationship exists between organisms and their environment with the latter often creating the conditions for its own natural selection, like the shorter stature and lighter bodies of populations who live in food deficit areas alike the Kalahari desert. One may also expect reduced fecundity of a population in response to living conditions that do not support density of population. Combined factors indicate low populations among most groups dependent on foraging and only in exceptional cases can high populations be supported.

### 1.3.4 Political and Economic Organizations

Since the foragers live in almost face to face groups they have little development of hierarchy and no formal authority systems. Their productive relationships are based upon the minimum division of labour that is largely sex and age based. Most adults are capable of any kind of task that is performed by any other person. In this way they need minimal cooperation in productive activities and the sharing and reciprocal relationships are largely directed towards building up of social capital that stands in for storage and investment for future contingencies.

The only way in which law and order problems such as refusal to cooperate or share is dealt with is by informal sanctions such as ridicule, avoidance, denial of social interaction, etc. Only in extreme cases supernatural sanctions may be evoked. Since they have primary group relationships, social ostracization has very strong impact. Scholars working with hunting food gathering society have used a risk model to analyze reciprocal exchange behaviour. It was first put forward by Schaffer in 1978 and then developed by E.A Smith in 1987. This model was used to give a formal shape to the observation that hunter gatherers share food in order to even out the risk of fluctuations in their food supply. Also evolutionary game theory can be applied to describe behaviour such as an egalitarian ethos, the moral insistence on sharing, the rebuke and social ostracization of non-sharers and gift exchange and other social means of cementing social alliances.

However there is considerable variation in degree of sharing and reciprocity and it has been shown that a certain degree of pragmatism is involved in sharing and it is not entirely based on what Sahlins has called as generalized reciprocity or purely altruistic behaviour. In a systematic analysis of reciprocal behaviour involving non-food items Weissner has shown that the! Kung display considerable choice in choosing appropriate partners to exchange. However no such analysis has been done for food as it is too close to survival strategy. Moreover under given environmental conditions it is much more effective to share across bands, than into the same band and the risk covered is much wider in range in inter-band exchange. Yet the cost of such exchange in terms of transport and time may override its advantage.

Thus we find that evolutionary biology uses several formal theories in order to explain the interaction between foragers and their environment. Let us now move on to the question of change and transformation in such societies. The transformation of hunters into settled cultivators or to other modes of production involves two major questions:

1) Why they change ? and

2) What happens when they change?

Reasons for change were earlier largely attributed to external pressures like political force, information overload, etc. But more recent works on for example the Australian Aborigine, often seen as a prototype of Hunter and Food gatherer society, show that the aborigine economy is not static but involves land and resource management of varying intensity and level. These involve producing surpluses for rituals and using kinship relations such as polygyny to achieve such ends. It has been shown that complex technology has been developed to meet the requirements of intergroup politics involving prestige. Thus

transformations are triggered by the needs of social relationships, especially for rituals and ceremonial exchanges, something which we shall examine in greater details in the next levels of subsistence activities, but even for hunters such considerations may have triggered off change and set in motion evolutionary transformations; triggering off a dynamic spiral that may have been self-amplifying. One important indicator for population expansion using optimum foraging techniques was the presence of large game in the vicinity. By using even stone tools hunting of big game gave a much enlarged resource base that could support larger populations. If large mammals are easily available they can yield up to 10,000 to 20,000 K Cal per hour of work, as has been seen in some African regions.

When Hunters change, they may go for settled cultivation or other modes of production like pastoralism. Since all Homo Sapiens were hunters and food gatherers before they became anything else, we may safely presume that any of the next modes of subsistence were preceded by a foraging stage. The reasons why hunters would have looked for alternate technology may be found in the changing environmental conditions especially the disappearance of large games and their habitat and deforestation that would make searching for sufficient game, difficult. Thus in prehistory, sedentary populations are associated with increasing human population, decreasing size and availability of game animals and reduction in foraging territory. The exploitation of seeds that led to cultivation may have begun under such conditions.

## 1.4 HERDING OR DOMESTICATION OF ANIMALS

The earliest remains of domesticated animals have been found in the Near East. In Europe, Northern Iraq and in Palestine, goat and sheep were found as far back as 8000 B.C. This was also the time when cultivation began in this region, indicating that domestication of both animals and plants began along with a sedentary life style at around the same time. A purely pastoral way of life depending only upon animal husbandry is a specialized adaptation to a specific resource base, namely savannah or rolling grasslands, mountains and semi-arid regions, mostly where permanent cultivation is not possible. The two major resources required by herders are water and fodder for their animals. They mould their life style around these requirements and are mostly nomadic or seasonal movers between two regions, namely transhumant.

The domesticated animals present a stage of greater complexity than the foraging stage as the food or resource has been controlled and is under human care. Herders use the milk, meat and blood of the animals for food and the various body parts such as horns, bones, skin and hair for making various consumable objects. However cattle cannot provide any staple vegetable food which is an important requirement for the human body. Since herders are also closely associated with the natural habitat such as forests and mountains through which they herd their animals, they often supplement their diet by food gathering and even hunting. There are many herders who combine pastoral activities with horticulture or shifting cultivation. The most famous examples are the tribes of the east Africa Cattle Complex. Herding by itself does not support very large populations although much larger populations may be supported by a mixed economy of

shifting cultivation and animal husbandry. As Evans -Prtichard has shown for the Nuer of East Africa cattle complex, they grow millets and maize in one season and live on the stored grain and cattle products the rest of the year. Cattle manure the fields and are fed the stalks of the crops after harvesting, so that there is a biome cycle maintained.

**Check Your Progress 1**

**Note:** a) Use the space given below for your answer

b) Compare your answers with those given at the end of the unit

1) What do you understand by a resource? How do humans exploit resources differently from other species?

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2) What mode of subsistence has marked human species for the longest period of time? Is it an efficient mode of adaptation? Support your answer by evidence.

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## 1.5 SHIFTING CULTIVATION

Shifting Cultivation follows a rotational use of land that makes keeping large herds feasible. The basic technology of shifting cultivation, also known as dry cultivation is to grow crops without help of irrigation or external input of fertilizers. It is rain fed and the vegetation on a piece of land is slashed and then dried and burnt. The top soil is then mixed with the layer of ash that provides the necessary nitrogen compounds that act as fertilizers. The seed is either thrown or dribbled in with a digging stick or hoe. After a certain field has been cultivated it is left to fallow till there is sufficient growth of vegetation to commence with another cycle of cultivation. The key technical features of this mode of subsistence are:

1) It depends on rainfall and hence the timing of slashing, burning and seed broadcasting has to be very accurate. If for example the rain comes while the vegetation is yet to dry and be burnt, then the entire cycle will be spoilt. It must come exactly at the time when the seeds are broadcast.

2) There is therefore a requirement of centralized control of productive activities often performed by the village shaman or magician, aptly described by Bronsilaw Malinowski, in his book Coral Gardens and their magic.

3) There are expanded resources that need community effort to control and manage. Thus the land that is under cultivation at any time is far less than the land that lies fallow. This is a large territory that needs defending by the group.

4) Also the slashing and burning has to be a community effort although individual fields are cultivated by families, usually women are doing all the work of digging and harvesting.

5) It cannot support a very large population and population density has to be small compared to land available. Technically it is highly productive under favourable environmental conditions but in more arid regions, the fallow period has to be very long, up to 10-15 years for the system to be reasonably productive. It is therefore also known as extensive cultivation.

6) It can be productive even where the soil condition is poor like on mountain tops as it makes its own topsoil and does not go deep in the earth.

7) It is marked by mixed cropping where a number of species are interspersed and planted like legumes, tubers, vegetables, fruit trees and grains, all together, each species. Some underground, some over ground, some on margins etc. And also having different cropping cycles. In this there is optimum use of available resources and a horticultural field looks like it is a natural bio-diverse environment except that instead of naturally occurring species, humans carefully replace with their consumable varieties.

8) For these reason it cannot support a very large population and land use is very extensive.

### 1.5.1 Social Organization

Both shifting cultivation and herding have similar man-land relationships. They have large tracts of land resources, namely fallow land and pasture lands that need community participation to protect and manage. In herding pastures and water sources as well as grazing routes are community resources while animals are usually held and cared for by individual households, and form individual resource. In shifting cultivation the land to be cultivated is parcelled out at the beginning of each cultivation season to individual households, but some productive activities like cutting down of vegetation and setting fire is cooperative effort and women then sow seeds and harvest their individual crops. Because of the significant contribution of women to shifting cultivation, it is also known as female farming and one way to generate surplus is by polygyny or having more than one wife in a household.

The social organization of both pastoral people and shifting cultivation is based on lineage organizations where kinship based groups like clans and lineages often act as corporate resource holding groups. The management of resources and the reproduction of these groups are usually done by the elders of the lineage organizations. In shifting cultivation a clan or village head or a shaman may take the responsibility, not only of distributing common land between constituent households but also to regulate cultivation cycles that may be marked by rituals

and supernatural sanctions. In pastoral communities like the Nuer and Todas (Nilgiri in South India) the access to pasture land and water sources as well as the animals is through membership in clans. The seasonal movement of the animals is also marked by rituals and is controlled by those wielding supernatural authority.

There is thus some degree of structural complexity in shifting cultivators and herders and kinship plays a very important role in organizing relations of production and resource management. However they do not have any centralized political authority and the elders or shamans only play managerial role, managing resources for the welfare of the community, but they do not have power of possession and dispossession. Elders for example may generate surplus, not for their personal use but for community rituals and to get wives for the young men of the lineage. Such modes of subsistence thus may throw up situational leadership but real hierarchy is rarely found.

### 1.5.2 Trade and External Relations

In both horticulture and herding, a certain amount of goods are traded and market relationships maintained. This is not to say that such trading in resource is not found between hunting food gathering people and settled cultivators. In fact as shown for the Paliyan and other foraging communities of South India, such trading may have been a regular feature over centuries.

The Bhotiya sheep herders on the Himalayan borders had been involved in cross-border trade for centuries. In fact there is no one community of Bhotiya but it is a generic name used for cross border traders engaged in trade across the Tibet border, largely ferrying Tibetan rock salt with staple food and other items from the Nepal and Indian side of the border. Since shifting cultivation is mainly a subsistence producing activity, its every variety of production is directed towards taking care of most of the subsistence requirements of the community, it may be anchored to some cash crop like coffee, cocoa or bananas. Typically a horticultural plot will grow some staples like millets and barely, some underground tubers, vegetables and spices, legumes and also fruit trees, like coconut, or any other fruit that is specific to the region. Thus along with some domestic animals like goats, pigs and cows, the household food and other requirements are usually met. But then they need surplus for other things. In a simpler society a little surplus may suffice and fruits like coconuts, bananas and meat etc. may be sold to nearby communities. But under impact of social change when surplus requirements go up, due to colonization, penetration of market economy and more recently globalization, then the cash crops may take over and people begin to convert more and more land to cash cropping. A very good description of such a change is given by Clifford Geertz in his book "Agricultural Involution" describing the influence of Dutch colonization of Indonesia. Shifting cultivation by itself is not compatible with either population growth or with increasing consumer demands. Yet many communities still continue with shifting cultivation because it provides identity and is associated with ritual and cosmological belief of the people. More over from the point of view of environmental sustainability it is more sustainable than permanent cultivation as it preserves the bio-diversity as well its efficiency if measured in terms of input and output ratio. As Geertz has shown permanent cultivation is extremely labour intensive but has the ability to support a dense population and hence a complex social organization.

## 1.6 WET CULTIVATION AND THE GROWTH OF THE STATE

In his classic work Oriental Despotism, Karl Wittfogel has shown how irrigation that is associated with both productive water works (irrigation canals) and protective water works (dams) can give rise to a highly structured society with a centralized political system. With food cultivation we find a substantive rise in population which may be caused by the potential for this mode of subsistence to produce surplus food as also other changes triggered off by a sedentary life style such as less spacing of birth, less foetal loss and less infant mortality. There is also a cultural premium on having more children as permanent cultivation requires a very heavy input of labour. A sedentary population with a capacity to produce surplus is usually associated with a non-producing elite that engages in tasks other than food production, giving rise to complex social and political institutional machinery.

