Priyanka Thakur

ISSUES OF DEFORESTATION: AN ANALYSIS OF KUSHMI FOREST IN UTTAR PRADESH

Abstract

This paper deals with different causes of deforestation in forests in North India. Forests have been a habitat for many people in general and tribals in particular. For a long time, people have depended on the forest for various reasons like food, fodder, fuel wood, and water resources for livelihood, making household goods, and so on. There was hardly any restriction on the collection of the above for domestic use in the pre-British era. The Britishers implemented various laws and rules to restrict the people's entry into the forest. After independence in 1952, the New Forest Policy came up which in varying degrees restricted people from extracting resources from the forest. On the other hand, many unscrupulous activities have been happening in the forest. Though, as of now, forest officials and guards are responsible for the protection of forests; there is a need for much improvement in this regard. In light of this, the present paper based on field data would analyse various causes of deforestation in the Kushmi Forest of Gorakhpur District of Uttar Pradesh.

Keywords: *Livelihood, Afforestation, Forest Policy, Climate Change, Plantation, Conservation*

Introduction

Forests support the livelihood of a large section of the people, especially the tribal and local people who depend almost entirely on this forest for their survival. Most of the people in and around the world are intimately associated with forests for their habitat and ecology. The local people, who are known as forest dwellers depend directly on the natural produce for their survival, livelihood, occupation, and employment. The relation of ecology is the relationship with the environment, the forest, the nature because locals look upon the forest as its natural environment and have been relying on it since time immemorial. The forest is an integral part of the local community. They were used to cultivating land collectively for their subsistence. Many engaged in shifting cultivation and did not cultivate a given area for a long period. The British colonial power & rule was primarily interested in timber and other

PRIYANKA THAKUR, Post Doctoral Fellow (ICSSR), Department of Sociology, University of Lucknow, Email- priyankatk307@gmail.com

incomes from forests and therefore framed laws to evict the local inhabitants. It had a disastrous effect on the forest communities as many people depended on and still depend on it for sustenance needs of fuelwood, fodder, and small timber in the forests. India is a developing country with a dominant rural population that still depends largely on fuelwood for their cooking and living.

People say that the forest is like a mother for all the villagers as the forest gives them livelihood resources. Furthermore, they get many things from the forest and hence they are dependent on it. Most of the villagers said the forest is the abode of gods/goddesses in the forest they worship them in Navratri, Savan, and Purnima. Some villagers go every day to worship these deities. Deities of both genders are worshiped in these landscapes, however, people think feminine deities preside more as compared to male deities. There is no discrimination among genders. Both male and female groups were allowed to participate. However, people were of different opinions regarding the entering of women undergoing the menstrual cycle. There are strict rules and regulations, to be followed during worship. They said this god/ goddess saves them from any problems.

Water availability has a direct impact on the health of forests and their inhabitants, which shows the importance of the relationship between forests and water. Trees are made up of more than 50 per cent water and need a steady source of it to grow and stay healthy. Water from the soil enters their roots and is carried up the tree's trunk to the leaves. People aren't the only ones who need water, animals need clean water too, and for many species. The loss of access to clean water, and the pollution of water sources, are partially due to deforestation. Earlier there were Ponds, Tanks of water, and canals for water sources in the forest area, however, these have shrunk a lot over a period. Plants have also been used ethnomedicinally as curative tools in the Indian System of Medicine. The vegetation of the Kushmi forest consists of herbs, shrubs, trees, and climbers. Trees, shrubs, and climbers occur throughout the year and form permanent vegetation, while herbaceous plants mostly appear during the rainy season, decreasing during winter and finally becoming depleted in peak summer.

There were many types of trees in the forest, they are as follows- *Shorea Robusta, Tactona grandis*, *Azadirachta Indica Black plum*, *M. Indica, Indian Arabic Plum, and others*. Teak and Sal trees are in abundance in the forest and these trees are planted as well. The tree species that produced raw materials, the types of forest products collected, and their uses in daily life as found in this study match with studies carried out by others. I also found that in accelerated agricultural and economic advancement, in developing countries forest resources persist in performing an essential role in rural livelihoods. In most developing countries like India, forests have a significant role in the livelihood of local people by providing essential products like firewood, timber, food, and medicine. Minor forest produce includes a large volume and variety

of edible, industrial, and commercial products that have multifarious uses and meet indispensable requirements of the population living in and around forests.

