

## CHAPTER 3

### CONFLICTING CLAIMS ON FOREST RESOURCE.

#### 3.1 Forest Characteristics and Forest Uses.

Forests are an important renewable natural resource and contribute significantly to the economic development of rural people. Forestry activities are highly important in local, rural areas as it provide food fodder, fuel, fibre etc. to them. In general forests have many distinctive characteristics subject to one or more different major types of use. However, from a purely economic stand point the major characteristics of forests may be grouped under four heading (Clawson, 1975) : Land, timber stand, annual growth, and annual harvest.

**LAND :** Land is essential for forests upon which it grows. Forest lands differ greatly depending upon the topography or slope fertility, geological origin, soiltype, exposure, climate and other features. Growth of tree, in turn depends on these factors.

**TIMBER STAND :** Timber stand refers to the standing trees upon the forest land at present. Timber stand varies from species to species, tree to tree and depends on age, size, degree of defect, rate of growth, insect or disease infestation and in other respects. Standing timber is classified as sawtimber or as growing stock. Timber volume is measured in cubic meters or cubic feet.

**ANNUAL GROWTH :** The third major characteristic is annual growth of the forest. Annual growth of tree varies from tree to tree depending upon the quality of soil, weather, space etc. Volume of growth per tree is partly a function of the age of the tree as well as a function of the site characteristics. Thinning, pruning, tending, weeding, poisoning and space influence the annual growth of tree. Appropriate weeding with reasonable space may increase the rate of growth of tree. Prompt regeneration of forest site after harvest, adequate restocking for stems, planting of genetically superior strains, fertilisation also are important factors in determining the rate of growth of tree.

**ANNUAL HARVEST :** Annual harvest is the fourth major characteristic of forests. In any particular forest usually

harvest of wood do not occur annually. It has a gestation period ranging from a minimum of 5 or 10 to 100 or more years. Since forests are in remote places, it is quite unworthy and uneconomic to harvest a small volume of timber. In the territorial forest land, forest department harvests wood annually part by part and replants at the same time for the same size in a cyclical order. There are various problems in annual harvest. There is the problem of soil erosion, stream pollution etc. In the long-run wood harvest can not exceed wood growth.

Forest has immense use in the life of a country. However, we may grouped them under the following categories as it is done by Clawson (1975) : i) maintenance of an attractive forest environment, ii) provision of opportunity for outdoor recreation, iii) provision for wildlife, iv) provision for natural watershed, v) provision for general conservation vi) production of timber for various uses, vii) provision of opportunity for a wilderness experience.

**FOREST ENVIRONMENT** : People of the country like to visit and see forest. Most people expect that there should be a good forest which would be attractive in appearance. It is interesting to note that these people of the country feel that they have a right to have a good forest though they do not pay attention or bear cost for maintaining the forest in attractive appearance. These forest lovers do often object against clear-cutting or harvesting of timbers. This use of the forest is in many ways illusive and difficult to measure.

**OUTDOOR RECREATION** : Another important use of forest is outdoor recreation. This activity is increasing day by day. Local Governments are also becoming conscious about creating the avenues for board and lodging in the forest areas of the country. For the tribals recreation in forest is a part of their culture and heritage.

**WILDLIFE** : Forests harbour many types of animals, birds, and insects. Forest is required for their food, shelter, breeding grounds and for other aspects of their life cycle.

**NATURAL WATERSHED** : Forest acts as a good watershed. It helps to break the force of heavy rain and keep erosion to a minimum. It helps to control water runoff by means of rainfall interception and transpiration. However, man can affect this use of forest to some extent.