### 1.6.1 Human Population Growth and Social Complexity

What may be called the 'Urban revolution' took place around five thousand years back, its origin rooted near the river Euphrates in Middle East, the very first such civilizations being Mesopotamia (near modern Iraq). This change was triggered off by what scientist have called a broad spectrum revolution, human beings gradually broadened the spectrum of exploitable resources to way beyond what they were exploiting in the earlier periods, that stabilized at around fifteen thousand years ago. These trends are also supported by what we have called the optimum foraging. With the development of technology of storage and sedentary life, instead of people moving around for resources, the resources were being moved around and human settlements were made more for the convenience of trade routes than for availability of resources.

The more classic theory of population growth was linked to technological improvements like Birdsell's theory that populations have self imposed restrictions on population growth that become relaxed when an innovation is made that produces more food. However the agricultural economist Ester Boserup had an alternate theory of population growth. She demonstrated that permanent agriculture makes a more efficient use of space but makes increasing demands on human labour. Thus given a choice most human populations will not convert to settled cultivation unless compelled to do so. She also differently assessed so called 'primitive' technologies as efficient adaptations to low population density and small social scale. Thus a more recent theory of transformation of foragers to producers is of gradually increasing demand rather than innovation in technology. In other words population growth is here seen as independent variable and technology as the dependent one rather than the other way around. Thus as demographer Mark Cohen suggests that people may have settled down not because it was a preferred option but because it was a forced choice under compelling circumstances.

Johnson (1982) has developed a model of 'scalar stress' based upon needs of increasing information flow and organization as groups became too big for face to face interaction. Thus Cohen sums up on increasing demands of population growth by saying that complex social organization involving centralization of trade and leadership (state) were a result of congestion, information overload

and loss of privacy and personal control. Thus states were not based upon concept of increasing human welfare but on needs for control extraction of surplus by non-producing elite. Thus conquest or force may have played a key role in bringing about such changes than technological 'progress'.

Research has also shown that contemporary hunters gatherers like the! Kung San suffer from less parasitic load because of their small population and mobility than dense and sedentary urban populations. They also show better nutritional status than many Third world Countries. Even prehistoric data shows relatively well nourished and disease free population of prehistoric hunters- gatherers as compared to later urban dwellers.

**Check Your Progress 2**

**Note:** a) Use the space given below for your answer

b) Compare your answers with those given at the end of the unit

1) What changes occurred as a result of urban revolution?

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2) Is the urban revolution the best thing that happened to the human society? Critically discuss.

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3) What changes will occur when a society changes form a shifting mode of cultivation to settled cultivation?

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## 1.7 LET US SUM UP

- Inequalities precipitated by more complex civilizations have put a greater load on the environment and its resources.
- Contrary to earlier held beliefs, even archetypical foragers with a Stone Age technology like the Australian Aborigines had a rich culture and philosophical traditions. They also had highly sophisticated technology in terms of basic scientific application.
- Civilization cannot be evaluated within a rational frame of reference and hence we need to re-examine these earlier modes of subsistence with an open mind and even learn lessons from them.
- Critical appraisal of technologies and their sustainability is essential to understand the social and cultural characters of the various forms of technological adaptations.

## 1.8 KEY WORDS

**Resources** : Any substance or thing on which one can live for survival and reproduction.

**Foragers** : People who collected food either by collection or exploitation of natural resources using simple techniques.

**Pastoralism** : Livelihood based on animal husbandry.

## 1.9 REFERENCES AND SUGGESTED FURTHER READINGS


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## 1.10 KEY TO CHECK YOUR PROGRESS

**Check Your Progress 1**

1) Your answer must include the following points
   - Everyone uses resources for survival and reproduction
   - Use of knowledge
   - Socio-cultural norms and practices
2) Your answer must include the following points
   - People forage for a living
   - Abundance of natural resources
   - Use simple techniques
   - Knowledge and capacity of tool making
   - Prehistoric hunters and their tools

**Check Your Progress 2**

1) Your answer must include the following points
   - Sedentary lifestyle
   - Population increase
   - Complex social structure and associated institutions
2) Your answer must include the following points
   - Convenience in trade
   - Technical improvement
   - Population increase and labour insensitivity
3) Your answer must include the following points
   - Population growth
   - Efficient use of space
   - Increase human welfare and technological progress
   - Increased life expectancy

# UNIT 2 SOCIAL AND CULTURAL CONTINUITY

**Structure**


2.0 Introduction

2.1 Objectives

2.2 Continuity and Change

- 2.2.1 Foragers
- 2.2.2 The Dene Case: Identity and the Fight for Self Hood

2.3 Pastoral and Shifting Cultivation

- 2.3.1 Comodification of Pastoralism

2.4 Let Us Sum Up

2.5 Key Words

2.6 References and Suggested Further Readings

2.7 Key to Check Your Progress


## 2.0 INTRODUCTION

In the previous chapter we have discussed the various modes of subsistence practiced by human kind to adapt to their environment by extracting resources to fulfill their survival and social goals. However although they appeared in a somewhat linear sequence, foraging being the first and urban revolution being the last, yet even today we have all modes of subsistence co-existing. Even the rise of most complex civilizations has not eased out the most primordial subsistence modes and they show remarkable resistance to change. Since human beings do not adapt to their habitat in a mechanical way but create complex belief systems and mental constructs of representations that validate each way of life; change, when it has to occur needs to uproot many deep seated thoughts and beliefs. Quite often human cultures do not change certain aspects but change only in certain more superficial dimensions. But this is not to say that beliefs and values do not change, they do change but need powerful motivators. In the following chapter, we shall discuss why older modes of subsistence persist in the face of massive technological transformations that surround them. Or why some aspects of culture and world view persist while others change. We shall try to understand continuity or resistance to change, as a critique of the view that it is normal for humans to seek change and to strive for new technology.

## 2.1 OBJECTIVES

After reading this unit, you will be able to:

- recognize the process and struggle to maintain various ways of life;
- identify the cases of displacement and interface of traditional occupations; and
- comprehend the continuity of modes of subsistence

## 2.2 CONTINUITY AND CHANGE

Although these concepts appear to be opposed yet when we are discussing something as complex as human societies, we find that change and continuity are processes that often take place simultaneously. There also exists what we call as grafting, the new being grafted on to the old; the old being somewhat modified to serve new functions and old symbols revamped to send out different meanings and so on. Take for example the Islamic practice of calling the faithful to prayer at the mosque, five times a day. There was a recent time when a person would physically climb the minaret and call out but now-a-days most mosques use a recorded cry to summon the congregation. So also we find vigilance cameras at the Siddhi Vinayak temple in Mumbai and recorded *bhajans* at the temples, we have Swamis sending out messages through emails, ashrams maintaining web sites and everything, secular or sacred being available at the internet. Now-a days even Hindu marriage in foreign countries is being performed through recorded *mantras*.

What we learn is that some things when they change are easily acceptable, other things are not. In each of the modes of subsistence there have been some key indicators around which the people organize their lives. These are very difficult to give up. Let us begin with the hunters and food gatherers.

### 2.2.1 Foragers

Studies on hunters gatherers indicate that mobility is an essential aspect of their life that they hate to give up. Polly Weissner, in her work on the! Kung San of the Kalhari, compared two kinds of camps. There were some that were more traditional, engaging in foraging economy only and the others that engaged in wage labour, sold handicrafts and did some agriculture thereby having much more cash income than the former. The latter also had more material possessions, much above what they could carry, yet even those individuals in the second type of camps would spend just as much time in a year roaming around, visiting other camps and sites. They would simply give away what they could not carry and store them with friends. Although they have entered a cash economy, yet they do not have a mind set for accumulation and prestige still lies in giving away than in storing. Thus even though they do put high value on their possessions yet the value that they put on social relationships is even higher. Thus a person may hold out for sometime but will eventually give away most of their possessions to maintain relationships. It may be recalled that the foragers put a lot of value on both movement and on sharing. They invest in social relationships as they did not have any technology for storage and also no way to control the natural availability of resources. The ecological relationship is thus associated with a strongly embedded value system that makes selfishness morally reprehensible and movement pleasurable. Thus the Bushmen idea of having a good life is to be able to visit friends and relatives and be generally on the move.

As Weissner puts it, a person who does not give ultimately feels miserable as he or she is shunned by others. Moreover a system of Hxaro relationships that was a channel for trade in earlier times later developed into one of gift giving so that most of what people earned was given away to Hxaro partners. Thus instead of a person working hard to get something for himself, he works hard to give gifts and then wait to receive one. Thus change in the form of a cash economy and

wage labour has not changed the essential value of Bushmen lives, just changed the nature of gifts that they had been exchanging. One may compare it to dowry in India, where a globalized economy has not done away with the institution, but only increased the range of goods to be included in it. Thus there are strong indicators that people who get adapted to particular lifestyle do not give up easily and indeed may find it impossible to do so.

There have been myths that hunters and food gatherers follow a foraging lifestyle because they do not have access to the so- called advanced technology. However there is enough evidence both from ethnography and archaeology to show that there has been prolonged contact between the Later Stone Age people (hunter gatherers) and Iron Age people with pottery making techniques, food production and metallurgy. A classic case is of the Aka pygmies, hunter gatherers, who have lived in contact with agricultural Bantu populations, since 2400-500 B.C. The knowledge of iron had spread from Nigeria into Southern Africa from the beginning of the Christian era following trade routes. Within the world view of the local groups, the Aka are opposed to the village or the human space, being confined to the forest. The Aka call their settled agriculturalist neighbours the Tall Black people (they are Bantu). The relationship between the two groups, has taken the form of balanced reciprocity, where the Tall Black provide agricultural goods and iron made objects in return for bush meat and other forest products from the pygmies. The Aka are seen as protectors and guides and their service includes the control of forest spirits. Till recent times both groups have maintained this reciprocity with the Aka providing seasonal plantation labour as a much recent introduction.

The African forests are highly heterogeneous with widely varying fauna and flora, but such dependence between forest dwellers and village dwellers has been a common feature in most places. What is interesting to note is that the forest dwellers have not even till quite recent times, expressed any desire to come and settle in the villages or to take up agriculture. In fact it is such widespread examples that refuted the earlier theory put forward by scientists that human beings have a natural tendency to settle down and will do so if possible. (Braidewood and Reed 1957). Two arguments in favour of sedentism were of natural selection, that sedentary life is more conducive for survival and the other was simply of spontaneous change, that all system evolve to higher stages, and the transition from nomadism to sedentism was seen as such a transition. Later more sophisticated arguments were put forward to explain the transition, from nomadism to sedentary life, one of the most important one in human social evolution, as it is this settling down process that is seen as the beginning of civilization as we know it today. These were: 1) Climate Change 2) Resource abundance and /or diversity 3) Demography 4) Social causality. According to Gordon Childe, climate change involving dessication at the end of Pliestocene era forced populations into smaller enclaves around water sources bringing about domestication of food and a settling down process.

Others were more in favour of micro-environmental transformations such as reduction in niches forcing people into more permanent settlements, like the research done by Coe and Flannery (1964, 1967, and 1968), on the Tehuacan valley of Mexico and the Pacific coast of Guatemala; where coastal resources allowed village life to come up. In this context there is both the theory of abundance and the theory of diversity, as some scholars feel that it is the

availability of a varied resource base that would encourage settled life. According to Binford (1968) there are two conditions under which a population may become sedentary, one is when there is a change in physical environment, like reduction in availability of game for hunting or water, forcing people to settle near these resources. For example a number of Bushmen were forced to settle near water holes after years of prolonged drought. For example in his work in the Bushmen Tobias (1964) noted that after seven consecutive years of drought the bushmen, after settling near water holes where there were farms acquired new ideas and new habits. A second reason noted by Binford is a change in demographic structure of a region so that one group may impinge upon the territory of another. For example it has been observed that the population in the Near east was highest than ever before, when food production and settled life occurred.

