

# A Study on Impact of Fire Ecology in Daily Life of Manipur

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## Abstract

Fire ecology is a scientific discipline concerned with natural processes involving fire in an ecosystem and the ecological effects, the interactions between fire and the abiotic and biotic components of an ecosystem, and the role as an ecosystem process. Wildfire suppression not only eliminates these species, but also the animals that depend upon them. This view is based on the outdated beliefs that ecosystem progress towards an equilibrium and that any disturbance, such as fire, disrupts the harmony of nature.

**Keywords:** Fire, Climate, Environment, Wildlife, Temperature

Manipur is landlocked state cozily nestled in the lap of nature, blessed with hitherto salubrious climatic conditions. The projected climatic variability in terms of rise in the average surface temperature and change in precipitation pattern are likely to enhance incidence of infectious diseases and escalate the impact on human health in terms of increased virulence and spread of diseases in hitherto disease-free areas caused by pathogens transmitted by vectors. These include diseases like malaria, Japanese encephalitis, dengue, kalaazar, chikungunya etc. The transmission patterns of vector bionomics are highly influenced by the weather variability. Thus, it is crucial to have an in-depth knowledge of impact of climate change on the vector causative agents and the related hosts in order to formulate an appropriate adaptation strategy and also timely mitigation actions. The situation is equally grave as far as water borne diseases like diarrhea are concerned which might proliferate in flood and water logged conditions.

As per the scientific consensus weather variability due to climate change may proliferate some of the

sensitive diseases and other health related risks envisioned as follows:

Forests of Manipur are rich in biological & genetic diversity and are reported to possess about 2192 species of plants belonging to over 213 families, out of which about 523 plant species are reported as ethno botanically important. Moreover the state has many endemic species like *Lilium Mackliniae*, *Schoenorchis Manipurensis* etc.

The State is marginally lacking in the production of food grains. The requirement of food grains for the year 2012-13 is estimated as 720.17 thousand MT against the production target of 688 thousand MT. This gap may further increase under the observed and projected impact of climate change. Therefore, the state government has prioritized to develop strategy towards delinking the agricultural productivity from the impact of climate change to the best possible extent and to ensure the food and

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nutritional security issues as well as to address economic sustainability of the 70% of agrarian population.

### **Agriculture**

- ♦ Decreased crop production as well as shortening of crop growing period.
- ♦ Crop failure due to high rainfall variability.
- ♦ Increased incidence of pests and diseases.
- ♦ Occurrence of late monsoon, unpredictable seasonal rainfall, and drought resulting into delay in rice seedling and transplanting.
- ♦ Water inundation due to heavy rainfall during the Panicle Initiation (PI) Stage of Rice.
- ♦ Natural occurrence of extreme events like flood, drought, etc.
- ♦ Creeping soil acidity problems.

In this context it is worthwhile to note that the agricultural sector also contributes to climate change through release of GHG in the atmospheres.

### **Fire Ecology**

Manipur has a history of using fire to clear land for agriculture and other needs; Rapid occurrence of forest fire is also one of the contributing factors to the loss of biodiversity having direct impact on the livelihood of forest dependent communities. Forest clearing and burning releases huge amounts of GHG especially CO<sub>2</sub> accelerates soil erosion, causing a decline in soil fertility, exacerbation of downstream flooding and sedimentation. The incidence of forest fire is more in the forest areas adjoining the valley where, villagers set fire to forests/small vegetation to get a flush of new grass for their cattle. Regeneration (natural as well as artificial) in these areas is completely wiped out and wildlife including rare plants is severely damaged. The extent of area affected by forest fire is estimated to be about 2000 sq. km annually. Incidence in various districts of Manipur during fire seasons of 2005-2011.

Most of the incidents have been reported during February to May every year. In March, more than 2200 incidence in Manipur have been reported in 2010.

