

# **The Role of Government in Supporting Traditional Community-based Fire Management Systems among the tribes in NE India**

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## **Abstract**

In India about 90% of annual forest fires are caused by human factors. In NE India, 95% forest fires occur during the process of burning of *jhum* or shifting cultivation. Although the tribes in NE India practicing shifting cultivation had developed traditions of community-based fire management systems, of late there had been increasing incidence of forest fires, attributed to changing demography, social values, conflicts and resource competition. This prompted the government to intervene with proactive role in supporting community-based fire management. The case of Mizoram in NE India has been studied where the unique nature of the role of the government in supporting community-based fire management through multi-tiers institutionalization could generate lessons both for the government and communities of the South East Asian countries, particularly dominated by the practices of shifting cultivation, and where the role of the government had actually facilitated in strengthening the community-based fire management systems.

## **1. Introduction**

Forest fires are major cause of degradation of India's forests, which constitute just about 23% of the country's total geographical area. While statistical data on fire loss are weak, it is estimated that the proportion of forest areas prone to forest fires annually ranges from 33% in some states to over 90% in others (Bahuguna 1999; Satendra 1999). About 90% of the forest fires in India are caused by human factors. Forest fires cause wide ranging adverse ecological, economic and social impacts. Particularly in India's northeastern region, there has been close link between forestry and fire since time immemorial due to wide practices of slash and burn agriculture or shifting cultivation, locally known as *jhum*, by the different tribes of the region. Since fire is used for clearing or burning the slashed vegetation for agriculture, each tribe of the region had evolved its own traditional fire management strategies over the centuries through community participation and involvement. The effectiveness of such traditional fire management practices may be one of the attributes why in spite of predominant shifting cultivation, the hill areas of the region still have more than 67-87% of forest cover (Forest Survey of India 2002). The region is also a mega-biodiversity centre and has more than 30% of India's growing stock of timber, though constitute only 7.7% of the country's geographical area and 3.5% of the country's population.

India's northeastern region is also unique in terms of land and forest ownership by the communities. About 55% (as much as 89% in Meghalaya and 92% in Nagaland) of forest in NE India is classified as 'Unclassed Forests' (UF), which is in practice under the control of different tribes of the region, where shifting cultivation is carried out. Within each tribe there is unique evolution of land tenure systems, community forestry practices and agriculture-fire management traditions. However, in recent years, due to changing demography, increasing pressure on land

and resources, conflicts, changing scenario of social cohesiveness among the communities in the villages along with diversification of livelihood profession, etc., there have been observable increased incidences of forest fires in some states of NE India. Particularly in the state of Mizoram the frequency and intensity of the incidence of forest fires, primarily that escaped from jhum burning, became alarming during the 80s and mid-90s, though the communities having strong traditional community-based fire management practices inhabit the state. This prompted the Government of Mizoram to intervene through legislations and implementation of a project called 'Modern Forest Fire Control Methods' in order to address the problems of forest fires in the state.

The present study is an attempt to explore the role of government in supporting the community-based fire management practices among the tribes of NE India with particularly reference to the state of Mizoram. The case of Mizoram has been show-cased as the intervention and support in this state by the government has been unique that could be a lesson for the government and the communities within India and that of South East Asian countries, particularly in the regions where forest fires are linked to the practices of shifting cultivation. The observable gaps and shortfalls within the present practices in Mizoram is also critically analyzed with a view to further improve the current scale of government interventions and support to strengthen the community-based fire management systems. The ultimate goal in any government intervention and support should be to strengthen the scale and intensity of community-based fire management systems wherever it is weak, and to re-introduce wherever it is absent. Without empowerment of the communities, the success of government support cannot be sustained, particularly where the land/forests are owned/controlled by the communities.

## **2. Major Forest Fire Disasters and damages in India**

The normal fire season in India is from the month of February to mid June, which is the driest period in most parts of the country. The states, which are most prone to annual forest fire disasters, are Jammu & Kashmir, Himachal Pradesh and Uttaranchal in the Western Himalayas and the northeastern states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura in the Eastern Himalayas. The forest types in the states of Bihar, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Tamil Nadu and West Bengal are also prone to annual forest fires.