Thus taking into account all the factors, it was generalized that there are two contexts in which sedentism occurs, it is either *in situ* or primary sedentism or secondary or contact sedentism. Just abundance of resources may attract a group to settle for some time in a place but real permanent settlement with consequent changes in life style, social organization and technology will occur only when there is an increase in similar groups in the same surroundings forcing the primary group to restrict its mobility options. In other words there is no clear distinction between *in situ* and contact sedentism as real sedentary life is opted for only under conditions where options of mobility become restricted.

Contact sedentism is also the result of entry into the area of other groups with more complex organizations. For example a large number of groups were forced into sedentism by colonial pressures or pressures from a more powerful group. Like in Japan the Ainu were administratively encouraged to settle into agricultural life. Going back to the example of the Aka and the Tall Black, we find external pressures beginning to operate once the White men entered that area in 1890, and began to commercially exploit natural resources such as rubber, ivory, pelts and palm nuts. Since ivory formed a focus of White trade, the Aka were seen as the only providers as they along could hunt elephants with their spears. They were provided with guns by the whites, to accelerate the rate of killing. But soon because of overexploitation the elephant population was depleted and ivory trade dwindled after 1908 onwards. The colonizers then turned their attention to rubber. In 1910 a large French company was created to exploit rubber, which completely engulfed the Aka territory. The company then over exploited the Tall Black village people for rubber extraction so that they were in turn forced to depend on the Aka to provide them basic subsistence food to survive as white colonizers did not leave them enough time or energy to produce food for themselves as an example of destructive colonization often found in many parts of the world that depleted indigenous populations.

From 1925 onwards the white commercial interests turned to pelts of the duicker (a small local animal) that could only be caught by the Aka, who were encouraged to use nets to catch them in large quantities as the greed of the white people was unlimited. As the Aka transformed from individual to net hunting they formed larger settlements and gradually the colonial powers increased their hold on the territory and introduced saw mills, diamond mines, rubber and coffee plantations etc., consequently the external presence increased dramatically. The colonial enterprise then turned to civilizing the pygmies. Earlier the Aka were delivering most of the goods including pelts etc. through the mediation of the villagers. The

whites wanted to establish direct trade relationships with the Aka and emancipate them from what they thought were their 'masters'. However as indicated by further historical developments, the Aka were only marginally affected by all these efforts of the colonial rulers. In spite of all the acculturation efforts what really happened was that the traditional dependence of the Aka on the tall Blacks actually increased rather than decreased.

What really changed was the scale of agricultural production in this region. By the 1960s most of the villagers had made the transition to commercial production of coffee and from providing forest produce to the villagers the Aka were transformed into plantation workers, a work force for providing labour for agriculture. Their forest related skills were in less and less demand. They now became wage laborers to be paid almost money and the traditional barter of forest products with agricultural produce died down. However in spite of all these changes the Aka did not leave the forest. In some places, they supplied meat to be sold in the market but this was also done through the villagers, who acted as middle men for them. What major changes have occurred were in the realm of technology as snares replaced track hunting, thus the Aka (as they were studied in the sixties) were still hunting with nets for the major part of the year and supplying meat to the villagers to be sold in the market. At other times they were working in the plantations, thus although they had entered the market economy yet their interaction with it was through the villagers.

We see that over a period of nearly two hundred years all kinds of external factors including colonization, market economy and changes in technology did not bring the Aka out of the forest. A majority of them continued to live in the forest and hunt although with a completely different aim and in a changed environment. Thus we find that unlike commonly held presuppositions that forest life is something that people would give up easily and be lured into settlements, we find on the contrary that it is very difficult to bring people out of their environment to which they have been adapted. This gives us a lesson in development and tells us how difficult and even unnecessary it is to try to transform people against their lifestyle as people's identity and sense of well being is closely tied to their ways of living and the territory in which they are accustomed. This also tells us how huge is the cost of displacement and how dehumanizing it is for people to be forced out of their own sense of self hood.

### 2.2.2 The Dene Case: Identity and the Fight for Self Hood

Unlike the Aka discussed above who by their tenacity resisted being drawn into village life but were being converted to sedentary existence slowly, there are cases like that of the Dene of Canada who actively resist change and stand up for their way of life. The Dene live in the Northwest Territories in Canada's western sub-Arctic. They are the Athapaskan speaking people of the Mackenzie valley. In their own words .....

"We the Dene of the Northwest Territories insist on the right to be regarded by ourselves and the world as a nation .....

Our pleas to the world is to help us in our struggle to find a place in the world community where we can exercise our right to self –determination as a distinct people and as a nation .....

What we seek then is independence and self determination within the country of Canada." (Indian Brotherhood of the Northwest Territories 1977) (cf.Asch 1982: p.348)

This Brotherhood was created in 1960 and now exists as the Dene Nation. Their main aim was to negotiate with the government of Canada about various land claims of the Dene people and to fight the encroachment into their territory of the multinational companies. The most famous of their struggle was to halt the laying of a pipe line thorough their territory. In 1974, a pipe line for transporting gas from the Alaskan and Canadian arctic region to markets in southern Canada and USA was proposed and its route was planned to be laid through the Mackenzie River valley, the territory of the Dene. The policy makers in favour of the dam had, apart from the Canadian national interest, the commonly repeated arguments that the hunting food gathering economy of the Dene was on its way out, that only elders preferred that way of life and the new generation would like to live a more, "civilized" life. It was argued that the pipeline would provide jobs for the younger Dene and the company would begin training programs for the same. However once a hearing was began of the Dene, at the community hearing organized by the Commissioner, Justice Thomas Berger, in charge of the case, over 1000 Dene of all ages, both men and women came to the hearing and all without exception voiced their protest against the pipeline. The main argument was that the pipeline would damage the environment of the Dene in a way that would make the pursuit of their traditional hunting gathering way of life impossible. They argued that the changes that were being brought into their lives was not welcome to them and was an intrusion into their cherished traditional way of life. At the hearing the Dene also displayed remarkable ecological wisdom. They protested against the exploitation of non-renewable sources of energy on their land by outside agencies for their own selfish gains. They instead wanted to exploit renewable sources of energy for the benefit of their own Dene nation. They emphasized sharing as against profit for a few and deprivation for a majority practiced by the developed countries. They also sought to replace a parliamentary form of government by their old, face- to -face consensual form of government. They emphasized that their society had potential for sustained existence and their institutions were good and just. Most importantly what the Dene case demonstrated was the rationality of hunting gathering as an economy, even in the modern world. Data collected by an anthropologist Scott Rushforth, who had worked among the Dene showed that the Dene of Bear Lake derived about 27 to 42 % of their food requirements from hunting and gathering, an amount when translated into cash gave a figure of around $200, 000 to $ 250,000, for the entire community or between $3,200 and $3500, per household. In the seventies, it was found that the Bear lake Dene were still practicing in full their hunting food gathering activities and the land was very important to them for if they had to import food instead of producing it for themselves they would have to import at least 3.36 million pounds of food or roughly 240 pounds per capita; that translated in cash terms to $ 10.2 million. Justice Berger ruled in favor of the Dene saying that in view of the evidence it was clear that loss of this land would be very costly for the Dene, and so the pipe line was diverted through another region.

The Berger Commission remains a landmark judgment to this day that clearly demonstrated, one, that people do not consider the so called 'modern' way of life. The best possible way to live and secondly even if we apply all rational

calculations, it would be found that there is both economic and ecological strength in continuing with certain modes of subsistence even though they may not be compatible with capitalist expansion. Added to the economic wisdom of hunting food gathering, the ecological wisdom of sustained use of renewable resources cannot be overlooked. We find many governments against some earlier modes such as pastoralism and shifting cultivation. Yet like Rushforth, environmental scholars and economists have demonstrated that such modes are not as detrimental as they are projected to be. Let us now see what the value of such ways of life is and again what is the rationality in their continuity.

**Check Your Progress 1**

**Note:** a) Use the space given below for your answer

b) Compare your answers with those given at the end of the unit

1) Do all groups pursuing traditional technology want to switch to modern ways? Discuss.

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2) Why is displacement such a traumatic event? Discuss with example.

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## 2.3 PASTORAL AND SHIFTING CULTIVATION

The Bhotiya pastoral people have been settled all along the Himalayan border and engaged in cross border trade, across the many passes that cut through the mighty mountain ranges. There have been many studies of these groups, recognized not as one but many localized groups all sharing the common enterprise of sheep rearing and cross border trade. Before the colonial period, salt was the primary resource produced in the cold Tibet plateau that produced little by way of food. Thus the many Bhotiya communities ferried salt from Tibet to the Indian and Nepal mainland taking in turn rice, grains, sugar, tea and other goods from there to Tibet. During colonial rule the British recognized the trading potential of the Bhotiya communities and encouraged them to bring borax and pashmina from Tibet in addition to salt. Thus while earlier the Bhotiya were catering to only local needs, bringing in addition to salt, wool, blankets, yaks, horses and dogs from Tibet, with colonial rulers they extended their trade to cash goods like borax and pashmina too. However these border regions had been

subjected to changes for centuries in power relations between the countries of Tibet, Nepal, India and China, and even to some extent Russia and later of course the British. Yet in spite of power equation shifting from one to the other, the Bhotiyas had persisted on carrying on trade along with their Tibetan trade partners in the Mitra system where permanent and hereditary relationships were maintained between individual families on both sides of the Tibet border.

However real changes occurred in the lives of these people when Tibet was annexed by China and the border trade was closed thus dealing a death blow to the identity of these traders. Till then Tibetan salt was the only salt available to this entire region north of the sub-Himalayan ranges but now with the army taking up its position on the border, greater communication facilities opened with the Indian mainland and goods came up in large quantities from the plains including sea salt.

But the Bhotiyas did not make any real changes in their life style persisting with sheep herding and relocated their trade axis with the Hindu mainlanders and with Nepal. The adherence to pastoral way of life persisted and still continues. Active trade goes on in location like Haldwani and Rishikesh. The border was reopened in 1992, but for many Bhotiyas the trade could not be continued as they had lost their trade partners and also the economy no longer required salt to be imported from Tibet. Vinita Hoon, a cultural geographer, who had worked on the ecology and economy of the Bhotiyas of Kumaon describes her presence at the reopening of the border. She describes her entry into Takalkot , a trading center , renamed Purang and mentions that after reopening of the border, the trade was resumed between the following trading partners ( Hoon 1996:215):

1) The Khampas and Drokpas: The Tibetan nomad and yak herders, who traditionally formed trade partnership with the Bhotiyas and they sell wool, borax, sheep, *chirpi*( dried cheese), brick tea and salt and exchange them for rice, grain and sugar etc. from India .

2) The Bhotiyas of Vyas: From India and Nepal who bring buckwheat and barley and sugar, gur and molasses, beverages and fancy items like pots and pans.

3) The Bajang and Humla group: From North-West Nepal and bring in apples and green chillies , fuel wood and baskets.

4) The Sinjag Group: They are Muslims and come from western China by truck and trade in apricots, almonds, chinese cloth and other household items.

5) The Chinese: They regulated Government shops which sell factory made goods from China.

It is interesting to note that after trade was stopped in 1962, and resumed in 1992, after a gap of thirty years people were still keen to resume trade relationships and Hoon reports that one seventy year old man had gone to Tibet to search for his old trade partners and fallen seriously ill and had to be brought back. Thus as they say old habits die hard or in other words people do not give up easily on their old ways of life , especially on such aspects as form the core of their identity.

The Bhotiyas of Garhwal, called themselves as the "*bhed charane wale*" ( Sheep herders) thus making their identity distinct from the peasant cultivators of surrounding villages. Thus even when their main trade route was stopped and even their other economic activities were made less important, like providing transport to the pilgrims and tourists who came up the hills, they diversified their economic viability to take advantage of new situations like a thriving market for their woollen products.

Earlier the sheep provided them wool and other products mostly for self use and barter, but now they have also entered the cash market and sell carpets, woollen scarves and sweaters in the local and even national market. Like the Dene mentioned earlier, the cash value of their goods is considerable and in recent times they have also taken up apple farming that is giving them good returns. In fact the Bhotiyas of Uttarkshi have a better economic position than their agriculturalist neighbours and even though they are dubbed as a *janjati*, (tribe) they enjoy good prestige among their upper caste Hindu neighbours and also claim a Rajput status.