**TABLE 3.1 Physical Interrelations of Forest characteristics and Forest Uses**  
**Forest characteristic**

Forest Use	Land Area	Timber Stand Volume	Annual Growth	Annual Harvest
Attractive Environment	Essential	Modest Stand attractive; most productive stand not required	Not very Important	Generally inimical but careful planning and operation may reduce impact greatly and may enhance appearance in some instances.
Recreation opportunity	Essential	Moderate importance open stand often more attractive than full stand	Limited value	Possible under carefully controlled conditions and on rotation; enhances recreation opportunity in some instances.
Wilderness	Essential	Volume at natural maximum but actual volume unimportant	Unimportant	Unacceptable : destroys basic value of experience
Wildlife	Essential	Kind and numbers of wildlife responsive to stand characteristic	Limited importance	Acceptable under proper controls; desirable for some species.
Natural Watershed	Essential	Importance to have good cover but timber volume of limited importance	Relatively unimportant	Acceptable under proper controls
General conservation	Essential	Helpful to have good cover	Relatively Unimportant	Acceptable under proper controls
Wood Production	Essential	Thrifty growing stand essential; too small or too large volume reduces growth possibilities	Critical for longrun rate of harvest, but growth rate also dependent upon harvest	Critical both for use of wood and forests further growth

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Source : Marion Clawson, 'Forests for whom and for what? (1975)

**GENERAL CONSERVATION** : General conservation refers not to a particular 'use' of the forest but to an important component of all other uses. It has to remain attractive for recreation, productive for tree growth and so on. It is essential that the soil or other parts of the total ecosystem be preserved from severe damage. Any use of the forest has some impact on its ecosystem. Therefore, the essential consideration in general conservation is not the severity of the impact caused by man but the extent to which it is irreversible or the extent to which the ecosystem can heal itself and over what time the healing process will extend.

**WILDERNESS EXPERIENCE** : It is a special form of outdoor recreation. There are some problems in managing or maintaining the wilderness use of a forest. However, it may be curtailed if

required.

PRODUCTION OF WOOD FOR VARIOUS USES : Wood production is the main purpose and objective of most management of the forests . Wood is an extremely valuable and versatile raw material . Wood has been, and is, used for a wide variety of uses like plywood, pulpwood, paper, fibreboards, or particle boards, plumber lumber, construction pole and even adhesive.

The numerous and complex relationship between the forest characteristics and the forest uses are explained by Clawson (1975) in a tabular form which is shown in previous page.

The relationships among different forest uses are mostly conflicting. If one use is satisfied then another use has to be given up in some instances and in some instances two or more uses can be satisfied at the same time. For example, recreation is very much compatible with wildlife, watershed etc. Again wood production is incompatible with watershed. Degree of compatibility differs for different uses of the forest. The relationships among different uses has been explained by clawson (1975) as it is shown in the TABLE 3.2 :

According to some who are interested in forest management and uses, "multiple use is good, dominant use is bad and single use is anathema". But whether the proposition is true or not, depends on the meaning of the term 'multiple use', 'dominant use', and 'single use'

If 'multiple use' refers to mean that every possible forest use should occur on every acre of forest land at the same time, then 'multiple use' is quite impossible, has never existed in the past, does not exist today and will never exist in the future. If it refers to mean that every possible use should occur on different acres of forest land and at different time period then multiple use is good.

If 'dominant use' refers to mean that some use of the forest, completely dominates, ignoring or neglecting or suppressing other uses, then 'dominant use' is bad. But if it refers to mean that one particular use of the forest is primary and other uses can be adjusted to it then 'dominant use' is good. If 'single use' refers to mean that for one use and only one use forest will be used and other uses will be excluded then single use is impossible. By neglect or in opposition there must be more than one use in each forest land. Therefore,

TABLE 3.2 Degree of Physical Compatibility of Secondary with Primary Forest uses.

