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RECENT FOREST FIRES IN UTTARAKHAND: AN OVERVIEW

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Abstract

Few instances of forest fires in hill districts of Uttarakhand were noticed from March this year and it became rampant and uncontrollable by the start of April. The wild fires subsequently spread to other hill districts of Uttarakhand by April and posed a serious challenge to the already fragile and depleting bio diversity of the region. For the hill districts of Uttarakhand that had already been facing huge migration of population due to various reasons, including the fast depleting sources of water, it was a serious cause of concern. Though there were efforts by the local people, State Forest Department, Indian Air Force, Army, State Disaster Response Force (SDRF) and the National Disaster Response Force (NDRF), yet the fires could only be extinguished by the much needed rains in the first week of May, 2016. The fire affected about 3000-3500 hectares of forest cover, nine human lives were lost and hundreds got hurt. The loss of flora and fauna and to the fragile biodiversity is immeasurable and irreparable. The black carbon from smog and ash emanating from forest fires is covering glaciers, making them prone to melting. Though exact reasons of these fires are yet to be ascertained, yet some accepted reasons are the extreme dry conditions prevailing in the Northern India that acted as catalyst to the fire caused by deliberate acts or by accident and inadequate safety measures of forest department.

INTRODUCTION

As per State of Forests Report 2015, total forest cover in India is 7,01,673 sq km (increase of 3775 sqkm), total forest cover as percentage of geographical area is 21.34 per cent and total tree cover is 92,572 Sq. km (increase of 1306 sq km). Forests can be categorized as per their canopy density. The degraded forest lands which have a canopy density of less than 10% are called Scrubs. The Lands with canopy density of 10-40% are called Open Forests. If it is between 40-70%, then it is called the Moderately Dense Forest (MDF). If it is more than 70%, then it can be termed as Dense Forest. According to the Forests Report 2015, the states where forest cover has decreased substantially are Mizoram, Telangana, Uttarakhand, Nagaland and Arunachal Pradesh.

The total forest cover in the hill districts of the country is 283,015 sq km which is 39.99 % of total geographic area of these districts. Though, according to the report, the forest cover of India has increased by 5,081 square kilometer (21.34 %) between 2013 and 2015, yet around 2,510 square kilometer of very dense and mid-dense forests have been wiped out since 2013 and the country's carbon stock has also increased by 103 million tones (Mukherjee, 2006). This situation is serious cause of concern and one of the reason s certainly, the forest fires.

Forest fires in the world is a natural phenomenon occurring due to extreme hot and dry climatic conditions and almost 50-55 per cent of total forest cover in India is prone to fires annually. Recent fires in the hills of Uttarakhand are no exception. Yet contribution of human error, including improper precautionary and safety measures and deliberate attempts by timber and land mafia cannot be ignored altogether. The forest fires that broke in the various hill districts of Uttarakhand in March suddenly became wild, rampant and uncontrollable in April. More than 3000 hectares of forest cover was affected by this fire and nine human lives, a number of cattle and uncounted number of wild animals were lost due to this fire. Incomplete combustion of fossil fuels, biofuels and biomass produces black carbon, causing great threat to glaciers. It is observed that glaciers at Gangotri, Milam, Newla, Sunderdunga and Cheepa are at great risk. Though desperateefforts were made by the local people, State Forest Department, Indian Air Force, Army, State Disaster Response Force (SDRF) and the National Disaster Response Force (NDRF), yet the fires could only be doused by the much needed rains in the first week of May, 2016.Though exact reasons of these fires are yet to be ascertained by the government, yet some accepted reasons are the extreme dry conditions accompanied with very high temperatures and windy conditions prevailing in the Northern India as there was little or no rain in the months of March and April. As such there was little or no moisture in the atmosphere and all these factors acted as catalyst to the fire caused by natural reasons or as reported by some media, by deliberate acts of land or timber mafia or just by accident. There were a total of about 1681 incidents of fire and though cause of most of the incidents might be natural yet exact reason could be different in different locations. It may also be said that had there been adequate safety measures, preconceived by the forest department, then the immense damage caused by fires could have been mitigated to some extent. One of the prime reason of these fire can be ascribed to the widespread forests of pine or chir (Pinus roxburghii), as their foliage easily catches fire. The resin extracted from pine trees and the pine cones are very inflammable (Chandan, M, 2010). The pine cones when catch fire, roll downwards in good speed and scatter in all directions, causing rapid spreading of fire. However, the pine tree itself is resistant to fires as fires help it regenerate by reducing the broad leaf trees, like oak and rhododendron etc., ultimately increasing its coverage. In most parts of Uttarakhand, banj oak (Quercus leucotrichophora) can easily grow above 1200-1300 mt. asl, but during British rule, plantation of pine trees was deliberately done for extracting resin and for other industrial uses. Fires are sometimes intentionally set to remove the carpet of needles of pine trees scattered to the fields of villages from nearby forest. The fire spread with alarming speed because the conventional method of fire break or fire lines (also called fire road or fuel break) was not followed for quite some time. The fire break could be a road inside forest or wide trenches where dead wood etc., is removed. For maximizing the

effectiveness of fire break, harvesting of forestry products such as lumber and biomass fuel from time to time is essential. Thus even in a reserved or protected forest, participation of local inhabitants for removing the combustible dead wood or dead leaves should be allowed with proper monitoring.