Fire disasters are almost annual phenomena in India. The recent occurrence of forest fires in Uttaranchal during the months of April-May this year had been widely reported. A national daily reported the recent fire disasters in Uttaranchal thus "More than a thousand incidents (1061 to be precise) of forest fires in a span of two and half months in Uttaranchal ..... twelve deaths in a fortnight caused by forest fires in Uttaranchal and seriously affecting more than 4000 ha of forest land ....." (Prashant 2003).

One of the most severe forest fires in India in recent years had occurred in the summer of 1995 in the hills of Uttar Pradesh (present Uttaranchal) and Himachal Pradesh. An area of 677,700 ha was affected by fires and the quantifiable timber loss was estimated Rs. 17.50 crores (US\$ 47 million at current rate). The loss to timber increment, loss of soil fertility, soil erosion, loss of employment, drying up of water sources and loss to biodiversity were not calculated by the Committee appointed by the Government of India to enquire into the causes of fires, as these

losses are immeasurable but very significant from the point of view of both economy and ecology. The fires in the hills resulted in smoke and haze for days and the thick smoke affected visibility up to 14,000 ft (Bahuguna 1999).

### **3. Forest Fire Management Law and Policy in India**

The first role of the Central Government is to bring out the right kinds of policies and regulations to facilitate fire management activities. There is no specific forest fire control Act in India at the national level. The legal and policy framework for fire protection has been in existence along with the forest laws in India. The National Forest Policy of 1988, which aims at ensuring environmental stability and maintenance of ecological balance, clearly recognized the hazards of forest fires in the country. The Forest Policy also lays emphasis on the use of improved and modern management practices to deal with forest fire. Emanating from this policy, the Government of India has issued the National Forest Fire Prevention and Control Guidelines of 1999. The salient features of the guidelines include identification of vulnerable areas on maps, creation of a data bank on forest fires, establishment of a fire forecasting system, provisions for a crisis management group, involvement of Joint Forest Management Committees, and efficient enforcement of legal provisions.

The National Conference on Environment and Forests at Coimbatore adopted a resolution known as the “Coimbatore Charter on Environment and Forests”, which amongst others outlined specific policy measures for forest fire control (Ministry of Environment & Forests 2001). These measures are:

1. State and Union Territory Governments shall map fire prone areas and ensure that funds are spent on identified areas on project basis.
2. State and Union Territory Governments shall implement the provisions of the National Fire Prevention and Control Guidelines of 1999 issued by the Ministry of Environment and Forests and take suitable measures for prevention, detection and control of forest fires.
3. The Joint Forest Management (JFM) Committees shall be assigned specific roles for fire prevention and control and the committees be given incentives for fire prevention.
4. The State and Union Territory Governments shall organise Forest Fire Prevention Week annually to highlight the damage to bio-diversity from forest fires and for soliciting public support in prevention of forest fires.

Although there is no specific forest fire control Act, a few sections concerning forest fires are included in the following forests and wildlife acts in India:

- The Indian Forest Act, 1927, sections 26, 32 and 33.
- The Wildlife (Protection) Act, 1972, sections/para 27 and 30.

### **4. Modern Forest Fire Prevention and Control in India**

The subject of forests is in the concurrent list of the Constitution of India, which means that both the Central (Union) Government and the State (Provincial) Government are competent to enact

laws on forests. While the policy planning and finance is the primary responsibility of the Government of India, the field administration of forests is the responsibility of the various State Governments. Each State and Union Territory has its own separate Forest Department, which is directly responsible for the management of forest resources, including the fire prevention and control measures as part of the overall forest management systems. In the Central Government, the mandate for forest fire prevention and control has been assigned to the Forest Protection Division in the Ministry of Environment and Forests.

The forests in India are generally managed through the forest Working Plans and fire prevention and control has always constituted an important component of the Working Plans. The fire prevention and control prescriptions generally constitute employing traditional practices like creation and maintenance of fire lines, fire tracks, control burning, engaging fire watchers during the fire seasons, etc. With increasing population and consequent pressure on forests and resultant conflicts and resource hunger, traditional methods of fire management became ineffective in most parts of the country. Increased biotic pressure resulted in increased incidences of forest fires leading to poor regeneration of forest areas. This led to the implementation of a UNDP pilot project in the country during 1985-1990 to address the problems of resource damages from uncontrolled forest fires by systematic transfer of knowledge gained in preventing, detecting and suppressing forest fires in developed countries (Bahuguna 1999; Satendra 1999).