Primary use	Secondary use						
	Attractive environment	Recreation opportunity	Wilderness	Wildlife	Natural watershed	General conservation	Wood production and harvest
Maintain attractive environment		Moderately compatible; may limit intensity of use	Not inimical to wilderness but does not insure	Compatible to most wildlife, less so to a few	Fully compatible	Fully compatible	Limited compatibility; often affects amount of harvest
Provide recreation opportunity	Moderately compatible unless use intensity excessive		Incompatible; would destroy wilderness character	Incompatible for some kinds; others can tolerate	Moderately compatible; depends on intensity of recreation use	Moderately compatible; incompatible if use too heavy	Limited compatibility depends on harvest timing and intensity; roads provide access
Wilderness	Fully compatible	Completely incompatible, can't tolerate heavy use		Highly compatible to much wildlife, less so to others	Fully compatible	Fully compatible	Completely incompatible, precludes all harvest
Wildlife	Generally compatible	Limited compatibility; use intensity must be limited	Mostly compatible though some wildlife require vegetative manipulation		Generally fully compatible	Generally fully compatible	Generally compatible but may require limiting volume or conditions of harvest
Natural watershed	Fully compatible	Moderate compatibility; may require limitation on intensity	Not inimical to wilderness but does not insure	Generally compatible		Fully compatible	Moderate compatibility; restricts harvest methods but does not prevent timber harvest
General Conservation	Fully compatible	Moderately compatible; if use not excessive	Not inimical to wilderness but does not insure	Generally compatible	Fully compatible		Compatible but requires modifications in methods of timber harvest
Wood production and harvest	Compatible if harvest methods strictly controlled	Moderately compatible	Completely incompatible; would destroy wilderness	Compatible if harvest methods fully controlled	Compatible if harvest methods fully controlled	Compatible if harvest methods fully controlled	

it is clear from the above discussion that for policy decisions degree of compatibility and non-compatibility of different forest uses is more useful.

### 3.2 ECONOMIC INTERESTS AND CONFLICTS AMONG USERS

In less developed countries in many situations, forest is a common pool natural resource in the sense that it is accessible to and jointly used by people living in the community. In a society there are different interest groups who perceive forest resource in different ways as forest can perform diverse functions. The pattern of utilisation of forest absolutely depends on the way it is perceived by the different groups. For example, a forest has the basic economic function of soil and water conservation for subsistence farmers, energy and food supply for forest dwellers etc. Again the same forest has the only function of being the source of raw materials for industries, the source of recreation for tourist etc. Thus as forests play multifunctional roles, it must have conflicting uses. However, the conflicting demands for forest resource may be classified into three fundamental economies (Shiva, 1991) :

- i) Nature's economy of essential ecological process.
- ii) The Survival economy of basic needs satisfaction of the people.
- iii) The market economy of industrial-commercial demands.

Nature's economy of essential ecological processes creates demand on forests in terms of the maintenance of the stability of soil systems and the hydrological balance of the forest ecosystems. The survival economy of basic needs satisfaction of the people creates demand on forests in terms of fuelwood, fodder, fruits, lops and tops etc. And the market economy of industrial-commercial demands creates demand on forest for pulpwood, plywood, furniture, fuelwood for urban market etc. These three diverse economies, with their diverse demands, lead to conflict over forest resources.

Initially, in India there were no major conflicts on forest resources. The nature's economy and survival economy have always been satisfied simultaneously. People used it and managed it with justice and efficiently on a sustainable basis by an informal but strict code of conduct towards forest. Human settlements in India developed as an integral part of the forest ecosystem and not at the cost of it. But conflicts over