The banj oak (*Quercus leucotrichophora*), on the other hand is an evergreen oak tree of Asia, particularly of the Central Himalayas, which grows to a height of 1400m asl and above. Though it takes decades to grow into a full grown tree having full, rounded canopy, yet its forest allows shrubs to grow along with other rhododendrons and other evergreen species of plants. It is a multipurpose tree. Its forests maintain the health of mountains and regulate the hydrological regime. It naturally builds a moisture regime favorable for wild species and also for those of agronomic and horticulture importance. It's deep rooted system hold soil tightly and prevents landslides (Chopra, 2014). It also provides suitable habitat for rare bird species like wedge-tailed green pigeon, greater yellow-napped woodpecker and other birds that require an unbroken canopy for their survival.

AIMS OF THE STUDY

As has been stated at the outset that forest fire is one of the most recurring hazards in the hill areas, it need be studied on a priority basis. Keeping in mind the existing state of the problem, the study seeks to center around the following aims:

1. To study the present status of forests and forest fires in Uttarakhand.
2. To identify the causes (natural as well as man-induced) and forest fire in the area.
3. To suggest some effective remedial measures to do away with this problem.

STUDY AREA

Uttarakhand embracing nearly by 65 percent forest areais a burning example of recurring forest fires every year. It has resulted not only in the loss of forest wealth and rich biodiversity but also in human beings. The hill areas of the state are best suitable for animal husbandary, agricultural and forest produces due to its topography and climate. People are directly associated with the forest for their live hood, agriculture on the other hands engages a majority of population on a prime economic activity. The rural people, therefore, have been playing a vital role in the protection and aggradation of forest in the form of social forestry and now the joint management forestry programs. They must be made participants in the overall management of forest.

THE GROUND REALITY

Since oak (banj) forests are not as vulnerable as pine forests, because of their moist environment, the priority of the forest policy in Uttarakhand and in Himachal Pradesh should have been to encourage banj plantation and discourage pine trees and allow the villagers to cut the trees of pines if these are invading their farms. A blanket ban was introduced against felling of standing trees 1000m asl. in 1981 and this ban comes in the way of removing pine trees in the areas where they were invading the precious farmland of poor villagers. Declining of oak forests in Uttarakhand can also be attributed to the fact that pine forests are encroaching into the areas covered by oak forests and also that even Eco task force prefers plantation of pine trees than to

the slow growing oak trees. Moreover, many studies also show that since the oak trees are chopped vigorously for fodder, they are unable to bear any acorns and hence there are no new trees coming up in that area.

This year fire has been detected in more than 1200 places in Uttarakhand. Nainital, Almora, Chamoli, Rudraprayag, Pithoragarh, Tehri, Uttarkashi and Pauri are the worst affected districts. Pauri district has witnessed most instances of fire and was thus very adversely affected. Raja ji Tiger Reserve, Kedarnath Musk Deer Sanctuary, CorbettTiger Reserve and Kalagarh Tigre Reserve had also come under fire forcing wild animals to run towards human habitat. (Government of Uttarakhand, 2016). According to the report of the Indian Institute of Disaster Management, the worst forest fires during the last 20-25 years happened in Uttarakhand in 1995 when around 3,75,000 hectares of forest area was severely affected. Forest fires have a considerably damaging effect on the environment. Apart from irreparable damage to the fragile biodiversity of the region, loss of soil moisture and nutrients, there is large emission of carbon into the atmosphere. Forest fires not only affect environment, it also affects economy, human health and the society. A UN mission reporton the 1997 Indonesian forest fires concluded that these fires had an important international dimension in relation to severe trans boundary air pollution and the large scale destruction of the unique aspects of the existing biodiversity which represents a world heritage.

Instant Reasons of Forest Fires

- In the context of Uttarakhand and Himachal Pradesh, the main reasons of these forest fires can be categorized as under:
- Extreme hot and dry conditions, devoid of moisture, dry foliage and fallen dry branches, covering the bed of forest, making it most vulnerable if windy conditions prevail and there is any spark or friction occurring naturally. Spot fires then have a cascading effect and spread rapidly uphill or downhill. Rising temperature and winds can act as catalyst in the spreading the fire rapidly.
- Poor rainfall in the preceding months, i.e., March and April, 2016
- The pine trees which are in abundance (more than 16% of total forests) and encroaching into oak forests and agricultural areas. Its foliage is very combustible and susceptible to any spark.
- Sometimes, for clearing the foliage in the pine forest, villagers burn them in greed of grass for fodder.
- Climate change and lack of sustainable land use policies are also a contributing factor in the increase of forest fires in the area.
- The conventional fire lines or fire breaks that halt the spread of fire were either not maintained properly or not devised on the basis of present requirements.
- Causes of some fires may be attributed to timber and land mafia, as per media reports, who act in collusion with some corrupt forest officials.