### 2.3.1 Commodification of Pastoralism

As a way of life pastoralism is both threatened and sustained by the commercialization of pastoral products. Thus continuity to this way of life is by modifying the needs of the market and adjust to the interventions of the state and capitalist enterprises. In his study of patoralism in Rajasthan, Purnendu Kavoori has described in detail how the sheep herders and camel herders, who were traditionally having a different kind of production relationships are now modifying both their production techniques as well as goals. Traditionally pastoralists were subsistence producers who produced for their own consumption and engaged in barter with other kinds of producers such as agriculturalists and even hunters gatherers for a variety of resources. They engaged in some traditional modes of security and adaptation to ensure reproduction of their resources and way of life. These included mixed herding practices to ensure against total stock depletion in case of pestilence, forging long term social relationships and networks both with other farmers and with other pastoral groups, they often sought shelter from the feudal state to get protection for their herds and their pastures. Since maintenance of large herds requires nomadic lifestyle they needed political patronage and cooperation of settled populations for safe passage for themselves and their herds.

With the commoditization indicating the broad nature of transformation that is happening to them, this basically refers to a shift from use value to exchange value and from subsistence production to market driven production. Looking at each of the factors of production we find that a number of adjustments are being made.

There is a change in the sex composition of the flocks. In traditional times since the aim of the small flock owner was to increase the size of his herd, he would have less males and more females, but under market conditions under compulsion to sell more of the rams, the small flock owner shows an increase in the number of male animals. On the other hand the large flock owner may show proportionately less number of males in his herd. Thus there appears to be a

compromise between the desire to increase flock size seen as a natural desire and the compulsions of producing for a market.

More interesting developments arise with respect to the traditionally symbiotic relationship that the herders had with the agriculturalists. The semi arid areas like Rajasthan where herding is practiced the relationship of cultivators to land is not steady. Land that is not under cultivation may be treated as public property and since there was only one rain fed crop in Rajasthan and adjoining areas of Gujarat etc. the herders could graze on the land that was lying fallow. The cultivators too benefitted from the animal droppings being converted to manure by the cultivating season.

However with greater state control, much of this perceived fallow land has been taken over by the state, sometimes for reserved forests and sometimes for other developmental activities. Also agriculture that was like pastoralism, earlier of the subsistence variety, is being converted to commercial agriculture where more crops are grown for sale and hence new technologies such as irrigation and chemical manures lead to multi-cropping and year round cultivation, so that land that earlier oscillated between being public (when fallow) and private (when cultivated) now has acquired the status of being permanently private.

Even way side trees and forests that were earlier regarded as free goods are now increasingly usurped by the state. Natural forests are being replaced by commercial forestry, where encroachments are not allowed. Even if the grazers are allowed into some forested areas they have to pay tax, at other places they get access by paying bribes. The earlier symbiotic relationships with agriculturalists is also broken down. Often such usurpation of traditional rights may lead to conflict situations in which the pastoralists are branded by the state as anti-social and further subjected to harassment. Yet the pastoral produce are of critical commercial value and as market prices go up, the value of their products such as milk, meat, skin, and other products like hair, wool etc. keeps going up. Thus in spite of the problems the pastoral groups are continuing and adjusting to the new situations. Paying bribes, encroachments, using motorized vehicles for transportation and also introducing new technology like modern medicines and feed supplements in place of natural grazing is making their mode of subsistence viable in the new set up.

Thus we find that in most cases communities practising certain modes of subsistence and ecological adaptations rarely like to give up easily on their economy and consequent life styles. They accumulate large amounts of knowledge resource over generations and also are sued to a certain way of life. Keeping in mind the economic viability of certain modes of production especially like pastoralism, the state, although on one hand acting as a prime initiator of alienation by its usurpation of common resources also comes to the rescue. Thus in Rajasthan the state run Rajasthan Animal Husbandry Department has developed schemes for planned grassland development for grazing. Even the World Bank, provided some support for such a venture involving the building of pasture lands. In short, commodification is a process by which pastoral life lives on *albeit* in a changed form.

**Check Your Progress 2**

**Note:** a) Use the space given below for your answer

b) Compare your answers with those given at the end of the unit

1) Discuss the role of the state in maintaining or destroying traditional ways of life.

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2) Discuss the role of colonization in destroying human –environment balance giving examples.

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3) What can be the merits of continuing with old modes of subsistence?

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## 2.4 LET US SUM UP

- Traditional food producing methods are ecologically safe and must be encouraged.
- The traditional modes of production such as horticulture and foraging put less burden on the environment, by maintaining biodiversity and use of renewable resources rather than non-renewable ones.
- Substitution of modern technology into subsistence production often acts as killing the goose that laid the golden eggs.
- The very fact that traditional modes of subsistence were able to continue for so long indicates their evident value for long term adaptation of the human species and of the environment.
- Most human needs including those of aesthetics and social relationships are adequately met by these ways of life.

- As technology is becoming more complicated, life is becoming more and more complex and devoid of leisure and values.

## 2.5 KEY WORDS

**Heterogenous group** : Community with differences in structure and function

**Balanced reciprocity** : It occurs when someone gives something to someone in turn expecting similar return in a specific time and place.

**Sedentary lifestyle** : Settled means of livelihood not based on nomadism

**Civilization** : An advanced state of human society, in which a high level of culture, science, industry, and government has been reached

## 2.6 REFERENCES AND SUGGESTED FURTHER READINGS


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## 2.7 KEY TO CHECK YOUR PROGRESS

**Check Your Progress 1**

1) Your answer must include the following points
   - Some changes are easily acceptable while others are not
   - Mind set up varies from society to society
   - Balance of reciprocity
2) Your answer must include the following points
   - Loss of means of traditional based livelihood
   - Unwilling to switch over
   - Protest against the exploitation

## Check Your Progress 2

1) Your answer must include the following points
   - Fallow land converted to forested area
   - Development activities
   - Commercial forestry
   - Tax
2) Your answer must include the following points
   - Cash crop and trade
   - Changes in the already existing value system
3) Your answer must include the following points
   - Increase market price
   - Economic viability

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# UNIT 3 ENVIRONMENTALISM

**Structure**


3.0 Introduction

3.1 Objectives

3.2 Environmentalism

- 3.2.1 Environmentalism as Social Movement
- 3.2.2 NGOs and the Institutionalization of Environmental Movements

3.3 Tribal Movements in Colonial India

3.4 Local Movements of Protest: Chipko

3.5 Let Us Sum Up

3.6 Key Words

3.7 References and Suggested Further Readings

3.8 Key to Check Your Progress


## 3.0 INTRODUCTION

The power struggle in the world between the dominant and the marginal has not been one sided. From the colonial period onwards we have seen a great deal of pressure being built up on the environmental resources because of the particularly exploitive nature of colonialism, an enterprise that sought to maximize internal profit by utilizing to the full, external resources, or taking over wholesale the resources of other people. The result as we see has been the rise of capitalism and urbanization and of a global economy while at the same time the world is now poised on the brink of major environmental disasters. As long as people were confined to the use of their own resource, they were judicious in their use. But when external powers came in as we have seen in the case of the Aka discussed in the earlier chapter, there was devastation of local resources and of the people also. The metropoles did not know while they were devastating the colonies, that ultimately the price will have to be paid by everyone. Environmentalism is a concept that arose in the West, in response to the realization that something needs to be done to save the environment ruined by a couple of centuries of thoughtless plunder. However there were many indigenous movements also that built up from grass roots techniques of protest and social and cultural means to make one's problems known. Thus while most western modes of environmentalism operated at macro or global levels, the local level movements were more fruitful for the communities and sometimes led to overall changes in thinking and consciousness. In this section we shall discuss the nature of environmental movements, their types and some case studies from across the world.

## 3.1 OBJECTIVES

After reading this unit, you will be able to:

- describe the concept and process of environmental movements;
- identify the types of movements and their philosophical basis;

- explain the attachment of people to natural resources; and
- describe the various movements and its consequences.

## 3.2 ENVIRONMENTALISM

Very simply put, environmentalism is a concern for the environment that, when translated into action at the level of the collective, becomes an environmental movement. As a concept environmental movements began in the west, but there have been many movements in the non-western countries that can be labeled as environmental because they were people's movements to save the environment.

In answer to the question as to who are the people who can mobilize for an environmental cause we may refer to Dassman's distinction between ecosystem people and biosphere people ( 1976: 304). The ecosystem people are those like the ones we have been discussing, who depend on the environment directly for survival. Biosphere people are those who depend on a wide resource base brought to them more or less indirectly, either as tribute/tax or through the market by exchange. The former, for reasons of their immediate survival, usually develop strategies for prudent and renewable use of their resources. They are more likely to engage in immediate reaction if their resource base is threatened, like in the Chipko movement. However even the biosphere people may engage in environmental movements, as a consequence of the realization of the overall global threat to the environment. Most western as well as urban movements are of this type; like Green Peace and Save the Tiger movement publicized by the company Aircel.

Basically two types of movements have been identified that may cut across the above mentioned divisions. These are the 'Preservationists' and "Conservationists'. The latter are those that feel that the environmental resources should be preserved for human use and future. This is the feeling of most people who put human interests above everything else. The Western and most industrialized societies with their people centric philosophy feel this way. The second, namely preservationist point of view, is based upon a philosophy that is completely different form the Judeo-Christian theology that privileges humans above everything else. It puts humans on an equal footing with the rest of living beings, and is what may be called a nature-centric perspective as opposed to an anthropocentric perspective. Drawing largely upon non-western philosophies of the Earth Mother, Gaia, of the Near East and also Buddhist and Hindu philosophies that privilege all life equally, they feel that nature should be preserved for its own sake. This point of view also developed as Deep Ecology, where nature by itself becomes a cherished value. However Deep Ecology is a philosophy and not a movement but it has informed the eco-centric movements of the world.

The main focus here is on how nature is conceptualized and perceived. The dualism between nature and culture is now widely attributed to a Western point of view that found peak expression during the industrialization /colonization phase when it was believed that men, and white men in particular were uniquely privileged to dominate over nature as they had the gift of rationality and mind and the technological means that were the products of this mental superiority. It is also well documented that both women and indigenous and native colonized populations were equated with nature and hence to be rightfully dominated. It is

received wisdom that most of the people who were colonized did not subscribe to such world view but their systems of knowledge and cognitive understanding was sidelined and dominated. The present environmental movements are constituted both of the erstwhile colonized people speaking up for their rights and also a recognition by others of the efficacy of those discarded world views. Thus contemporary scientific findings have led most people to realize that bio-diversity and the preservation of environmental resources are of value for a global survival and that the fate of all species is interlinked. The earlier views however have not been totally discarded and are still held by a large number of people who believe that some groups are more privileged than others and that technology is a tool to fix anything. Contemporary environmental movements are also directed against such ethnocentric points of view. Before going into further discussion let us see the status of environmentalism as a social movement.

### 3.2.1 Environmentalism as Social Movement

According to Kay Milton (1996) Environmentalism is seen as New Social Movement as opposed to the Old Social Movements that were more class oriented and were focused on removal of social disparities and distribution of resources. The New Social Movements, of which environmentalism is one kind cuts across class divisions for a cause that may not be class specific. This by depoliticizing class it sets up another kind of political discourse. However in essence and in practice, not all environmental movements are beyond the political discourse of power relations. In the contemporary global world, there are deep seated and evident discourses related to power differentials that have long term environmental impact.

In the post-colonial world we have seen the North South axis that separates the First World or the developed countries and the Third World or less developed or developing countries. The exploitation of the colonial times no doubt catapulted those countries to dominate the world and the colonies were left to struggle with their depleted resources and consequently remained poor and dubbed developing. In the initial phase of environmentalism the role of the states, both First World and Third World were minimum. In fact environmentalism was either a local or people's movement or lead by what we call as Non Governmental Organization, (NGOs). Since local movements have small range of impact it is the latter that have come to play a very important role in global environmental movements.