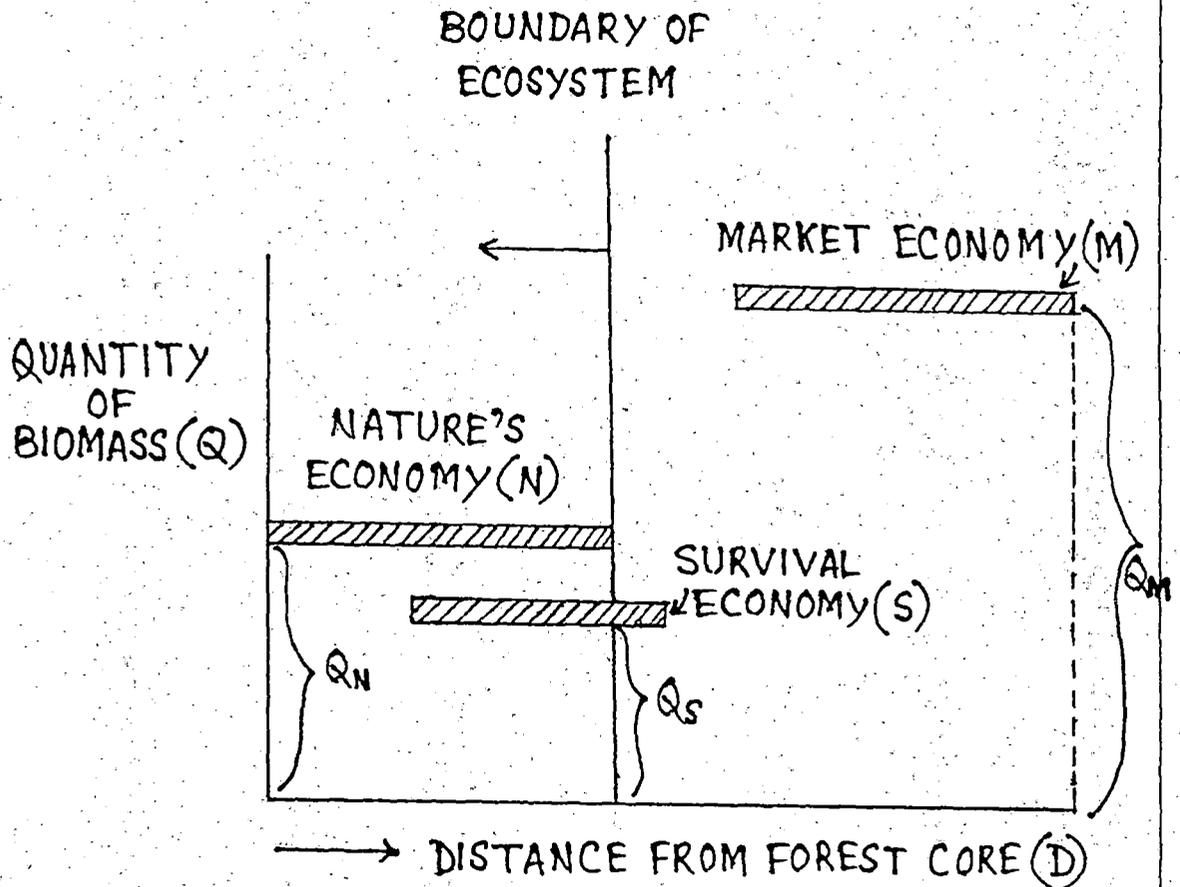
forests emerged with the introduction of large-scale commercial exploitation of forests by the British as the colonial rule of British intentionally ignored the demands of 'Nature's Economy' and 'Survival economy' (Campbell, 1992; Shiva, 1991). British rule systematically transformed the forest resources into commodities for generating profits and growth of revenues. Thus the first radical change in forest control and the emergence of major conflicts over forest resources induced by non-local factors was associated with colonial domination of this part of the World. A schematic picture of the three competing biomass requirements of the three economies is presented in fig 3.1 (Shiva, 1991).

In this figure horizontal axis represents the distance (D) from the Core of the forest ecosystem while the vertical axis represents the quantity of biomass required by the three competing economies. Nature's requirement ( $Q_N$ ) is spread throughout the forest ecosystem while the survival economy's requirement ( $Q_S$ ) is divided between inside and outside the forest ecosystem. The spread of survival is not too far away from the forest ecosystem's boundary since local people can collect the forest biomass. The requirement of the market economy ( $Q_M$ ) is high and spread over long distances far away from the forest ecosystem as it can be transported over long distances. This indicates a continuous long distance transfer of large quantities of forest biomass outside the forest ecosystem. All forest related conflicts are thus based on conflicts between the above mentioned requirements -  $Q_N$ ,  $Q_S$  and  $Q_M$ .

Serious conflicts and popular opposition in all forest areas of the country emerge due to violation of people's traditional rights over forest resources through colonial forest policy (Shiva, 1991; Guha, 1991). Forest conflicts occurred under colonial rule were primarily conflicts between the survival economy associated with local management of forest resources and the market economy associated with non-local management by the British Government.