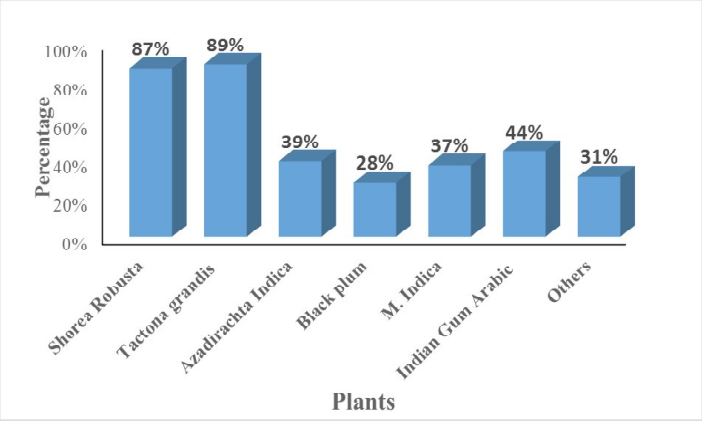

Fig 1: The Tree species in Kushmi Forest

The minor forest produce includes all non-timber forest produce of plant origin including bamboo, brushwood, cocoons, honey, leaves, fodder, medicinal plants, and herbs. The minor forest produce provides subsistence and income to people who live near forest areas. Some people said that they get minor forest produce because they live near the forest, so it is easy for them to collect the produce. However, some people said that they don't get minor forest produce for two reasons – first, the forest department doesn't allow them and, second their village is a little far from the forest so they are not able to come from there and collect the minor forest produce. People take wood for different activities like selling fuel wood, fodder, open fire, etc. Forest Officials do not allow people to take wood from the forest because there is no permission to take wood from the forest. People may need wood from the forests for any important occasion such as weddings, funerals, etc. From this, it can be concluded that not all people are aware of the result of deforestation but they follow the forest department rules that they cannot take big wood (Timber) from the forest without any reason. Human intervention is very much prevalent throughout the district putting pressure on the forest patches. The settlement and agricultural land surround such patches and the pressure on these patches is very much visible. The vegetation is getting extinguished because of the increasing population and the main problem with these patches is the pressure of population. The need for wood is very important in winter for the local people as fire protects them from chilling cold.

Review of Literature

Radha Kamal Mukherjee (1930, cf. Guha, 1994) tried to develop an ecological approach to Sociology. He said that there is a balance between the natural and the vegetable and the animal environment, including the human,

in which nature delights. However, the balance is upset both by natural fluctuations such as are caused by cycles of rainfall of changes of landscape and river or by long. Continued human actions such as the destruction of forests, non-conservative agriculture, and artificial interference with natural drainage. He focused on the interaction between human beings, their culture, and nature population increase leads to environmental problems in the sense natural resources are heavily plundered. These are cultivation, falling of trees, forest clearing, indiscriminate stock-grazing, and intentional farming. Further, artificially improved plants are more useful to human beings, and Mukherjee says that they are fitted to survive particular conditions of climate and soil. Men destroy those plants that they do not tolerate men continuously expand the yield of crops and cereals. This led to over over-exploitation of natural resources which forced a type of ecological disequilibrium. Further Mukherjee says that "Increasing population will bring in more significance of relationship between human beings and the entire range of ecological forces".

Guha (1994) brought up significant issues regarding ecological research. He talked about the use and abuse of natural resources by the classes, and the analysis focuses on the impact on class on these issues. Specifically, it looks at how wealthy farmers, businesspeople, and government officials allocate water, forests, and other natural resources in ways that are beneficial to them. According to Guha, there are four important issues concerning ecology:(a) class and use and abuse of natural resources, (b) Social structure and natural resources, (c) conflict and natural resources, and (d) culture and environment. In his edited volume on *social ecology,* Guha has demonstrated how environment, culture, and nature are interdependent. Along with social ecology components, he has also reviewed India's environmental movement.

Chaudhury (2019) says that to tackle this problem our leaders have met several times, they met at Rio de Janerio in 1992, Kyoto in 1997, Bali in 2007and Paris in 2015. These climate conferences were wonderfully setting the goals to limit the temperature by taking multidimensional steps. But things were not good at the level of implementation. On 2nd December 2018 about 28,000 representatives from 200 countries met at Katowice in Poland. The main objective was to determine how to implement the Paris Agreement which committed all countries to reduce greenhouse emissions and limit global temperature to rise below 1.5 degrees Celsius above pre-industrial levels by 2030. Further the Intergovernmental Panel on Climate Change (IPCC) report of 2015 predicted that if global warming continues at the current rate, then it may rise by 14 to 26 degrees Celsius between 2046 and 2065(Chaudhury 2019:304).

Chaudhury (2014) said that the ecological crisis has affected all societies, but the small scale societies have experienced the worst consequences of the degradation of their environment one of the chief reasons is the mass destruction, the industrial system has unleashed for local communities such

as tribes, hunters and food gatherers, pastoralists and nomads, agriculturalists, craftsman and petty- commodity producers. It is a widely accepted view that once that habitat of the people is irreparably plundered, the chance of their recovery from such ecological holocaust becomes remote.

Anthony Giddens in his book *The Politics of Climate Change* (2009) comprehensively deals with the environmental problem, particularly leading to global warming and climate change. The green thinkers have been lamenting on excessive growth model, resources, depletion, and dumping toxicity. They disagree with the notion of gross national product (GNP) as an indicator of welfare, particularly in developed countries. On the one hand, oil and gas prices are growing up and, on the other global warming and climate change are intensifying, hence attention should be given to increasingly screen factors. It is a question of responsibility and accountability which lies with the politicians. Giddens supports the idea of 'Limits to growth' and 'polluters pay'.

Vandana Shiva (2015) opined that the current system has been created and started through the oppression of foreigners, motherland, and nature against women and colonialism which is rapidly causing destruction. Thus excessive prohibition on cutting trees in the catchment areas of streams and rivers destroys not only the forest resources but also the renewable supply of water through renewable supply of water. Resource-intensive industries disrupt essential ecological processes, not only by their excessive demands for raw materials but also by their air water, and soil pollution.