### 3.2.2 NGOs and the Institutionalization of Environmental Movements

It is through NGOs that environmentalism has seen a new phase of development in the contemporary world, namely its institutionalization. These NGOs are providing local, national and global environmental surveillance and governance (Brosius 2008:364). Since these NGOs can make their presence felt at a global level, they have been able to achieve some degree of success in dealing with environmental issues. They have been able to provide environmental movements with legitimacy that they lacked as long as they were confined to subaltern groups.

At the macro, global level, the Montreal Protocol was effective in significantly reducing atmospheric ozone, one identifiable success story in a plethora of environmental movements and concerns. Other major NGO movements are the now famous; Nobel prize winning IPCC (Intergovernmental Panel on Climate

Change) led by Al Gore and R.K. Pachauri, UNEP (United Nations Environment Program), UNCED (United Nations Conference on Environment and Development), CSD (Commission on Sustainable Development) among many others.

However these NGOs are part of powerful lobbies and may serve some stakeholders and leave out others. Very recently we have seen how the IPCC was involved in a controversy regarding its biased reporting of the Himalayan glaciers. Sometimes the involvement of institutions steers a movement away from its main course and the fundamental aspect of the problem is diffused and secondary issues get taken up.

Let us take as an example the Sarawak campaign, described by Peter Brosius( 2008). In the first stage of the campaign both International and Malaysian NGOs brought world attention to focus of the destruction of rainforests in Sarawak for sale of timber through the active involvement of the Malaysian government. It is worth mentioning here that in the post colonial period, the local governments often newly formed, took up from there the colonial governments had left off. Most of them began massive programs of 'development' following the exact models of exploitation set up by the colonial states. The aim was to exploit natural and human resources of their own countries in a bid to get over the tag of Third world and to enter the global power arena. The commercial interests of the First world countries added to the process, where the earlier direct exploitation by colonial governments was now routed through the economic institutions and multinational corporate companies.

In a similar situation the Malaysian government reacted with the rhetoric very frequently used, that the first world NGOs were obstructing development in the name of environmental concerns. Similar views are still being voiced by countries such as India and Brazil. The Sarawak region had witnessed the most rapid rate of deforestation and environmental destruction seen in the world from the 1970s to 1980s, when there was hardly anything left for further deforestation. The indigenous people, the Penan, who were inhabitants of these forests suffered terribly as their entire subsistence base was destroyed as a result of such massive commercial exploitation of the forest. As a protest against the destruction of their environment, in 1987 the Eastern Penan hunters gatherers began their movement by building barricades against the loggers, to prevent them from entering the forests. The images of these barricades fuelled public imagination and NGO attention in the developed countries where by now the destruction of the rain forests were already a matter of discourse. The initial period of protest was supported by the Malaysian NGO Sahabat Alam Malaysia (SAM), Friends of the earth, Malaysia) and also the charismatic Swiss environmentalist, Bruno Manser. The campaign was joined by the famous rock band The Grateful dead, Al Gore and Prince Charles. The Sarawak received extensive media coverage and was given the Reebock Human rights award and the Chico Medez Award and the SAM activist Harrison Ngau was awarded the Goldman prize.

The reaction of the Malaysian government to these campaigns was similar to what most Third World countries including India have been putting forward. They accused the Northern NGOs and western public of romanticizing the Sarawak, and putting hindrances on the Malaysian road to development. Not quite unjustifiably they accused the earlier colonial governments of exploiting

the indigenous people during the colonial period and now trying to control the Third world through the rhetoric of supporting the very same people they had earlier exploited. The Malaysian government called this movement, Eco-imperialism, saying it was imperialism in another form. However more compelling arguments were put forward when the Malaysian authorities put up the question as to why only the tropical rain forests were environmentally important, what about the European temperate forests that had been almost completely destroyed in the process of industrialization and urbanization of Europe and USA. Malaysian environmental activists also raised a very pertinent question that the largest consumer of the tropical rains forests was still the Northerners. If the tropical forests were being logged it was being done to satisfy the consumption needs of the rich nations. In fact the Malaysian criticism compelled some Northern activists to begin campaign for saving Old Growth forests in their own countries. WWF for example, brought out a 1992 publication entitled, *Forests in Trouble: A Review of the status of temperate Forests Worldwide.* Thus there was a politically felt need that the people in the North must look at their own forests before they begin to criticize how the people in the South are dealing with theirs. In fact most Northern environmentalists now began to put the blame for forest destructions, in both North and South on the developed countries. It was recognized that the root of the problem was industrialization and timber consumption and most of it was located in the North. The effects of this movement were to dramatically reduce the demand for tropical timber through moral pressures. Thus the European Parliament unanimously passed a resolution suspending the import of timer from Sarawak. Austrian government too banned the import of tropical timber; similar bans were affected in Japan and Germany. In Belguim Brussels declared itself a tropical timber free city.

However another moral issue was involved. The NGOs debated whether they should ban the import of tropical timber altogether or confine it to timber from sustainable sources. Thus a new dimension of sustainability was introduced into the debate about timber and about environment in general. There was also a realization among the NGOs that to effectively and successfully negotiate with, National governments, timber merchants and associated stakeholders they must strive for sustainability and not insist on total ban. Thus the discourse moved away from the Penan and saving Sarawak forests to one of sustainability. In response to reduced demand for their timber in world markets, Mayasian authorities too began to project their image of sustainable forest management, and maintained that they have for a long time engaged in such practices. A government publication in Malaysia is entitled: Forever Green: Malaysia and Sustainable forest management (Ministry of Primary Industry, 1992). In order to gain respectability and acceptance 'ecolabelling' system was provided by NGOs such as the Wood Workers Alliance for rainforest Protection and rain Forest Alliance. In 1992, The Forest Stewardship Council was founded by a number of NGOs coming together. However the concerted efforts of the NGOs and boycott of tropical timber forced Malaysia to opt for ecolabelling and certification of its timber.

However the issue of what criteria to take into consideration for certification does not always work out in favour of the most critically affected parties, in this case the indigenous people. Certification generally involves only considerations of a technical nature involving principle of scientific forestry or at the most

economic costs involved. The real issue with which for example the movement against logging began was gradually sidelined, namely the destruction of the subsistence and environment of the forest dwellers. As the demand for their timber kept falling the Malaysian government realized that they had to step up their own campaign but found themselves inadequate to counter the environmentalists who not only projected the Malaysian government as inefficient and corrupt but raised several issues like indigenous rights, global warming, loss of genetic material and human rights. The Malaysian government set up the Malaysian timber council to counter the effects of the NGO movements and recruited paid consultation firms to deal with the problem. At the same time they continued their efforts to project the environmentalists as too radical, seeking sensation, etc.

In this entire process the key problem, that of loss of primary rain forest and the rights of indigenous people to their resources and mode of subsistence was lost. The debate then shifted only to questions of sustainability and not absolute loss of resource. Where can we then look for successful environmental movements? What went wrong with the Sarawak case was that too many stakeholders at the top level were involved. The people's movement was aborted and the NGOs took over. In India there have been many people's movements with varying degrees of success and public recognition. Let us look at some of them.

**Check Your Progress 1**

**Note:** a) Use the space given below for your answer

b) Compare your answers with those given at the end of the unit

1) What do you understand by environmentalism? What are the various types of environmentalist philosophies?

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2) Which in your opinion gives better results for the environment, a top down NGO movement or a grass roots local movement? Discuss with examples.

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## 3.3 TRIBAL MOVEMENTS IN COLONIAL INDIA

In the earlier section we have discussed how important a way of life is for a people, how modes of subsistence are closely tied up with the identity of a people and therefore it will be easier for us to appreciate why a person such as a tribe would die rather than give up their resources and why they would engage in a praxis of protest and environmental movements. The state takeover of the forest in the nineteenth century marked the beginning of the end for the forest dwellers. But since then and even now their struggle is continuing. Prior to colonial rule the forests in India were more or less free goods, which was used by local villagers for various domestic uses of fuel and fodder, grazing and even retreat and meditation. But the colonial empire laid its claims to the vast forests of India that represented to them intense commercial interests. They restricted access to the forest, working them instead for commercial production of timber, replacing locally useful deciduous trees and interfering deeply with the subsistence activities of the village people and more specifically of the hunters and food gatherers for whom the forest was both home and the primary means of livelihood. Like the African foragers discussed earlier, in India too they maintained a healthy exchange relationship with settled cultivators, exchanging forest produce, like honey and nuts for grain, etc. By reserving the forest, the traditional rights of these people now became illegal. Deprived of their subsistence base some of them became bandits and were promptly branded as criminal tribes, a colonial designation that was removed only recently. Some like the Kadar were used by the administration to provide forest produce for commercial use, being paid a pittance in return for their services, the bulk of profit going to the colonial state. As a result to these interferences the population of the tribes declined and they lost their skills and environmental knowledge to a large extent.

There were many small uprisings and protests called as *fituris*, especially in the central Indian tribal belt involving large tribal groups, as recorded by David Arnold. The Rampa rebellion of 1879-80 was among the first such *fituris* and the last recorded one happened in 1922-23. They frequently involved the willful defiance of prohibitions, like hunting in government forests, setting fire to police stations etc. The state rulers were soon involved in the commercial potential of what they considered their property, and began to put restrictions on the hunters and shifting cultivators. The Maria and Muria Gonds of Bastar rose in rebellion and so did the Gonds and Kolams of Adilabad district. The rulers with the help of British army succeeded in driving out the tribals from many parts of the forests and settling outsiders to do settled cultivation. With the support from the Congress Nationalists of those times, the earlier sporadic violent outbursts of the tribal populations were directed into a more systematic movement focused on forest rights. Country wide campaigns were led by the Indian National Congress in 1920-02, and from 1930-2, that received much encouragement by the visit of Mahatma Gandhi to Cudappah in South Eastern India in September, 1921. During the Civil Disobedience Movements, the violation of forest rights became even more pronounced. Women often took the lead is such movements and in Akola, Maharashtra, nearly 60, 000 women marched with their cattle into government reserve forests. A real effect of such protests and movements was several reworking of the forest legislatures and policies. Let us now come to one of the most famous movements in Indian history, the Chipko movement of Tehri Gahrwal, described among others, by Ramachandra Guha, in his book, "The Unquiet Woods".

## 3.4 LOCAL MOVEMENTS OF PROTEST: CHIPKO

Describing the Himalayan villages Guha remarks on the relative equitable distribution of power in the village and the collective decision making via the village panchayat where even the Dom or the lowest caste could lodge a complaint. He also comments on the crucial economic role played by the women in agricultural and domestic activities, the hill woman carries the major burden of subsistence tasks such as providing for fuel and fodder and water for the household, takes care of every house hold activity and works alongside the men in the fields. Since the forest was of great importance the local people had "Drawn a protective ring around the forest" (Guha: 29). The forest was treated as the abode of many spirits and deities and treated with great respect. Deodar groves were grown near temples and treated as sacred groves. The Banj( Oak) and Bhimal trees used by the villagers for fuel, medicine and fodder were carefully managed by collective consensus.

The concept of sacred groves is found all over India and has been the source of great conservation of forests and trees. Some trees in these groves attain huge proportions as they are never cut or harmed. The amicable cooperation that exists between villagers of the same areas and even nearby states, so that available grazing pastures, wood lands and water sources were used by people from nearby regions such as Bushahar and Tehri and Pauri Garhwal without any one encroaching on to another's livelihood. In my own work on the Bhotiyas of Uttarkashi, I have shown how sharing of pastures was cemented with forming of marriage ties between similar groups from different regions. In other words the local people had the wisdom to both share and conserve the resources available to them in their environment. The feudal state did not make any claims on the local resources of the villagers and only made claims on their labour from time to time in a system known as *begar*, where the king could demand *corvee labour* on any appropriate occasion.