Unfortunately, these conflicts were not satisfactorily resolved even after independence. On the contrary, post-colonial forest policy further aggravated these conflicts. Post independent forest policies gave new thrust to the commercialisation of forestry and the growth of forest based

FIGURE 3.1 SCHEMATIC DESCRIPTION OF THE ECONOMIES ASSOCIATED WITH FORESTS



SOURCE : BANDANA SHIVA "ECOLOGY AND THE POLITICS OF SURVIVAL-CONFLICTS OVER NATURAL RESOURCES IN INDIA". P. 72

industries. The concept of 'sustained yield' has been replaced by 'progressively increasing yields' and mixed natural forests has been replaced by monocultures of industrial species. These facts aggravated the conflicts between 'Nature's economy', 'survival economy' and 'market economy'. For that reason even at present there exists many popular movements like Chipko movement in Uttar Pradesh, Appiko movement in South-India, Jharkhand movement in Bengal-Bihar-Orissa, Tehri Dam movement in Uttar Pradesh, Narmada Valley movement in Madhya Pradesh and Gujrat, silent valley movement in Kerala etc.

### 3.3 Social And Cultural Acceptability Of Forest Uses

Following Clawson (1975) issue of conflicting claims on forest and its uses can be seen from an alternative perspective. In the society of man, individual is not always guided by economic motives alone. They are governed also by other considerations like personal philosophy, ideology, religion, ethics, or other attitudinal relationships or social pressures. Social and cultural acceptability is also very much related to political acceptability (Clawson, 1975). In the present day system, political power is the more powerful force which imposes its will and standards on others as law. In case of public forests, some of its uses or practices have been advocated on grounds of physical or biological feasibility. According to Clawson (1975) social and cultural values are as respectable a ground as is economic efficiency for forest uses, at least in some cases. There are several forest uses belonging to this group, however the most important uses are as follows : i) Forest aesthetics or preservation of the general forest environment : It is said that forest aesthetics, beauty and harmony must be maintained in forest and thus harvests, cuts, slash or tree tops left behind after harvest, construction of roads through forest, any damage to soil etc. have been denounced as aesthetically unacceptable.

ii) Clear-cutting of timber, both as a special case of forest aesthetics and because of its own ill effects : There are several adverse effects of clear-cutting. But there is controversy whether clear-cutting is desirable or not. There are some cases, for example, whose slopes are very steep, where soils are very thin, where reproduction is uncertain, where trees have some other uses such as stream protection- clear-

cutting is undesirable. There are some cases, where clear-cutting is desirable. Thus the method of cutting is important and which depends upon the site, the species, the stand and the goal for the future forest (Clawson, 1975). Sometimes it is replaced by selective cutting. Clear-cutting practice supported by silvicultural and economic grounds may be rejected on aesthetic, social and cultural grounds as it often leads to "cultural shock" and "social disintegration" (Zimmerman, 1982).

iii) Monoculture or the growing of one species to the exclusion of all others : This practice has been subject to vehement opposition and criticism by ecologists, whether it is on farm or in forests. The United States Agency for International Development (USAID) recommended monoculture in India in 1970 and the Government used to practice it in different parts of India. But this practice of monoculture has not been socially accepted by the people of India. For example, Pine plantation in Bastar and Teak plantations in Jharkhand area have not been accepted by the local people. (Guha, 1983).

iv) Wilderness preservation : In more recent years, 'wilderness preservation' is gaining momentum in our country. There has been a strong moral, scientific and philosophical content to the advocacy of wilderness by wildlife conservationists. "Although their initial and possibly still dominant impulse is the aesthetic value of wilderness and wild species, conservationists have found strong support from recent biological debates. The theme of biological diversity is an essential component of a direct and indirect, known and yet to be discovered survival value for humanity. Furthermore, an emphasis upon the 'intrinsic' rights of non-human species has been prominent in recent debates on the preservation of wilderness areas". (Guha, 1994). The Government of India has passed the Wildlife Conservation Act, 1972 and amended it in 1991 to give legislative protection to wilderness preservation. As a result, the area under parks and sanctuaries are increasing day by day. But no one is raising the question as to who gains from wilderness and who pays for it? Quite reasonably, Clawson answered this question that wilderness satisfies certain cultural standards or values of wilderness conservationists but others who do not share these values may oppose it on economic or other grounds (Clawson, 1975).

Thus economics of forestry and forestry practices can not avoid the importance of social and cultural attitudes towards forestry. If the objective is sustainability, due considerations to these traits can not be by-passed.