Indra Deva (2014[1997]) said that today's reckless development model is destroying the ecology of every society in general and of India in particular. The industries are poisoning the rivers and making the fields barren. Development is only achieved at the cost of the continued devastation of the environment. Thus, modern industrial society is suffering from levels of alienation and anomy besides straightening the ecological balance in light of this, he argued to use of small and efficient machines and environment-friendly technology. Social science must explore new possibilities for society.

Baviskar (2014[1997]) said "It was asserted that, in the Indian context, environment concerns were a luxury imported from the west and that environmentalists were 'anti-development'. In this highly charged debate, the pro-development group had gained much moral superiority by demonstrating its concern for human welfare, while environmentalist was protected as an affluent pampered, and native minority, out of touch with the harsh realities of poverty".

Dhanagare (2000) said based on the experience of Forest Management initiatives in Uttar Pradesh that sustainable use of land and forest produce requires a change in attitudes, both of government department officials and the people. Particularly, the involvement of NGOs in micro-planning and motivating the people to take an active part in JFM is desired. The study also

pointed out the need to integrate the initiative with other rural development programs and to give women a larger role.

A. Agrawal and C. Gibson(1999) analyzed that the conservation of natural resources perceived communities as a threat to the protection of natural resources. It was perceived that the conservation of natural resources implied their protection from human interference, whereas members of local communities depend upon them for their livelihood and therefore exploit them without any restraint.

Kumar et. al. (2000) said that the community could not find a place for itself in the conservation activities of natural resources. It appears that while designing such solutions the scholars had in mind only the physical sustainability of the resource, undermining the needs and requirements of the local population, who depended upon such resources for their livelihood. However, a one-sided approach to the problem of natural resources could not succeed in conserving them. Even though the problem of deforestation has been controlled to some extent, the real problem has been the degradation of the quality of forests.

Methodology

Standardized sociological methods and techniques have been used for the collection of data in the study which include interview schedule, case study, census, and observation. Fieldwork was carried out in Kushmi forest near Gorakhpur City from October 2021 to June 2022 intermittently. The analysis of the perception of villagers is based on statistical tools and techniques. Both explorative and descriptive research designs have been used in the study. Secondary data has been collected from published and documented sources. The tools used for collecting the general and specific data in the pilot study included sampling methods, interview schedules, observation, and focused group discussion. In this work, I have used purposive sampling. It is well known that purposive sampling refers to a group of non-probability sample techniques in which units are selected because they have characteristics that we need in our sample. I have chosen 300 respondents from the three villages which have a population of 3006 i.e., about 10 per cent of the total population. It is purposive in the sense those respondents were chosen who were either aware or a little bit aware of the importance of forests and the significance of nature and the environment in their lives. Initially, a pilot study was conducted to test the schedule; subsequently, a few questions were modified and then the final study was undertaken.

Data Analysis, Discussion, and Findings

It can be seen from Table 1 that 85.3 per cent of respondents said that forest is as it is i.e. they are not growing or decreasing. 67.6 per cent of

respondents said that due to deforestation it is being decreased whereas 65.3 per cent said that forests are growing. The state governments, during this period, took up several afforestation programs and set up village forests and small-scale plantations. It is important to note that the strict legal framework for the management of the resources would be insufficient without the community's involvement in its effective implementation. The history of forest management in India is the best example of a community's participation in resource conservation. In India, forest-dwelling tribal communities, villagers used to protect the forest as their survival was dependent on it. Table 2 shows that 45.7 per cent of respondents said that the forest is taken care of by the forest department, 29.3 per cent said that it is taken care of by Jangal Mafia, and 25 per cent of respondents said that the management of the forest is done by both. In Gorakhpur and surrounding areas, it is very difficult to check the mafia's movements. Mafias have direct links to the highest political power centers; the forest department lacks the infrastructure required to check their activity.

Table 3 shows that 24.3 per cent of respondents said that forest fire is the cause of deforestation, 29.1 per cent of respondents said that forest cutting was done for developmental concerns and 34.3 per cent of the respondents said that the forest resources were getting stolen to smuggle by mafias. 12.3 per cent of respondents said other reasons for deforestation include the construction of roads and nalas which can be seen as the main reasons for the declining ratio of forest patches in the district. Forest fires are a regular phenomenon in our country often being observed during summers. It is caused by natural or man-made fires in the forests. It is seen in Table 4 that the respondents said that forest fires occur in the forest once a year, 57.7 per cent of respondents said that they occur twice a year, and 7.7 per cent of the respondents said that forest fire occurs more than two times in the year. In Gorakhpur, the peak fire season typically begins in late March and lasts for around 12 weeks. From 2001 to 2021, Gorakhpur lost 3 hectares of tree cover from fire and 51 hectares from all other types of loss. The year with the most tree cover loss due to fire during this period was 2002 with 0.759 hectares of forest lost i.e. 6.6 per cent of all tree cover loss for that year. There were no deforestation alerts reported in Gorakhpur between the 27th of October 2022 and the 3rd of November 2022. In 2010, Gorakhpur had 31.3 mha of natural forest, extending over 11 per cent of its land area. By 2021, it had lost 12.7 mha of natural forest, equivalent to 64.4 Million tonnes of CO, emissions. (Global Forest Watch, World Research Institute, www.globalforestwatch.org) The increasing population of villages has also continuously put pressure on the forest patches and this pressure of population is increasing day by day. It is evident that after agriculture, the forest is the natural resource that Gorakhpur is studded with dense vegetation. Till the end of the 19th Century, the forest of Gorakhpur was exploited very extensively, and big patches of forest were cleared for agricultural practices. The major

portion of respondents i.e. 83.7 percent of respondents said that they do not do cultivation by cutting down the trees and 16.3 percent of respondents said that they do cultivation by cutting the trees on their agricultural land. One can safely argue that in a way deforestation occurs when people cut or clear forested areas to make way for agriculture or grazing (Table 5).