In the Pre-Colonial era, the woods of the Himalayas were so dense that they appeared to be inexhaustible. As pointed out the conifers in the Himalayas represent second stage of forest growth when some species grow on ground already covered with vegetation; and the oaks and other deciduous broad leaved trees represent the third stage of forest growth which is the climax stage when the maximum possible growth under plentiful water supply (hygrophilius) takes place and the forest is considered fully generated. A natural forest is always multispecies in character and such was the nature of Himalayan forests in the pre-capitalist times. However by the time the British arrived things changed as they were able to see the commercial potential of these forests. Frederick Wilson was the first to lease the entire Garhwal forests for a paltry sum of Rs. 400, and introduced the water transportation system. Later the forests were leased for higher sums but for commercial exploitation mainly to build railway sleepers for the British enterprise of linking India by railways. With the realization of the commercial value of forests rights over forests were consolidated by the local rulers and a representative of the raja of Tehri Gahrwal classified all forests into three types, 1) reserved forests, 2) Forests for exercise of forest concessions and 3) For the use of the villagers.

The greater state control meant that greater restrictions were placed on the local people for the use of the forest. Between 1911-1917, nearly 3000 sq. miles of

forest in Kumaon was placed under vigilance so that villagers were only allowed restricted access to grazing and collection of fuel and fodder from these areas. In addition to timber these forests proved a valuable source of resin. As reported, between 1910 to 1920, the number of resin channels rose from 260,000 to 2,135, 000. Extensive exploitation of forests also took place during the two World wars. A tragedy that took place consequent to all these changes was that the villagers were de-motivated to take care of their forests, the third category forests that were assigned to them. They thought that if these forests became good they would be taken away from them as reserved forests. Thus while earlier the villagers had put in all efforts to cherish their forests, they now were becoming alienated from them.

In Garhwal, there was in place a traditional system of protest, in the form of Dhandak, that meant a kind of representation made before the king, by a village collective. It was a peaceful form of protest merely to appraise the king, that something was wrong and needed to be redressed. In view of the continuing harassment faced by them over the alienation of traditional forest resources, the villagers engaged in Dhandak, twice, but retreated peacefully but the third time they were subjected to bullets, by a British trained former police officer, and what was a peaceful protest turned bloody. Also the protest was given a completely different colour by the authorities and the traditional relationship of trust and paternalism between the king and the peasantry was disrupted. Gradually the local movement began to merge with the Nationalist movement and a local branch of the Congress party was formed, The Praja Mandal, (Citizen's forum). A highlight of the Praja Mandal's protests was the death of its leader, Sridev Suman, in Jail, after a fast of eighty-four days. The peasants then embarked on a protest against the settlements of land undertaken by the king, at the behest of the Colonial government. After a lot of struggle and loss of life the Praja Mandal ultimately won and the raja had to give in to some of their demands. Guha analyses the peasant protests as built up on the traditional forms of protest common to most old feudal systems. Thus its environmental importance lay in that it tried to challenge the different property rights with respect to environmental resources, such as trees and land than the peasants were accustomed to. While the villagers had the notion of common property to be shared and used; the colonial and later the Feudal state too wanted to convert it into private property to be exploited for profit in the market. The resistance was to this forced transition from subsistence to commercial exploitation of environmental resources.

Ironically the destruction and exploitation began by the colonial government was taken to new heights by the government of Independent India. In the name of development, roads were built at a fast rate to encroach deeper into the Himalayan forests and clear fell most of the oak and locally valuable trees and replaced them with commercial forestry. Contracts were given to firms outside of Garhwal and even to foreign ones to take out the resources for profit to themselves. Little of the fruits of development were given to local people and soon the hill economy, once flourishing and self sufficient was completely denuded and replaced by what came to be known as a 'money order' economy. In fact what remains of the Uttarakhand forest is an effective critique of the western concept of Tragedy of the Commons. Most thriving forests are held by the village community. In the sixties, the hills were still seeing protests and women, who after the exodus of men from the hills had to bear the burden of subsistence on their shoulders, were getting more and more involved in these

movements. Women joined the anti- liquor moment of Sarvodaya leader, Sunderlal Bahuguna, in large numbers. In 1970, a devastating flood inundated many areas of Uttarakhand."The 1970 floods mark a turning point in the ecological history of the region. Villagers, who bore the brunt of the damage, were beginning to perceive the hitherto tenuous links between deforestation, landslides and floods" ( Guha: 156). Under Gandhian leaders such as Sarla devi and Chandi Prasad Bhatt, the movement to give over forests to the people gained momentum.

In 1973, overriding the request of local people for ash trees to make agricultural implements the government gave a contract to Symonds CO. for the same trees. The Dashuli Gram Swaraj Sang (DGSS) vowed to hug (Chipko) the trees to prevent them from being cut. The stiff resistance forced the representatives of Symonds to go away without cutting a single tree. In June the same year the allotment to Symonds was shifted to near the village of Phata in the Mandakini valley. The DGSS involved local people to prevent Symonds again from felling a single tree. The government was undeterred by the protests and next allotted forests near Reni, in the Alkananda valley, a place earlier devastated by floods. On the 25th of March 1974, a massive rally was arranged and village youth threatened to hug the trees to prevent them from being cut. However the administration connived to make Chandi Prasad Bhatt stay away in Gopeshwar and at the same time called away all the men in the village to Chamoli to receive compensation for land (taken away during 1962). The men of Symonds were then asked to go to the forest to cut the trees. A small girl spying the tree cutters ran to Gaura devi , the head of the Mahila Mandali, who collected all the women in the village to go to the forest and was able successfully to save the trees. Reni forest incidence set off a snowballing effect and forest cutting was opposed in many parts of Garhwal. Under Sunderlal Bahuguna's leadership, many events took place. The villagers organized to take away the iron leaves embedded in the Chir trees to extract resin in order to save the trees. Women tied 'rakhis' around the wounded trees. The women's interest in saving the environment was made clear in the village of Dungri-Paintoli, where the men agreed to cut the forest to plant potatoes, but the women turned against them and enlisted the help of Bahuguna to save the trees, angering the men. The Chipko andolan helped by periodic fasts and moral support by its leaders, spread and many forests could be saved. It was a completely non-violent movement and often accompanied by the readings from the Bhagvat Gita. The movement sustained itself on the consciousness raised by the leaders about the ecological importance of forests, by linking the cutting of trees with landslides, floods and for women especially the disappearance of fuel and fodder for their homes. The villagers understood the importance of forests all over again, which they had lost after the colonial take- over of forests. The alienation was bridged and the relationship of humans with their environment was reestablished.

**Check Your Progress 2**

**Note:** a) Use the space given below for your answer

b) Compare your answers with those given at the end of the unit

1) In what way did colonization affect the resources of the Himalayas and other colonies in general?

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2) Discuss the major causes and techniques of protest used in the Chipko movement.

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3) Describe some environmental movements and their consequences.

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## 3.5 LET US SUM UP

- In the past several local environmental movements have become famous globally because of its moral values leading to long term and almost permanent changes in the consumption of natural resources.
- The visuals of indigenous people in the Sarawak forests building barricades to safe guard their forests and even more appealing, women hugging trees to save them, became symbols of mass protest against what was viewed as immoral misuse of environment.
- Chipko movement remained a local movement with local symbolization of non-violence, Gandhian philosophy and religious morality expressed through the reading of religious texts.
- Similar movements locally generated like the Narmada Bachao Andolan, Apiko and many other smaller movements all across the country to protest against building of dams and the destruction of people's ways of life.
- The state, bureaucracy and vested economic interests in the form of stakeholders, however show very similar characters and spew out the same rhetoric of development, national interests and science.
- This tussle between stakeholders and those affected by environmental degradation is the basis on which most movements are engendered more linkages and power the movement is able to mobilize, the greater lies its visibility and spread.

## 3.6 KEY WORDS

**Deep ecology** : A philosophy of understanding ecology, a cherished value of nature where mankind is considered as an integral part of environment.

**Social movement** : Collective mass movement based on class free structure to remove social disparity.

## 3.7 REFERENCES AND SUGGESTED FURTHER READINGS


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## 3.8 KEY TO CHECK YOUR PROGRESS

**Check Your Progress 1**

1) Your answer must include the following points
   - Environmental consciousness
   - Preservationists

- Conservationists
- Nature-culture dualism

2) Your answer must include the following points
   - Representation at the global level
   - Real experience

**Check Your Progress 2**

1) Your answer must include the following points
   - Tax
   - Commercial interest
   - Restriction to forest access
   - Introduction of new species
2) Your answer must include the following points
   - Leased forests tract
   - Cutting trees by private contractors
   - Threatening of locals
   - Hugging trees
3) Your answer must include the following points
   - Narmada, Teri, Appiko
   - Sarawak
   - Control over timber

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# UNIT 4 IMPACT OF DEVELOPMENT

**Structure**


4.0 Introduction

4.1 Objectives

4.2 What is Development?

4.3 Industrialization and its Fallouts

4.4 Water Pollution

4.5 Global Warming

4.6 Forests and Desertification

4.7 Bio diversity

4.8 The External Costs of Production

4.9 Mining and its Hazards

4.10 Participatory Development

4.11 Let Us Sum Up

4.12 Key Words

4.13 References and Suggested Further Readings

4.14 Key to Check Your Progress


## 4.0 INTRODUCTION

Development is a word made popular in the post world war society, but it has two broad connotations. One is in a general sense of social development that is informed by the classical evolutionist theories of the nineteenth century where some societies or ways of life are actually considered superior to others. The other is more technological and informed by material conditions, taken from an economist's point of view that equates development with per capita income and growth, also situated in the nineteenth century and in the West. The space and time location is significant as what we understand by development today is largely an outcome of the colonial spread of western ways of life and the privileging of western industrial technology over all other modes of subsistence. Thus in common parlance one has come to equate development with a western way of life, thinking and technology. However it is the environmental issues facing the world today that has put a question mark on development as a single minded pursuit of industrialization and westernization has led to a situation where the continuity of life on earth is almost threatened. In this unit we shall discuss the concept of development, critically and look at some of the consequences of development that is being faced by the world today and finally what kind of development do we envisage for a sustainable life style.

## 4.1 OBJECTIVES

After reading this unit, you will be able to:

- describe the process and struggle to maintain various ways of life;

- recognize the cases of displacement and interface of traditional occupations; and
- explain the continuity of modes of subsistence.

## 4.2 WHAT IS DEVELOPMENT?

In its most conventional form, development was visualized as a top down process whereby a power center forced its agenda onto a politically subordinated subject, in a bid to transform it according to a blue print prepared by the dominating agency that was also the locus of power. The main rhetoric of development was that "It was for the good of the people so encroached upon", if they did not appreciate it. "It was because of their ignorance, that they did not know what was good for them". Since the West has been in power for quite some time and because development was a word coined in the west to mould the rest of the world into its image, from the colonial period onwards, power was exerted form the top, to break, destroy and then rebuild things in a way that would conform to the administrative needs and exploitative programs of the power holders. Thus in our earlier unit we have seen how in Independent India, building roads into the interiors of the hitherto unclaimed lands like the Himalayan forests, or the tribal areas, was ostensibly to bring 'development' to the people, but in reality, it made things easier for outside commercial interests as they could with greater ease ferry resources out of the remotest regions. Very rarely if ever, is any input given to the local economy or to the people on whose land the resources lie.

It needs no great statistics to show that while the tribal areas are the richest in natural and mineral resources, the people whose land it is are the poorest in the country with the lowest standard of living. When a factory or a mining giant enters an interior area, they may employ the local people only as labourers and the lowest paid employees, but the greatest benefit goes to the outsiders. Similarly when dams are built to provide electricity or irrigation for agriculture to cultivators, the indigenous populations who may have been hunting or food gathering or practicing shifting cultivation are just thrown out. Even when compensations are paid they are given only to landowners but there is no record of any community ownership or user rights as exercised by certain modes of subsistence. Thus the entire system works on recognition of those kinds of rights that were approved by the western mode of ownership, namely individual ownership under the capitalist system of production where capital is both owned and saleable including labour.

Cooperation and sharing, barter and generalized reciprocity find no place in the capitalist system of development or for that matter in any advanced regime. Thus these types of institutions are rapidly replaced by market networks, a cash economy and a so called superior technology. In this Unit we shall focus more on the impact of technology produced as a superior body of knowledge by western science, that was till recently established as the *only* body of real knowledge. All other systems of knowledge were relegated to the dustbin, of "primitive', 'underdeveloped' or simply 'superstition'.