The data indicate that Churachandpur reports maximum forest fire incidence i.e. 949 incidence in

2010 followed by Tamenglong, Ukhrul, Chandel, Senapati, Imphal East and Imphal West. The forest fire in both way impacts climate change the first on being release of the green house gas to the atmosphere and second by reducing the total volume of sink.

The Wasteland Atlas Report of Manipur (2010) prepared by Indian Institute of Remote Sensing records 7027.47sq.km of wasteland. (i.e. 31.48% of the TGA) of which an estimated 90% of the wasteland area falls under degraded forest category viz. 66% under land with scrub, 22% under land with degraded forest and 12% under shifting cultivated area of the state. Shifting cultivation which is widely practiced in the state is reported as the main reason for the change in forest cover of Manipur. The traditional practices of jhumming in the hills cause maximum loss to the forests of Manipur.

Therefore, focus on the practices of sustainable livelihood and climate resilient modern agricultural are highly needed to eradicate jhumming in the state.

### **Policy Review**

The 12<sup>th</sup> Five Year Plan (2012-17) of the Forest Department of Manipur gives priority on:

- ♦ Research on the non-cash contribution of forests;
- ♦ Development of NTFPs inventory, improvement of linkages between NTFPs collection by local people and market and formulation of effective NTFP policy to ensure that NTFPS are not over-exploited;
- ♦ Development and inventories of food items that were collected from forests by local people for food security;
- ♦ Development and inventories of medicinal plants and traditional medicine systems.

### **The objectives of the Mission under SAPCC-Manipur are:**

- ♦ Increasing forest/tree cover and improved quality of forest cover on both forest/non forest lands;
- ♦ Improving ecosystem services including biodiversity, hydrological services and carbon sequestration as a result of treatment;

- ♦ Increasing forest-based livelihood income of forest dependent communities living in and around the forests; and
- ♦ Enhancing annual CO<sub>2</sub> sequestration

### Implications of the Study

- ♦ Forest Fire is mostly anthropogenic in its origin.
- ♦ In its broader context it is hazardous for the physical environment.
- ♦ It is a global problem irrespective of its desirability in specific cases.
- ♦ In spite of deficit forest cover, India is significantly vulnerable to the hazard.
- ♦ North Eastern region of this country faces a dual problem of balancing this man made hazard in the regional context of development and livelihood.
- ♦ Modernization of Agricultural Technology should be region specific.
- ♦ Desirable forest fires should be included in forest management where as accidental fires are to be prevented through effective awareness building and controlled through modern fire fighting techniques.

This can only be made possible through mass public awareness. Mass media such as newspapers, radio, television, strongly influence public opinion. However, someone has to bring this about. If each of us feels strongly about the environment, the press and media will add to our efforts. Politicians in a democracy always respond positively to a strong publicity supported movement. Thus if you join an NGO that supports conservation, politicians will make green policies. We are living on spaceship earth with a limited supply of resources. Each of us is responsible for spreading this message to as many people as possible.

### Suggested further activities for concerned students

- ♦ Join a group to study nature, such as WWF-I or BNHS, or another environmental group.
- ♦ Begin reading newspaper articles and periodicals such as 'Down to Earth', WWF-I newsletter, BNHS Hornbill, Sanctuary magazine, etc. that will tell you more about our environment.

There are also several environmental websites.

- ♦ Lobby for conserving resources by taking up the cause of environmental issues during discussions with friends and relatives. Practice and promote issues such as saving paper, saving water, reducing use of plastics, practicing the 3Rs principle of reduce, reuse, recycle, and proper waste disposal.
- ♦ Join local movements that support activities such as saving trees in your area, go on nature treks, recycle waste, and buy environmentally friendly products.
- ♦ Practice and promote good civic sense such as no spitting or tobacco chewing, no throwing garbage on the road, no smoking in public places, no urinating or defecating in public places.
- ♦ Visit a National Park or Sanctuary, or spend time in whatever nature you have near your home.

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