The growth of the population through the decades has clearly shown the picture of the increasing population in the district, especially in villages. When we asked if deforestation is also due to the construction of roads or buildings in the forest area; Table 6 shows that 65.6 per cent of respondents said that there are roads and buildings constructed in the forest; 14 per cent of respondents said that there is no construction in the forest near their village area, and 20.4 per cent of respondents said that they do not know construction in the forest (Table 6). Wood is the most versatile raw material the world has ever known. Throughout history, people have relied on wood for needs varying from farming tools to building materials, from fuel to weapons of hunting and warfare. The ubiquitous nature of wood has made it a valuable material in every stage of human development. Table 7 shows the diverse use of forest wood. The major portion of respondents 42.7 per cent use it for cooking food, 29.7 per cent of respondents use it for thatching hut/roof, 9.3 per cent of respondents use it for furniture like table chairs,8.6 per cent of respondent for door, and 9.7 per cent respondents take wood for other purposes. It can be concluded that the essential use of forest woods for villagers is in thatching of huts, wood for Cooking food, fuelwood, & fodder for livestock are also supported by our field survey. Table 8 presented the response about grazing animals in the Forest where 61 per cent of respondents said that they take their animals in the forest for grazing animals, 20.6 per cent of respondents said that they do not go to the forest for grazing animals because they have enough place for grazing animals and 18.4 per cent of the respondent said that they do not have animals in their house. It may be concluded that the majority of the respondents have animals and they take their animals for grazing in the forest.

It emerged from the study that for the majority of the respondents, deforestation means clearing forests and using that land for other purposes. It is a serious environmental concern since it can result in the loss of biodiversity, damage to natural habitats, and soil erosion. The major driver behind all these factors is the uncontrolled population growth of humans which leads to the dramatic increase in the demand for wood and forest products. The over-exploitation of forest resources has taken place beyond the sustained yields to fulfill the needs of humans, thus bringing a change in the net forest cover. Table 9 shows that 76.7 per cent of respondents said that they are aware of problems caused by deforestation, 15.6 per cent of respondents said that they are not aware of the problems, and 11.7 per cent of respondents said that they don't know about the problems caused by deforestation.

Table 10 shows how many trees/plants the respective respondent has

planted in the last five years. 26.3 per cent of respondents said that they didn't plant any in the last five years. 32.6 per cent of respondents said that they have planted approximately 10 plants; 19.3 per cent of respondents informed that they have planted more than 10 & less than 30 plants. 12.4 per cent of respondents planted 30 to 60 plants in 5 years. 9.4 per cent of respondents said they have planted more than 60 plants means an average of 5 plants per year. Regarding the state's ambitious plan to plant 22 crore seedlings in July 2019, seven crores out of the 22 crore are to be planted by the Uttar Pradesh Forest Department and 15 crore by farmers. There is a need, however, to have micro-planning at the village level — the names and title deeds of farmers who are willing to plant trees (www.fsinic.in).

Nature is destroyed when trees are cut down because of the contribution of nature, and the fauna continues to decay. Table 11 shows how many trees/ plants respective respondent has cut down in the last five years. 44.3 per cent of respondents said they cut approx. 15 plants in the last five years. 29 per cent of the respondents stated that they cut approximately 10 plants, 16.3 per cent informed that they cut plant more than 10 and less than 15 plants, and 10.4 per cent cut plant more than 15 plants in 5 years which means an average of 3 plants per year. It can be seen from Table 12 that the majority of respondents i.e. 87 percent of respondents said that there is no hunting in the forest because there is no permission to hunt in the forest and there are not many animals in the forest. 13 percent of respondents said that still there is hunting activity in the forest. Hunting has been a core part of human civilization since the beginning. It is deeply embedded in human cultures along with agriculture, fishing, and gathering. Some of the oldest cave paintings also depict scenes of hunting.

Timber theft in the forest is a classic phenomenon for the community surrounding the forest. Timber theft activity is purely based on rational economic calculations and thus does not take into account and relate to the local community's faith at all. Across the survey, the result shows that regarding the mode of timber theft in the forest; 33 per cent of respondents said that timber theft in the forest is by the forest department itself, 39 per cent of respondents said that timber theft in the forest is done by the nexus of mafia and 19 per cent of respondent said that timber theft in the forest is done by local people (See table 13).

Table 14 shows the behavior of forest officials with the local people in the area. 38.4 per cent of respondents said that the forest officials have bad behavior toward the local people, 33 per cent of respondents said that they have neutral behavior toward local people, and 28.6 per cent of respondents said the behavior of officials was good with local people. From this data, it may concluded that forest officials' behaviour is not very good with the local people.