## 4.3 INDUSTRIALIZATION AND ITS FALLOUTS

The transition to industrialization was mainly the exploitation of a new form of energy in the form of fossil fuels, viz. the use of coal and its conversion into

steam to produce the steam engine. It marked a transition from the use of organic sources of energy to mechanical sources of energy or machines. But the machines were then mostly run on the burning of fossil fuels. The major technical innovation of the twentieth century was the invention of petrol powered internal combustion engines. After the Second World War, coal provided the bulk of requirements of electricity production and running factories and cooking and natural gas was used in cold countries to provide heating. Petroleum was the major breakthrough that provided transport fuel. Even when the colonial period was at its peak, the hazards of industrialization were already began to be felt. The coal induced smog in London in the beginning of the twentieth century was a great health hazard. The phenomenon of acid rains, caused by the dissolution of $SO_2$ and $NO_2$ produced by the burning of fossil fuels that dissolves in rainwater to produce sulphuric acid and nitric acid, is a direct consequence of too much of industrialization. According to a report published in the magazine *Down to earth* published by the Centre for Science and environment, "A 2004 paper in the journal *Environment Science and Engineering* by IMD scientists says pH values in rainwater have been dropping in India. The study finds a link between acid rains and the rising levels of sulphur and nitrogen compounds in the atmosphere. "The data is extensive and irrefutable," says Jayanta Sarkar, lead author and former director of air pollution unit, IMD in Pune. All stations except Kodaikanal have shown a two-fold rise in sulphate concentration in the rain. The scientists cite the example of northeast India where oil refineries, fertilizer factories, thermal power plant and oil and gas installations release sulphate and nitrate compounds into the atmosphere, raising acid content in the rain." (Down to earth, Oct, 15, 2007) Acid rains spread every where once they form ice in glaciers and run into the rivers and the sea. They have harmful effect on all kinds of life. The Taj Mahal is also reportedly turning yellowish as its marble is getting polluted by acid rains, caused by the Mathura Refinery.

Apart from acid rain the factories burning coal spew coal dust and smoke in the air. In London, the use of higher chimneys, to prevent smoke from spreading in the neighbourhood, caused the smoke to spread over wider areas. One consequence of industrialization has been that as its intensity and scale has been increasing, the amount of harmful waste produced by it has been increasing manifold. Today there is hardly any natural source of food and water that is not contaminated. Arturo Escobar (1996), one of the well known voices to critique development has talked of a new process of capitalism called "Ecological phase" by M. O'Conner (1993), where the environment is no longer treated as something like a backdrop for action, like in early phase of capitalist expansion but is treated as a resource to be managed and exploited for greater consumption, in short it becomes a commodity, but problems begin when it is overexploited as of now. Globally we are finding that, everything of human and living use is getting spoilt, the habitat of hundreds and thousands of species is getting destroyed. Let us now examine one by one the damage that has been caused by overuse of technology and a monolithic view of development.

## 4.4 WATER POLLUTION

A significant source of worry today is water pollution and in India we see how the major rivers are polluted to such an extent that they have even ceased to flow smoothly. Heavy metals like mercury are poisoning the fish in the rivers where

industrial waste is being released. The level of pollution in any water source, like a river, depends upon the concentration of pollutants and discharge of the river that in turn depend upon various factors that may be hydrological, geomorphological, topographical and cultural. Thus the concentration of population on the river banks, conditioned again by the degree of urbanization, affects directly how much of waste is discharged into the river. The presence of polluting factories like the tanneries of Kanpur that discharge toxic waste into the Ganga also adds to pollution.

Technological interference like damming and diversion of water from rivers into irrigation canals also damage the quality of water. The Ganga for example is specially vulnerable because most of its water has been diverted into irrigation canals, at Haridwar, rejoining the river only at Kanpur. When the flow of the river is thus disrupted its potential to accumulate waste increase as a strong water flow will wash away much of solid waste. In her study on pollution of the Ganga, Kelly Alley( 2002:53) makes the following observation, "In 1995, the Central pollution Control Board listed 191 grossly polluting industries in the state of Uttar Pradesh, 6 in the state of Bihar, and 67 in the state of West Bengal. At the same time the report was made, these industries were discharging toxic effluents that carried biological oxygen demand (BOD) concentrations of more than 100 milligrams per liter. According to the board's reports, each unit's discharge added up to more than one million liters of waste water per day. Researchers have found heavy metals such as cadmium, zinc, nickel, lead, chromium, and copper concentrated in the river water and the sediments. In 1995, The Central Pollution Control Board (1995: 14-15) reported high levels of zinc and nickel in the sediment of the river Yamuna, a river that flows pass the capital city of Delhi and into the Ganga at Allahabad. Researchers from Jawaharlal Nehru University in Delhi have also reports of PCB concentrations as high as 782 parts per billion and have detected the presence of DDT, hexachloro hydrocarbons, and clyclodiene in the wastewater entering the Yamuna River.

Even when some cleaning up project is visualized and money spent, the goals are misdirected; for example, most of what passes for development involves building more and more. In the same book (pp 160-161) we find that the Ganga Action Plan, approved by Rajiv Gandhi, pursued the goals of reduction of pollution leading to the Ganga, and to establish sewage treating systems in twenty-five class1 cities bordering the river. However although huge funds were generated and earmarked for this project, the first thing that was undertaken was the beautification of the Manikarna Ghat of Benaras, no doubt a place of much cultural and ritual significance. However, very little was done towards actual cleaning up of the river and pollution control. The *ghat* was cemented and structures built, yet with use, over a few years, with the large volume of pilgrims coming in, it was reduced to the same state as it was before. We all know that even after spending billions of rupees, the Ganga Action Plan has little to show for it.

Like rivers, the seas are also getting polluted. We are recently witness to what off shore drilling can do to the oceans as the British Petroleum oil spill in the Gulf of Mexico( beginning April 2010) is spelling disaster for marine life, economy based on such life and the general quality of life based on the seas, that includes tourism. The oceans connect the entire globe and major pollution such as the billion of tons of oil flowing into the ocean is bound to make its presence felt elsewhere. The coral reefs are damaged and almost becoming extinct and so are

hundreds of marine species. It is estimated that over 90 % of the world's biodiversity is found in the oceans. Yet certain technological developments such as deep sea trawlers used for commercial fishing and use of sophisticated technology like Sonar to spot and exploit fish in the seas is leading to depletion of edible species at a fast rate. The Tuna is almost fished to extinction. So are the turtles, the whales and many other species that may be over harvested or simply killed off by pollution and too much external exposure to human technology.

**Check Your Progress 1**

**Note:** a) Use the space given below for your answer

b) Compare your answers with those given at the end of the unit

1) What is the impact of western industrialization and modern science in projecting development models?

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2) Discuss the state of the world's oceans today.

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## 4.5 GLOBAL WARMING

In the nineteen eighties, an amazing evidence of what technology can do to the environment was made, when it was found that the ozone layer covering the earth's atmosphere was being depleted and a large Ozone hole was discovered over the Arctic. In 1995, the Nobel Prize was awarded to Frank Rowland and Mario Molina for putting forward the Ozone hypotheses that stated that CFC or choloro -flurocarbons commonly used in household goods such as refrigerators and halogen lamps were responsible for causing this kind of damage to the earth's atmosphere. James Lovelock, famous environmentalist who put forward the Gaia or mother earth hypothesis, on a cruise to the South Atlantic found that all the CFC that was ever produced, since 1930, its discovery time, was still present in the atmosphere, in other words it could never be eliminated. The depletion in ozone layer leads to an increased UVA/UVB presence in the sunlight that is in turn leading to global warming the effects of which are already evident as the Arctic glaciers are melting at an alarming rate, so are the Himalayan glaciers. The snows over the only snow covered mountain in Africa, Kilimanjaro, are also melting revealing brown patches that are clearly visible to anyone on a

flight over Africa. Even though the findings of IPCC were discredited as being too pessimistic yet the overall effects of climate change are felt globally in terms of freak weather conditions, and over- all rise in temperatures. Warming of the ocean has created ocean currents that are affecting climate all across the globe. Because large amounts of fresh water are being released into the ocean by the melting of the glaciers, the life of small islands and of the coast lines is in danger.

## 4.6 FORESTS AND DESERTIFICATION

Normally, most of the carbon dioxide produced by burning fossil fuels is absorbed by the forests that act as CO2 sinks. But over centuries humans have been depleting forests and putting them to alternative uses. The primary reason for clearing forests was to set up human habitations and to clear land for settled cultivation. In fact the permanent cultivation has been one of the major reasons for environmental modification as in this not only is primary forest got rid of, there are more changes like mono-cropping and use of artificial fertilizers, now-a days, mostly chemical , that further release toxins and affect biomass.

In her seminal book, Silent Spring, Rachel Carson has described the harmful effects of the use of DDT, a very commonly used chemical in the past, used by farmers to kill pests and insects that affect the crops. The sensation created by this book finally led to the banning of DDT in most countries of the world. But pesticides are still being used and are essential in permanent cultivation where the natural growth is stretched to its maximum limits by the use of artificial means. In fact as it has been shown by many studies, although , the overall output of settled cultivation is much higher, in terms of input and output ratio it turns out much more expensive than shifting cultivation. Thus by clearing forests and replacing them with agricultural fields, we degrade the environmental resources to a large extent. The commercial exploitation of forests, logging for timber, extraction of resins and finally the clearing of forests to make roads, railway lines and urban settlements leads to loss of green cover that further adds to global warming by leaving a lot of unabsorbed $CO_2$ in the atmosphere that creates a green house effect by trapping the sun's heat.

Although shifting cultivation as been derided for being detrimental to forests, it has been shown that traditional shifting cultivation, by a judicious replacement of naturally grown vegetation actually serves to increase bio-diversity, rather than decrease it. Also by extracting on a sustainable basis, the users are able to maintain the richness and usefulness of the forest. However technological innovation like electric saws, wheeled vehicles and guns make exploitation of resources rapid and wasteful. Population pressure and market forces push extraction beyond sustainable limits so that often useful species tend to become extinct and deforestation at a large scale ultimately leads to desertification or the turning over of land into arid and non-producing zones. Because a thick and good forest attracts rain and prevents soil erosion, the loss of forest leads to water shortage and erosion causing loss of top soil and fertility of the land thereby setting into a cycle the process of desertification. Humans are constantly interfering with natural processes to increase their share of energy from the environment. There are following several ways in which humans do this.

1) By manipulating or creating 'pulses' of energy or nutrients

2) Increasing net production by manipulating the process of ecological succession.

3) Increasing gross production by removing physical limiting factors.

4) Manipulating the structure of food organization so that a greater proportion of its bio-mass is eatable or otherwise usable by humans.

In cultivation what humans do is to manipulate ecological succession to the advantage of humans but to the disadvantage of the environment. It is to nature's advantage that an ecological system increases gross production while for humans it is advantageous to have more of net production and that too of select species. In the natural process after colonization of barren habitat the initial stage is marked by the presence of opportunistic populations, combined with rapid dispersal and capacity to deal with sudden changes in the environment; there is energy available for rapid growth and reproduction and increase in net production. However after colonization, the opportunistic population is replaced by slow growing equilibrium populations that stabilize the ecological relationships. Here the emphasis shifts to least possible change and less energy is allocated for reproduction.

However to keep up the new production, humans artificially manipulate the ecological succession by always keeping the population at the first stage of colonization, that is farming, always replanting afresh and then harvesting so that the species never reaches its full maturity. In fact a crop is harvested just before maturity, for if the mature seeds would fall to the ground the reproduction would stabilize at a stable and slow rate of growth. By extracting the seeds humans stop the process of natural reproduction and begin all over again in the next cycle as a new population, producing more. In shifting cultivation the land is allowed to fallow that is go back into the second stage of stability and then the population is pirated that is used to set in a new cycle. In settled cultivation the ecological succession being constantly manipulated makes it imperative to put in a lot of external inputs, thereby increasing cost of production. Cultivation is thus ecologically costly.