Based on the success of this project, the Government of India in the Ministry of Environment & Forests initiated a scheme called “Modern Forest Fire Control Methods” since 1992-93. Under the scheme, the Central Government provides financial assistance to the State Governments (through the State Forest Department) for procurement of hand tools, fire resistant clothes, fire fighting equipments, wireless sets, construction of fire watch towers, fire finders, creation of fire lines and for research, training and publicity on fire fighting. The project currently covers just over 60% of the forest areas of the country and has decreased the incidence of major forest fires in the country and also remarkably improved the scientific fire management capability (Bahuguna 1999).

Since the 9<sup>th</sup> Five Year Plan (1997-2002), two other dimensions of the project had been dovetailed, viz., (a) introduction of a component of close monitoring of forest fires for creation of data base by the Forest Survey of India, along with involvement of research institutes and other agencies for generating more information on forest fires for better planning, management and co-ordination, and (b) involvement of Village Forest Protection Committees (VFPCs) constituted under the Joint Forest Management (JFM) programme in the country. JFM programme is being implemented in 22 states through more than 36,130 VFPCs over 10 million ha forest areas (Bahuguna 2002). It is reported that the incidence of man-induced forest fires in all these areas have remarkably decreased over the past years.

## **5. Role of the State Government: a case study of Mizoram in NE India**

### **5.1 A profile of Mizoram and community-based fire management systems**

The hilly state of Mizoram, situated in the southern part of NE India, has geographical area of 21,081 sq km (0.6% of India's geographical area). The population of the state is 0.89 million,

mostly tribals (94.7%), known as the *Mizos*. Population density of the state is 42 persons per sq km. About 80% of the rural population is dependent on agriculture in the form of shifting cultivation (locally known as *jhum*).

The estimates of the area affected by *jhum* in Mizoram have been done by different agencies with different statistics. The figures vary between 0.38 million ha or about 18% of the total geographical area by the Forest Survey of India (2000), 7.73% of area by the Ministry of Agriculture (2000) and as much as 28% of the geographical area by the State Environment & Forest Department (Darlong 2002). Nevertheless, with about 82.98% of forest cover (about 50% of the forest area is dominated by the bamboos), the state ranks third amongst States/Union Territories in terms of forest cover as percentage of state's geographic area (Forest Survey of India 2002).

In the pre-Independence India, *Village Chiefs* ruled the villages in Mizoram. Each village has its own *Chief* and each village was ruled as semi-independent democratic units. The *Village Chiefs* distributed *jhum* areas to the villagers every year in certain compact blocks within the village jurisdiction and went on to the other block in the next year and so on. Nobody was allowed to *jhum* in areas other than the block opened up by the *Chief* for that year. The villagers made fire lines before burning their *jhum* to prevent burning of other blocks. Fire lines were prepared by the collective efforts of the communities as part of the traditional system or contribution of free labour for community services. The villagers were also duty-bound to combat any spread of fire in the adjoining forests. A punishment was imposed by the *Village Chief* to the person(s) responsible for causing fire incidents with a fine of an adult pig, called '*Salam*' to be given to the *Chief*, and occasionally the punishment could be even expulsion from the village depending on the merits of the case. In those days, though there had been spread of fires to the adjoining forests, the extent of damages were minimal as the communities took utmost care in preventing and controlling forest fires. Such were the community-based fire management strategies among the *Mizos*.

## **5.2 Fire management regulations and policies in Mizoram**

In the state of Mizoram, about 95% of forest fires are related to burning for shifting cultivation. For most of the *Mizos*, shifting cultivation has been a way of life for centuries, and even today about 80% of the rural population depends on agriculture, of which shifting cultivation forms major land use system.

This has led to the evolution of very strong traditional community-based fire management prevention and control strategies among the *Mizos*. The tradition is built upon the principle of '*tlawmngaihna*' (literally means self sacrifice or self denial) a social ethic of 'community service before self', which is supposed to be upheld by every *Mizo* as a member of the community in a village. This included evolution of traditional social regulations by which every *Mizo* is expected to render his or her free service for prevention and control of forest fires, particularly during the period of *jhum* burning.