Corruption as a complex socially embedded phenomenon has strong

implications for forest governance policies. This understanding of corruption asks for more nuanced and socially informed anti-corruption policy interventions. That goes beyond the discourse of 'corrupt individuals' and tries to contextualize it social culture of the area. Table 15 shows that 52.3 percent of respondents said there is corruption in the forest department as they are involved with the jangal mafia and corrupt local people, 23. 4 percent of respondents said that there is no corruption in the forest department, and 27.4 percent of the respondents said that they don't know about the corruption in forest department. From this data, it may concluded that corruption is present in the forest department. Table 16 shows the responsibility of forest officials to the local people. 48 per cent of respondents said that forest officials are responsible for their work, and 52 per cent of respondents said that forest officials do not fulfill their responsibility because they have behaved badly with the local people.

Table 17 shows the challenges incurred during the collection of minor forest products. 18.6 per cent of respondents said that it was taken away to the police station, 22.4 per cent of respondents said that officials took the money, 29.6 per cent of respondents said that they were scolded by forest officials and 29.4 per cent of respondents said that challenged them is snake bite. It may be concluded that the forest department does not do good behavior with local people when the latter takes products from the forest. Table 18 shows that local leaders help with the forest needs and what they do for local people help in the area, 39.6 per cent of respondents said that local leader helps local people with their forest needs and other needs but 60.4 per cent of respondents said that local leaders do not help them with their forest needs or other needs. From this data, it may be concluded that the local leader of the area is not helping the local people in many the ways.

Table 19 shows that 64 per cent of respondents said that the forest department asks for help when forest fire occurs in the forest, 17.6 per cent of respondents said that the forest department asks for help for plantation in the forest, 8 per cent of respondents said that the forest department asks help when tree theft from the forest and 10. Per cent of respondents said that the forest department asks for help with forest works in the forest.

Table 20 shows about awareness of local people about the government law against forest mafias. The government has enacted the Protection of Tree Act, 1976 to regulate the 'illegal' felling of trees in rural areas. The government is taking strict steps by effective laws to stop the 'illegal' cutting of trees in forest areas and to curb forest mafias, but 89.3 per cent of respondents are not aware of the laws against forest mafias and only 10.7 per cent of respondents are aware of the government laws against the forest mafias. Table 21 shows the awareness of forest policy for local people's help. 29.3 per cent of respondents said that they are aware of the forest policies which help them in their forest rights but 70.7 per cent of respondents are not aware of the forest policies

because of their low level of education and the government has not adequately emphasized the campaign for awareness of local people. From this data, it may be concluded that local people are not much aware of forest policies that help them to get their forest rights.

Table 22 shows whether the local community has any complaints regarding the forest department. 53.6 percent of respondents said that they have complaints regarding the forest because the forest department is bad with local people as sometimes the forest department drives them away from the forest and sometimes when taking wood or something from there they are caught and taken away. 46.4 percent of respondents said that they have no complaints regarding the forest department. From this data, it may be concluded that local people want to complain about the forest department but they are not able to complain.

It can be seen from Table 23 that 85.3 percent of respondents said that forests are as it is they are not growing or decreasing, 67.6 percent of respondents said that due to deforestation it is being shortage, 65.3 per cent said that forests are growing. The state governments, during this period, took up several afforestation programs and set up village forests and small-scale plantations. From Table 24, the majority of the respondents i.e. 62.3 per cent said that they protect the forest because the forest is like home to them. 37.7 per cent of respondents said that they are not involved in forest conservation because they get nothing from the forest and they don't have any authority over the forest. It can be concluded that people have a role in conserving the forest to varying degrees.

Table 25 shows that the respondents were asked whether they were aware of any forest policies, and surprisingly 31 per cent of respondents said that they are aware of some forest policies, but they have only heard about them and do not know that deeply. 69 per cent of respondents are not aware of forest policies and their rights. However, they were aware of the forest department's rules which are - no cutting of trees without a permit, no timber sawing, no residence in the forest, no firewood collection without a permit, no starting of fires in the forest, and no grazing without a permit. The respondents who admitted compliance with the rules were asked to give compliance reasons. Joint Forest Management is a partnership in forest management among state forest departments and local communities that depend upon the forest for their living in India. Table 26 shows that the maximum number of respondents 94.3 per cent are unaware of JFM, and a small number of respondents 5.6 per cent were aware of JFM. Uttar Pradesh adopted the JFM policy in 1997 to manage its rich forest resources with the active participation of local farmers and other forest users. Gorakhpur adopted JFM in 2011, this scheme was in Gorakhpur from 2011 to 2016 but this scheme was closed in 2016 due to no proper benefit to the government through this program. It is clear from the findings that a maximum number of the respondents were unaware of the

JFM, and respondents had a low knowledge of JFM activities and benefits. The findings indicated that the knowledge of the respondents about Joint Forest Management was quite low. Respondents knew only about those activities, which were held in their villages during the project.

The reasons behind the low level of knowledge of JFM are described below :

1. No proper campaign was organized in JFM villages to make people aware of JFM and its benefits.
2. People in the selected villages were mostly landless laborers who engaged in work on daily wages and did not have time for programs like JFM.
3. The members did not organize general meetings regularly in the village, to popularize the program.
4. The elite class of the village was office bearers for the project who were not interested in making people aware of the project because they had a fear that if they became aware of their rights it would be harmful to their gains.
5. Low level of education was another factor affecting awareness negatively.