## 4.7 BIODIVERSITY

Humans have been colonizing more resources of this earth and therefore taking over the ecological niche of other species. By the use of their technology such as cultivation, discussed above humans are able to transfer energy from food chains to themselves thereby depriving other species. Thus by technological modification of the earth's surface for e.g. irrigation, swamp reclamation, fertilization, etc. humans are taking over earlier unoccupied regions and pushing out natural species from their habitat. A case in point is the destruction of forests that deprives many species of their food base, therefore leading to their extinction. Many species are either extinct or facing extinction because of the destruction of the rain forests, the orangutans, gorillas, tigers, many species of birds and insects are on their way out. But ultimately such rapid species loss destabilizes the environment and the humans suffer too. One main reason is that human populations have exceeded their limits of growth by artificial means, culturally produced. When a population reaches its carrying capacity, the theoretical limit to which a population can grow, it may either curtail its population, which for humans means by cultural means and secondly it may by technological innovations step up its exploitation

of energy from the environment. In the earlier modes of subsistence, the former strategy was being used so that the human populations did not grow too much. But after the industrial revolution the human population has been growing at a much faster rate than ever before, with the help of technology. They are now far beyond their natural carrying capacity. Thus a stable population that has a balanced relationship with its environment, called an ecological population is not possible for humans.

## 4.8 THE EXTERNAL COSTS OF PRODUCTION

It was the excessive development of technology that has ultimately put humans all over the globe. But not all aspects of human adaptation have to do with the subsistence or survival and reproduction, what adaptation is all about. Today most of what is consumed by humans has to do with cultural values that have now become attuned to a consumerist culture. It is the market that is pushing people to consume more and more by and also creating consumerist values to push up its sales. Yet the cost of any product in the market is calculated only on the basis of cost of production that does not calculate the cost of manufacture that is put on the environment. Cost only covers material inputs but not things such as release of $CO_2$, toxic wastes, pollution caused to air and water and so on. These are called as the "externalities" that are the main cause of environmental problems. It is now commonly recognized that if industries were to pay for such externalities they would be both more cautious and less polluting.

## 4.9 MINING AND ITS HAZARDS

Mining is one of the industries that cause most damage to both the miners and to the environment. As it happens that most mines are situated in hitherto marginal areas, as these were the regions not opened up to agriculture because of their unfavourable location for the same. As more and more areas were colonized by the dominant populations and fields, factories and cities were set up, some areas, not suitable for such enterprises were left alone and occupied by the marginalized population so of indigenous peoples who did not adopt to the new technologies of living. However once it was realized that these hitherto untapped areas were often sitting of great stores of wealth in the form of minerals, they are now being penetrated by commercial forces and exploiters. Sometimes the local people oppose as the Vedanta Company is being stiffly opposed for its mining operations in Orissa by the tribes who claim the mountain to be mined to be their god. So far the national institutions including the Supreme Court have not taken a favourable view of the tribes' claims to their land. But many times the tribals and local people are made to suffer silently and with no redress. Many times it is women who suffer most, as the case study of the Sukinda valley project in Orissa shows. This study is reported by Mahalakshmi Parthasarathy( 2004). Orissa accounts for about 95% of the chromite ore mined in India with reserves standing at 186 million tonnes. The Sukinda valley is one of the prime sites and there are both underground and open cast mines. The chromite ore found here has nickel and cobalt concentrations that are primarily responsible for the release of hexavalent chromium in the atmosphere. Orissa also has a high concentration of women in the mining sector, according to one enumeration by the Orissa government; they are about 8,150 in number. However mechanization of the mining process is steadily leading to retrenchment of workers.

A survey of villages nearby to the mines has revealed that they are mostly marginal cultivators and landless people who supplement their meagre agricultural income by working in nearby mines. They comprise mostly tribes who have been disposed of their traditional resource base in the forests and villages. The mining companies avoid having permanent employees and instead prefer to hire on contract basis, so that employment benefits such as bonus, wage increments and provident funds need not be given. They receive no protective gear and have no health benefits and no compensation is paid in case of any miscarriages those women workers frequently have. Women are also paid less for the same amount of work. In 2001, the payments for a full day's work were 70 rupees for women and 75 for men.

The worst environmental fall out is that once an areas is mined it becomes useless for agricultural activities so that the people have no option but to look for mining jobs and with the mechanization of mining and new technology being introduced, human labour is getting redundant. So the people who have had their subsistence base wrecked by mining have no alternate occupation either, not even as labour in the mines.

One of the worst environmental impacts of chromite mining in this area has been the release of hexavalent chromium in the Brahaminy River that then flows into the Bay of Bengal. In 1996 the Regional Research Laboratory (RRL), Bhubaneshwar conducted a study on the impact of chromite mining on the environment. Since the mining companies do not follow much environmental norms, the huge amount of dust generated by mining is released directly into the atmosphere. Water sprinkling for controlling dust is minimal as the companies consider it unnecessary expenditure. The water seepage from the mining is highly polluting as this water contains hexavalent chromium that is toxic, causing irritant dermatitis, rhinitis, broncho-spasm and pneumonia. It was also found that the chromium had entered the food chain and was found in samples of edible plants, paddy, mango, meat and fish. TISCO, the company doing the mining releases this toxic effluent directly into the stream to enter into the ecosystem and the Effluent Treatment Plant is only an eye wash and is not used.

The Orissa Voluntary Health Association found that every fourth person in nearby villages is suffering from chromium poisoning related symptoms. Women are more prone to such poisoning as they have to be exposed to water much more because of their household tasks, like washing clothes and utensils, bathing children, cooking, etc. Chromium poisoning in women causes abnormalities in the fetuses they are carrying, causes still births and infertility.

An even worse scenario is caused by the fact that since the mines are their only source of livelihood, the people themselves do not report these diseases and health centers attribute them to other causes than directly relate them to mining activities. So that underreporting and non-reporting also helps perpetuating this hazard. Also the toxic mining waste left unattended is causing large scale degradation of forests. The Orissa Remote Sensing Application Center (ORSAC) has studied the impact of mining in the Sukinda valley and shown that the net increase in degraded forest in this area has risen from 732.88 hectares in 1974 to 1828.98 ha in 1994. The women suffer especially as they are losing the base of herbal medicines that they traditionally used to care for the health of their families. Now their health is suffering as a direct impact of mining and also by the indirect

impact of disappearance of forest wealth on which they were dependent. Even though there is provision for environmental clearance for these projects, official apathy and corruption often overlooks such norms. The result is large scale environmental destruction and consequently great suffering for the people who were dependent on these forests.

Mining being seen as one of the most profit making enterprises that benefit many powerful stake holders, the environmental degradation is often sidelined in official discourse where the profits alone are highlighted. Very recently however the Ministry of Environment has stopped many mining operations citing violation of environmental norms. There is now an official will to get rid of illegal mining; the result no doubt of sustained environmental awareness programmes.

## 4.10 PARTICIPATORY DEVELOPMENT

Because of sustained criticism of a top down approach to development, in many places a new model of development was realized that involved the participation of the local people in both implementation and planning of the projects. The idea was that a project was more likely to be successful and bring good results if it were in tune with local needs and goals of the people. These of course preclude such mega projects as dam building and mining, that are seen in the larger interests of the nation. As Thamizoli et al (2004: 92) has put it, "Variety and adaptability are stressed in the approach, content and methodology of participatory projects. As each situation is specific, each process is unique and open rather than closed. The analytical focus is on the group rather than on individual and on comparing rather than measuring" The idea is to empower local people to carry out their plans, take their own decisions and be responsible for implementation of their own programs. The outsiders enter these programs as facilitators and not as directors. Recently many NGOs and government agencies are using this approach to improve the life of marginal people.

Let us see how this manner of development was used in the village of MGR Nagar, located between the Vellar and Coleroon Rivers on the Tamil Nadu coast, inhabited by the Irula tribes. The project was to conserve and manage the Pichavaram Mangrove forests. The coastal Wetlands, Mangrove Conservation and management Project is jointly operated by the Tamil Nadu Forest Department and an NGO, the M.S. Swaminathan Research Foundation (MSSRF), Chennai. The main aim is to carry out sustainable use and management of the mangroves wetlands remaining on this coast. Experience has taught that there are no general rules for natural resource management and each situation throws up its own manner of action.

The Irulas were a hunting food gathering community in this region; they foraged for rats and collected paddy seeds from the rat holes. They also fished and foraged in the mangroves for fish, shrimp and crabs and ate some and sold some in the market, through the middle woman of the fishing community. They were employed by the rich farmers to harvest coconut and make mats but were soon enticed into debts that they could never pay and were made into slave labour. Even the mats they made had to be handed over to the owners of the coconut trees who sold them at their own profit, giving the Irulas a pittance in payment. Like all other foraging communities, the Irulas also operated on the basis of social capital, their internal social relationships were based on generalized

reciprocity, sharing, cooperation and mutual support. Since they are heavily indebted to the landowners, the Irulas cannot get any livelihood from the labour they do for the farmers. They are thus mostly dependent on the mangroves to get some cash income and also subsistence.

As a part of the project to improve the life of the Irulas, as a first step the Village Development and Mangrove Council (VDMC) was formed. The structure of the group was such that in the general body, all families were represented by one male and one female member, and the Executive council had one third female members. The main concerns of the people were then chalked out. Firstly to get recognition as a Scheduled tribe from the state, that would entitle them to many benefits, opening of a school, as all the Irulas were illiterate, to provide boats and nets for fishing as up to now they were fishing by groping in the mud with their hand, to upgrade the mangroves and their sustainable management. "At the outset, the first three concerns were addressed: the 'Community certificate' was gained, legitimizing their Irula tribal identity, a school building was constructed and the school began functioning; caste-nets were introduced and 20 Irula men were trained to use these by men from the traditional fishing community nearby". ( Thamizoli, et al,p.104)

The community received a lot of benefits once they were recognized as a Scheduled tribe, they could legitimately collect minor forest produce and fish in the mangroves. 17 ha of degraded mangrove were restored and 60 ha of mangrove wet land were extended protection and management. The most important aspect of this project was the benefit sharing so that while people restored and managed the mangrove forests they knew they were going to benefit from them. Also since as a scheduled tribe they could legitimately exploit minor sustainable resources from the forest, they developed a sense of ownership and protectiveness towards the natural resources. Thus we find that by involving the people to take care of their own backyards and to share the profits of this care is a much better and fruitful manner of development than to impose programs from outside that do not bring any fruits for the local people.

**Check Your Progress 2**

**Note:** a) Use the space given below for your answer

b) Compare your answers with those given at the end of the unit

1) How does mining affect the forests? Discuss.

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2) What is participatory development? How does it differ from conventional models of development?

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3) What is global warming? Do you think human actions are responsible for it?

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## 4.11 LET US SUM UP

- The outcome of development activities in tribal areas has dramatically different consequences for the local people involved.
- Mining, construction and other large scale projects have played havoc with the lives of the local people and also to the environment.
- Environment is something that we have realized to be a system that is globally connected; no one would have paid heed to what happens to the environment in a Third world country.
- The development activities which do not cause any harm to the environment have begun to hold importance.
- The third world countries are now demanding that the developed countries pay them to keep their forests and environment.
- Thus participative development and sustainable development are being seen as of more and more importance.

## 4.12 KEY WORDS

**Industrialization** : The process by which a society transforms from agricultural form to the manufacturing.

**Shifting cultivation** : It is an agricultural system in the land is cultivated temporarily, and then abandoned.

## 4.13 REFERENCES AND SUGGESTED FURTHER READINGS


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## 4.14 KEY TO CHECK YOUR PROGRESS

**Check Your Progress 1**

1) Your answer must include the following points
   - Use of machines
   - Increase harmful waste
   - Detrimental to environment
2) Your answer must include the following points
   - Pollution
   - Oil spill
   - Loss of marine species and coral reefs
   - Rich biodiversity

**Check Your Progress 2**

1) Your answer must include the following points
   - Loss of Agricultural activities
   - Release of dust and other pollutants
   - Seepage of polluted water
   - Large scale degradation of forests
   - Loss of various species
2) Your answer must include the following points
   - Involvement of people in planning and implementation
   - Local needs and goals
   - Grassroot level

3) Your answer must include the following points

- Rise in temperature
- Melting glaciers
- Technology
- Modern Household goods

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