However, in recent years there has been gradual erosion of many of these traditions primarily due to dispersal of population and change of occupation from that of shifting cultivation to

salaried profession, market-oriented activities and changing values of present generations of the *Mizos*. Mizoram witnessed unprecedented forest fires during the late 70s to early 80s. The average area affected by forest fires during this period was reported to be more than 18,000 ha per annum (personal communication with the Mizoram Environment & Forest Department) severely affecting both government-owned plantation forests and community-controlled bamboo forests. This led to the enactment of the *Mizoram (Prevention and Control of Fire in the Village Ram) Rules, 1983* to prevent and control forest fires including *jhum* area and to enforce and try offences relating to forest fires by the Village Councils and Village Courts under the provisions of the Lushai Hills District (Village Council) Act, 1953 and the Lushai Hills Autonomous District (Administration of Justice) Rules, 1953.

Besides the above legislation, the policy on fire prevention and control in Mizoram is clearly reflected in various government programmes and activities. In 1999, the Government of Mizoram launched the “Green Mizoram Movement” to frame policies and creates avenues for massive involvement of communities and NGOs in tree plantation and to create public awareness towards the importance of fire protection for conservation of forests and other natural resources.

The current public debate and discussion to prepare state level policy guidelines for fire protection include the following issues and strategies:

- Annual decrease in area allotted for *jhum* cultivation by at least 10%.
- Making it mandatory to do *jhum* cultivation in compact blocks (one compact *jhum* block for each village).
- Mandatory cultivation of leguminous crops in the *jhum*.
- Mandatory inter-plantation of leguminous tree species in order to restore soil fertility, and also to meet future fire wood demands.
- Mandatory completion of *jhum* operations, particularly slashing and burning for *jhum*, within a definite time frame.
- Mandatory preparation of fire lines in the *jhum* fields prior to burning.
- Mandatory installation of community-based fire management committees or organisations in each village.
- Installation of individual/collective reward systems for best practices in fire management and/or punitive measures for deliberate causing of forest fire.

### **5.3 Stratified institutionalization of fire management systems in Mizoram**

Mizoram is the only state in NE India that has constituted multi-tiers Committees on Fire Prevention for effective management of fire control programmes (Government of Mizoram 2000) as follows:

#### **5.3.1 State Level Committee on Fire Prevention**

The Chief Minister of Mizoram, the highest administrative head of the government, chairs the State Level Committee on Fire Prevention. The Committee has altogether 27 members consisting of heads of the government departments, heads of the three district councils of the state and a number of prominent state level NGOs. The major mandates of the state level committee are:

- To frame a policy to control wildfire with a view to saving forests and plantations within Mizoram.
- To set up teams of men to oversee the burning of jhum and check spread of fire in the adjoining areas of jhum lands.
- To give instructions to District Level Committee relating to the decisions of the State Level Committee for proper implementation of fire control programmes.
- To oversee and monitor the activities and achievement of the District Level Committee.

### **5.3.2 State Level Sub-Committee on Fire Prevention**

As per the decision of the State Level Committee, a Sub-Committee on Fire Prevention was constituted by the Mizoram Government, which is chaired by the Adviser to the Chief Minister of Mizoram. The Sub-Committee is actually the Executing Authority of the decisions of the State Level Committee. The Sub-Committee has just 14 members. The mandates of the Sub-Committee are:

- To assist the State Level Committee on fire prevention programmes and policies in general.
- To prepare detailed programmes and plan of actions, as well as to take up follow-up actions as per decision of the State Level Committee.
- To supervise the activities of the District Level Committees on Fire Prevention and field activities of the Village Level Committees relating to prevention of fires.

### **5.3.3 District Level Committees on Fire Prevention**

District Level Committees on Fire Prevention are headed by the Deputy Commissioners of the District, who are the administrative heads of the government at the district level. Currently there are eight District Level Committees corresponding to the eight districts of the states, viz., Aizawl, Saiha, Champhai, Serchhip, Mamit, Lunglei, Kolasib and Lawngtlai. The number of members of District Level Committees ranged from 10 to 18 depending on the size of the district, the number of government agencies and NGOs working in the districts. The major functions of the District Level Committees are:

- To implement policies and programmes adopted by the State Level Committee.
- To organize voluntary teams of men and women to oversee the burning of jhum and wildfire and to check the spread of fire that may destroy the valuable forests and plantations raised by the Government and private individuals.