Forests are one of the most important solutions to addressing the effects of climate change. Approximately addressing 2.6 billion tonnes of carbon dioxide, one-third of carbon dioxide released from burning fossil fuels, is absorbed by forests every year (www.iucn.org). Forests regulate water flaws, protect against sea level rise, and absorb greenhouse gases. Table 27 shows climate change this surprisingly 71 per cent of respondents said that they know about how the weather is changing, 12.6 per cent of respondents said that they do not know about climate change and 14.4 of respondents said that they don't know about climate change.

Table 28 shows that 41.3 per cent of respondents were focused on the plantation to maintain forest area, and 32.4 per cent said that proper irrigation is required to save the forest. 22.3 per cent of respondents said that they stopped cutting trees to save the forest and 4 per cent of respondents said that they do other initiatives to save the forest such as conserving trees, volunteering ship, etc. More than a fifth of the population is dependent on forests for livelihood and the rich ecological, economic, and development value they produce. India should create a policy framework on forest management aimed at curtailing deforestation while improving the ecology and biodiversity of a landscape that would ensure food security, water availability, and climate adaptation for communities. Farmer-managed natural regeneration (FMNR) systems where local communities protect and manage the growth of trees

that regenerate naturally have proven to deliver several economic and ecosystem benefits.

Social forestry refers to the management of forests for the benefit of local communities. Under social forestry – forest management, and afforestation of deforested land to improve the rural, environmental, and social development. In India the term social forestry first came to prominence in the year 1976 under the report of the National Commission of Agriculture, Social forestry and wasteland development form a major component in India. Table 29 shows awareness about social forestry where a majority of the respondents i.e. 67.4 per cent said that they were not aware of social forestry and 32.6 per cent of respondents said that they were aware of social forestry. This program has not achieved substantial success, to make it successful, it is necessary to bring awareness to the public.

Table 30 shows the data related to the status of people participating in social forestry. Its analysis reveals that 28.3 per cent of respondents have participated in social forestry, while 71.7 per cent of respondents have not participated in social forestry. Respondents said that even after planting trees on public land, they do not have the right to cut them for their needs then why should they plant trees. Thus, one of the main reasons for the failure of social forestry can also be said to be the selfishness of the people. Participation in social forestry to stop these ill effects, afforestation, and social forestry programs should be at the forefront. A well-implemented and managed social forestry project or program can play an important role in uplifting the life of not only rural but urban life also.

Increasing agriculture profits by systematically planting trees and shrubs on farmlands and rural landscapes to enhance productivity, profitability, diversity, and ecosystem sustainability is called agroforestry. It integrates crops, trees, and livestock in the same area, and at the same time agroforestry has the potential to meet the demand for food, fodder, firewood, and timber, against farmers and rural people. Table 31 shows awareness about Agro-forestry wherein a majority of respondents i.e. 69.7 per cent of respondents were not aware of agro-forestry, and 30.3 per cent of respondents said they did not know agro-forestry. From this data, it can be concluded that most of the respondents lack awareness about agroforestry.

Table 32 shows the participation of local people in agro-forestry wherein 75.7 per cent of respondents have not adopted agro-forestry, while only 24.3 per cent of respondents have adopted agro-forestry. From this it may be concluded that there is very little tendency to adopt agro-forestry among the respondents and the main reasons are lack of awareness and benefits of agro-forestry.

Table 33 shows how many plants have been planted under agro-forestry in the area. Only 79 respondents have accepted regarding planting trees under

agro-forestry out of 300 respondents. 34.1 per cent of respondents who planted rosewood plants under agro-forestry, 16. 4 per cent of respondents said that they had planted eucalyptus under agroforestry, 21.5 per cent of respondents said that they planted Sagon (sal) under agroforestry, and 28.8 per cent of respondent said that they have planted more than on tree under agroforestry. From this data, it may concluded that people have less awareness about agroforestry but they have been planting trees on agricultural land for a long time. The process of planting trees on the land should be increased and local people should be made more aware of agroforestry.

Table 34 shows what local people do to conserve the environment. 26 per cent of respondents said that they grow trees and plants on their agricultural land or home, 19 per cent of respondents said that they are trying to reduce pollution, 29 per cent of respondents said that they are using fewer plastics for conserve the environment, and 26 per cent of respondent said that they are saving natural resources like water, trees, etc. to conserve the environment. From this data, it can be concluded that people know about the environmental problem and they are taking some initiatives to conserve the environment on a small scale.

In this manner, it is clear that the forest has been extremely important for the respondents. Further, the finding of the study from the various tables shows that for most of the respondents, the forest is a god or goddess, and it's like a mother to them or home to them and also provides them livelihood measures. The relationship of the villagers with the forest is emotional as well as related to them concerning the fulfillment of their needs. Most people do the work of conserving the forest in one way or the other; for instance, some people plant trees in place of uprooted ones, while some conscious people plant trees in the vacant places of the forest. When forest fire occurs, the local people cooperate to the maximum extent. Due to the lack of cultivable land, most of the villagers did labor work in other fields to earn their livelihood. Some farmers who had enough cultivable land did plantations etc. on the land of their forest area. With the improvement of the status of education in society, there has been an increase in awareness among the people about the conservation and expansion of the forest. The proximity of most of the people's land to the forest affected the forest in one way or the other. Some people expand the field by cutting trees, which is the reason for the contraction of the forest. With all these circumstances, some people believe that the size of the forest has increased, while some people say that the size of the forest has decreased, but most people believe that the size of the forest has remained the same.