- Short circuit of power lines going through these forest areas may be another reason.

REMEDIAL MEASURES

Though fires are an integral part of the forest environment, most of the time these are detrimental, if these occur frequently and on a wide scale.There is an urgent need to strengthen and give more powers to the already existing Van Panchayats that are unique community managed institutions. These mountain communities were constituted during British rule in 1931 after a prolonged agitation by hill people of erstwhile United Province against their taking over all non-private land and forests. There were subsequent rules thereafter, i.e., Panchayati Forest Rules, 1976, The Uttarakhand Panchayati Forest Rules, 2001 and The Uttarakhand Panchayati Forest Rules 2005 February, 2006. Under these rules, there is one Composite Management Plan made for all the villages/forests/Pachayati Forests situated within the jurisdiction of a Divisional Forest Officer (DFO) for a period of five years. For an individual Village Forest/ Panchayati Forest, a Micro Plan is also made for five years and in accordance with this Plan, Annual Implementation Plan for one year is prepared for the development and protection of these forests.General Body of these Van Panchayats consists of 9 member Management Committee, with four seats reserved for women (1SC/ST). Since there is large scale male out migration from the hills of Uttarakhand, number of women members need to be increased to six or seven for better implementation. There is still more intervention by the State (Revenue and Forest officials), then the members of the Van Panchayats. These Panchayats are also facing challenges from unrealistic and target oriented policies that are affecting their democratic functioning.

For checking the spreading of forest fire, the conventional method of fire break or fire lines has to be followed urgently. For maximizing the effectiveness of fire break, local villagers should be allowed to harvest the forestry products and biomass fuel from time to time in a regulated manner. Even in a reserved or protected forest, participation of local inhabitants should be allowed with proper monitoring. Silvicultural treatments in the forest area is aimed at reducing the risk of ignition and rate of spreading of fires, which include pruning, thinning and clearing of vegetation along forest and intercity roads and also where there is a high risk of ignition.

Since getting rid of pine needles is not easy, alternate methods to use them in bio gassifiers on a large scale can be contemplated. It was observed that about 400 kg of dry pine needles can produce 10 KW of electricity for whole day, sufficient for a small mountain village. Pine needles can also be used for making composite wood and for producing medicinal oil.

As has already been explained, the Forest Department should not insist on planting fast growing species, like pine etc., instead it should concentrate planting locally suitable species, like, oak and rhododendron. It should also encourage local people to plant and protect these plants on a large scale, on community basis. For this, stimulation of seed production or opening of cones and preparing seedbeds for seeding either naturally or artificially has to be planned.

Camp fires and other recreational activities involving making of fire, should either be disallowed or should strictly be regulated and monitored.

Piles of weed or grass or farm residue should not be allowed within one kilometer from the forest area. There should be a good fine if this is violated. Moreover, villagers should be taught to burn small piles instead of a big pile, but never during windy conditions.

It is better if Forest department initiates an awareness programme for the villagers about the hazards of forest fires along with dos and don'ts especially during March to June every year. Medium of radio, newspapers and television can be used for educating people in this regard.

CONCLUSION

Since forest fires in hill states of Uttarakhand and Himachal Pradesh have almost become predictable, especially from the onset of summer, precautionary preventive methods, both long term and short term can be devised and implemented beforehand to minimise the ill effects of fires caused as a natural phenomenon. However, the most urgent and important thing is to involve local people, educate them about the hazards of man-made fires in greed of green fodder and train them properly against any instance of spreading of fires. The Government should take initiatives in this regard on very urgent basis. Plantation of locally suitable trees should be undertaken on war footing, involving local people and if possible the army personnel, especially in those areas where forest cover got burnt considerably and where flora and fauna got endangered due to wild fires. As a long term solution, the already existing Van Panchayats should be strengthened and given more powers in forest management.So that the villagers can also reap the benefits of forest produce from their forests, they may be allowed to do so with proper monitoring from forest officials. Silvicultural treatments which include pruning, thinning and clearing of vegetation along forest and intercity roads and also where there is a high risk of ignition, may be allowed for reducing the risk of ignition and rate of spreading of forest fires. Since scope of tourism in hill areas of Uttarakhand depends on survival and proper management of forests, The State government should also make a viable strategy in this regard and consider regulating the flow of tourists, vehicles and also the indiscriminate construction work of settlements, buildings of resorts and restaurants, construction of roads and dams, just in the name of development and showing scant regard to the fragile bio diversity of the hill areas of Uttarakhand.

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