### **5.3.4 Village Level Committee on Fire Prevention**

Each village in Mizoram has Village Level Committee on Fire Prevention with 8-11 members, which is headed by the Chairman/President of Village Council. The Village Councils in Mizoram are democratically constituted village level administrative institutions for village governance. It is at this level that the community-based fire management is best carried out. The functions of village level committees are:

- To implement the decisions of the State and District Level Committees.
- To fix date for burning of jhum before 15<sup>th</sup> of March every year and to organize social/voluntary works on the dates of jhum burning for combating any fire spread in the forests from jhum burning.
- To organize voluntary Fire Watchers from the villagers during the peak fire season from mid-February to mid-April and to submit names of voluntary Fire Watchers to the District Level Committee.
- To submit report on its activities and names of persons responsible for causing fire incident in the forests to the District Level Committee.

Besides these, there are three important committees at the government level for execution of various fire prevention activities. These committees are the (a) State Level Fire Prevention Co-ordination Committee, headed by the Chief Secretary to co-ordinate and review various fire prevention and control schemes; (b) State Level Committee to Monitor and Review Effective Enforcement and Implementation of Jhum Burning, headed by the Director of Local Administration Department to monitor and review the effective enforcement of jhum burning regulations in the state and (c) Fire Crisis Cell in the Environment & Forest Department to liaison with the Central Government on matters pertaining to central funding, policies on forest fires and implement centrally-sponsored scheme called “Modern Forest Fire Control Methods”. These committees submit report to the State Level Fire Prevention Committee.

#### **5.4 Preparation of scheme for Modern Forest Fire Control Methods in Mizoram**

To tap the funding assistance from the Central Government, the Mizoram Government in the Forest Department is implementing the Modern Forest Fire Control Methods scheme. The project includes features and activities relating to fire prevention, fire detection, fire suppression, improved communication through wireless networks, awareness and publicity on fire prevention, research and development, incentives and rewards to NGOs/Village Councils/Forest Divisions/Ranges, monitoring and evaluation, etc.

#### **6. Lessons learned and concluding remarks**

The incidence of forest fires in Mizoram has remarkably reduced with an annual average of forest loss reducing from 18,000 ha in the early 80s to 2500 ha over the past 2-3 years (personal communication). While this can be an indication of success of effective government intervention and improved community-based fire management systems, very often the intensity and scale of forest fires in Mizoram is also linked to the prevailing weather conditions. Sporadic winter rains coupled with early monsoon would mean reduced chances of forest fires. However, our field studies indicated that there has been greater appreciation of government role in fire management. If this trend can be maintained, it is expected that within the next few years natural forest regeneration of the state can be sustained.

Installation of various fire prevention committees both at the state and district levels, and the involvement of the State Chief Minister (Head of Government) and Chief Secretary (Head of Administration) together with induction of various heads of government departments had

mainstreamed the problems of forest fires as the state's one of the priority agenda. Through such multi-tiers of committees, the various government departments, agencies, NGOs and community leaders are now able to act on a common platform for forest fire prevention and control, particularly during the peak fire season. Through this effort the idea and importance of community-based fire management activities is recapturing the mindset of the people of Mizoram, though the process is slow, particularly among the urban population.

The state government has also been able to take advantage of the funding assistance from the Central Government through the 'Modern Forest Fire Control Methods', which has greatly improved the fire management capacity of the state government. However, an inherent weakness of the scheme is that it is operational only in the notified forest area, that is, areas under the control of the government, which is just about 50% of the forest areas of the state. It is necessary that the scheme includes all the forest areas of the state for effective forest fires management strategies.

The initial over emphasis of the government to forest fires in Mizoram have tended to focus on suppression and costly technological solutions to fight fires based on central government funding. This approach has led to the peoples' increasing dependency on the government agencies for suppression of forest fires and in many places suppression of forest fires was considered to be the sole duty of the government. This deficiency was realized very soon and so the village level fire prevention committees were constituted under the aegis of the State Level Fire Prevention Committee in order to reinvent and strengthen the community-based fire management traditions of the *Mizos* along with massive awareness, education and empowerment programmes for the communities. Media and a local NGO known as the Young Mizo Association (YMA) were actively involved for the purpose.

The government role in fire management has also witnessed undesirable and gradual transformation of the traditional community-based fire management systems from that of 'voluntary' to 'monetary' oriented activities. Assigning cost for every aspect of the fire management activities in many ways monetized the whole operation with the result that success of the schemes is directly related to the availability of funds. With decreasing government budgets to suppression activities of forest fires, it is necessary to revisit and strengthen the traditional community-based management systems that rely on voluntary actions and on the principles of preventive approaches in combating fires before they occur.

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