It can be seen that most people do not know anything about the government's forest policy, very few people know about it, the main reason for which is the lack of education in rural areas and the proper operation of the awareness campaigns run by the government. Most people only know that

the forest department is a government organization whose job is to look after and expand the forests, they have the right to act against their rules. Some people even say that the forest is operated by the wood stealing group (Jungle Mafia) and some others say that the forest department and the forest mafia together operate the forest department. Lack of education in the society and indifferent functioning of the forest department are responsible for this act. The result is that most people do not know anything about the joint forest management being run at the local level. Only a few people know about this management, which is almost negligible. In such a situation, the success of any program is not possible or ruled out.

It is clear from the study that due to the uncontrolled growth of the population over time and their need for food, housing, industry, and trade, trees have been cut in forest areas. To meet the food grains for his family, the forest bushes near the farm were cut and used for agriculture, sometimes due to a fire in the forest, the government cut trees to meet its needs. The data shows that the biggest reason for deforestation is the theft of wood, from small wood thieves to organized methods, the forest mafia trades valuable wood, which is the biggest reason for deforestation. The biggest side effect of deforestation, we see is climate change. Most people agree that the forest is the most important part of our environment, in its absence the environment cannot be balanced.

It is also clear from the study that the forest is the biggest base for meeting the daily needs of the villagers around the forest. The use of wood for cooking and other things has been always popular. In the past few years the government has given free LPG cylinders under UJJAWALA Scheme, butt villagers are still using fuelwood. Because they can not purchase gas and another LPG cylinder. However most of the families still use traditional hearth for cooking food, wood is also used for the bonfire in winter. Forest serves as a residence in summer. Wood for domestic use is obtained from the forest in some form or the other. Apart from this, for the funeral in the village. People get the required wood from the forest.

Our society, mainly a rural and less educated society, is a follower of religious beliefs and traditional customs. In our religion, the tree is considered alive, planting of tree is considered a virtue, and cutting is considered a sin. It is clear from the data that people follow their religion. Forest is worshiped by them in some form or the other at different places or at different times according to their beliefs and traditions. It is clear from the data that most people do not cooperate in plantations under government schemes, the main reason for this is not having the right to use it for their needs. It was found in the study that in the last five years, more or less several trees were planted but on the contrary, some trees were also cut by all the families in the last five years, which is a matter of concern for the forest and the environment. There has been an increase in tree plantation activity as compared to earlier times. Some

people helped in saving the forest by planting trees, some by irrigating during summer, and some by stopping the cutting of trees. In the local forest, the practice of hunting is not common, it is done by very few.

It can be seen that only a few people are aware of social forestry in our society, and very few people participate in it, the main reason for this is the feeling of personal interest. Generally speaking, the personal interest of people is of utmost priority. People know that they have no right to social forestry, so why should they cooperate or take an interest in it, they prefer to work in agroforestry because they have rights over the plants planted on their land. The trees planted under agroforestry are rosewood, teak, eucalyptus, etc. Based on the data, we can say that there is very little awareness about social forestry and agroforestry in our society. But with better education and awareness among people, awareness has increased about the protection of the environment. People have now started planting trees to protect the environment so that pollution can be reduced, and they have also become aware of reducing the use of plastic. However, now there is a need to do extensive work on it.

Based on the data it is clear that most of the people agreed about the nexus between the forest mafia and forest officials, both work together for each other's benefit. People also know that there is a provision for strict action against the forest mafias, but they get benefits, which is why no action is taken against them. Forest officials and Mafias do not behave well with local people, but people in the village want to refrain from saying anything about them. Most people accept that corruption is found among forest officials. They do not discharge their duties properly, action is not taken by them. Sometimes fuel wood, fodder, and dry leaves by the people, they are caught by the officials. Some other times they are scolded by them, sometimes people have to bribe the officials or sit in the police station, and sometimes even beaten up. Although data show that when in the forest if there is a fire or tree plantation has to be done or to catch the thieves, the cooperation of the village women is taken by the forest department officials.

The above data shows that in general people have very little knowledge about the self-help of the Forest Department, which is mainly because the awareness campaigns are not being conducted effectively. Therefore less interest is taken in the programs by the people. It can be said that most people have complaints against the government regarding the forest department and without effective redressal forests cannot be developed.

Table 1: Condition of Forest

Condition of forest	No. of Respondents	Percentage
Forest is growing	196	65.3
Deforestation	203	67.6
Neutral	256	85.3

Table 2: Forest Management Agency in the Area

Forest Management	No.of Respondents	Percentage
By Forest Department	137	45.7
By Mafia	88	29.3
Both	75	25
Total	300	100

Table 3: Causes of Deforestation

Causes of Deforestation	No. of Respondents	Percentage
Forest fire	73	24.3
Cutting by Forest Department	87	29.1
Get Stolen	103	34.3
Other	37	12.3
Total	100	100

Table 4: Forest Fire per Annum

Forest fire	No. of Respondents	Percentage.
Once in a year	173	57.7
Twice	98	32.6
More than two time	23	7.7
Total	**300**	**100**

Table 5: Cultivation by cutting of bushes in their land

Cultivation by cutting off bushes	No. of Respondents	Percentage
Yes	49	16.3
No	251	83.7
Total	300	100

Table 6: Construction of roads or buildings in the forest area

Construction of road or building	No. of Respondents	Percentage
Yes	197	65.6
No	42	14
Don't Know	61	20.4
Total	300	100

Table 7: Use of wood from the forest

Use	No. of Respondents	Percentage
Door	126	42

Table/chair	128	42.6
Food Cooking	228	76
Roof	189	63
Others	129	43

Table 8: Grazing Animals in the Forest

Grazing Animals	No. of Respondents	Percentage
Yes	183	61
No	62	20.6
Don't have animal	55	18.4
Total.	300	100

Table 9: Awareness of problems caused by Deforestation

Awareness	No. of Respondents	Percentage
Yes	218	76.7
No	47	15.6
Don't Know	35	11.7
Total	**300**	**100**

Table 10: Plant trees in the last five year

Number of Trees	No. of Respondents	Percentage
None	79	26.3
01-10	98	32.6
10-30	58	19.3
30-60	37	12.4
More than 60	28	9.4
Total	300	100

Table 11: Cutting of trees in the last five Years

Cutting trees	No. of Respondents	Percentage
01-5	133	44.3
06-10	87	29
11-15	49	16.3
More than 15	31	10.4
Total	**300**	**100**

Table 12: Hunting in the forest

Hunting	No. of Respondents	Percentage
Yes	39	13
No	261	87
Total	**300**	**100**

Table 13: Mode of Timber theft in forest

Mode	No. of Respondents	Percentage
By Forest Department	99	33
By Mafia's	117	39
Local people	57	19
Other	27	09
Total	**300**	**100**

Table 14: Behaviour of forest officials

Behavior	No. of Respondents	Percentage
Good	86	28.6
Bad	115	38.4
Neutral	99	33
Total	100	100

Table 15: Corruption in the Forest Department

Corruption	No. of Respondents	Percentage
Yes	157	52.3
No	61	20.3
Don't Know	82	27.4
Total	**300**	**100**

Table 16: Forest Officials Fulfilling Responsibility

Forest officials	No. of Respondents	Percentage
Yes	144	48
No	156	52
Total	**300**	**100**

Table 17: Problem in the collection of minor forest produce

Problem	No. of Respondents	Percentage
Taken away to the police station	56	18.6
Take money	67	22.4
Scolding	89	29.6
Beating with stick	88	29.4
Total	300	100

Table 18: Help of local leader in fulfilling Minor forest produce needs of people

Help	No. of Respondents	Percentage
Yes	119	39.6
No	181	60.4
Total	**300**	**100**

Table 19: The Forest department asking help for with the maintenance of the forest

Help	No. of Respondents	Percentage
Forest fire	192	64
Plantation	53	17.6
Tree Theft	24	8
Forest work	31	10.4
Total	300	100

Table 20: Awareness about the law of government against forest mafia

Awareness	No. of Respondents	Percentage
Aware	32	10.7
Not aware	268	89.3
Total	**100**	**100**

Table 21: Awareness of Forest Policy for Self-help

Awareness	No. of Respondent	Percentage
Yes	88	29.3
No	212	70.7
Total	**300**	**100**

Table 22: Complaint to government regarding forest department

Complain	No. of Respondents	Percentage
Yes	161	53.6
No	139	46.4
Total	**300**	**100**

Table 23: Condition of Forest

Condition of forest	No. of Respondents	Percentage
Forest is growing	196	65.3
Deforestation	203	67.6
Neutral	256	85.3

Table 24: Respondent's role in the Conservation of forest

Conservation of Forest	No. of Respondents	Percentage
Positive role	187	62.3
Not much	113	37.7
Total	**300**	**100**

Table 25: Awareness of Forest Policies of the Government

Forest policies	No. of Respondents	Percentage
Aware	93	31
Not aware	207	69
Total	**300**	**100**

Table 26: Awareness of Joint Forest Management Scheme

Scheme	No. of Respondents	Percentage
Aware	17	5.6
Not aware	283	94.3
Total	**300**	**100**

Table 27: Role of forest in climate change

Role	No. of Respondents	Percentage
Yes	213	71
No	38	12.6
Don't Know	43	14.4
Total	300	100

Table 28: Efforts to save Forest

Types	No. of Respondents	Percentage
Plantation	124	41.3
Stop cutting trees	67	22.3
Irrigate in summer	97	32.4
Others	12	4
Total	**300**	**100**

Table 29: Awareness of social forestry

Awareness	No. of Respondents	Percentage
Yes	98	32.6
No	202	67.4
Total	**300**	**100**

Table 30: Participation in social forestry

Participation	No. of Respondents	Percentage
Yes	85	28.3
No	215	71.7
Total	**300**	**100**

Table 31: Awareness of Agro-forestry

Awareness	No. of Respondents	Percentage
Yes	91	30.3
No	209	69.7
Total	**300**	**100**

Table 32:Participation in Agro-Forestry

Participation	No. of Respondents	Percentage
Yes	73	24.3
No	227	75.7
Total	**300**	**100**

Table 33: Plantation under Agro-forestry

Trees	Number	Percentage
Rosewood	27	34.3
Eucalyptus	13	16.4
Sagon (sal)	17	21.5
More than one tree	22	28.8
Total	**79**	**100**

Table 34: Initiative for Environment Conservation

Initiative	No. of Respondents	Percentage
Growing Trees and Plants	218	72.6
Reducing pollution	157	52.3
Less use of plastics	87	29
Saving natural resources	78	26

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