Community involvement in fire management: cases and recommendations for community-based fire management in Thailand

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Abstract

Fires are not new to the landscapes of Thailand. In general, wherever there are people, there are fires, as the two have been culturally linked for centuries. In rural areas, people have used fire as a land preparation tool, for promoting annual grasses for grazing livestock, to facilitate mushroom and bamboo cultivation, and to assist in hunting and land clearing. Such land management has generated benefits to some people and costs to others.

Fire management in Thailand is a community issue that needs to be addressed by a community-based approach. This paper reviews some of the local knowledge, experiences and lessons learned from those working with community-based fire management in Thailand to synthesise the current knowledge base and summarise some key points.

1. Introduction

> "In the old days during the dry season, community leaders would mobilise fire prevention activities by striking a gong three times a year; once in late January, once in late February and once in the middle of April. This gong signalled to the community to take collective action to manage the fuels in areas in and around the community to protect itself from forest fires. Today, collective action rarely occurs due to weak community leadership and the government's insistence that it has the sole responsibility to manage forest fires." (*Senior villager of Ban Pabong, Moo 1, Mae Hong Son Province.*)

People and fire have been culturally linked in Asia for centuries. Communities in Thailand have long been engaged in fire management. Fires in Thailand have many causes and impacts due to people's forest and land uses. They can spread from paddy fields to the forest, from the forest to the paddy fields, or from the paddy fields or forests into villages and vice versa.

Traditional knowledge of fire management is clearly manifested in Thailand. People have protected their communities from fire by digging fire lines around homes and temples. Backfires are also used to stop approaching fires. Villagers are aware of the potential fire damages and have controlled the spread of fire to minimise destruction of community assets.

In 1998, forest fires occurred across Thailand destroying thousands of hectares in Huay Kha Khaeng, Khao Yai, Dong Yai, Mae Wong, Phu Kradeung, Phu Rua and Phru To Daeng. These fires, coupled with the haze from other fires in the region, affected many people. The latest fire episode has caused major concerns at every level of society and changed people's view of rural people in Thailand from being victims of circumstances to being the cause of these fires.

The latest El Niño episode has triggered the preparation of many governmental and inter-governmental plans for regional programmes to prevent and control forest fires and haze in South East Asia. In Thailand, the results of these actions are confusing and often misinterpreted. The government has decided that farmers must inform the local authorities before burning crop residues in their paddy fields. Cabinet-level decisions were amended because burning for land clearing was identified as a potential cause of forest fires (Makarabhirom, 1998). In addition, a

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Royal Forest Department (RFD) official proposed that the drafted Community Forest Bill (currently being processed in the Parliament) should not be passed. He claimed that community forestry would perpetuate some of the causes of fires and, to prevent forest fires, no one should be permitted to stay in or around protected areas.

These arguments have led to hostile debates and increased conflicts between the government and villagers. Organizations supporting community-based natural resource management are concerned about the widespread misperceptions and misrepresentations. This paper reviews local knowledge, experience and lessons learned about community-based fire management (CBFiM) in Thailand. It synthesises the current knowledge base and clarifies some misrepresented and poorly understood issues.

2. Fire, rural life and misperceptions

Fire is a universal tool used in forest management, particularly in site preparation, control of pests and diseases, and the reduction of fuel loads. Such practices also represent a potential cause of large-scale forest fires. Poor villagers living in and around forests have little choice but to use fires for:

♦ land preparation for crop production;

♦ promotion of mushrooms such as hed poa (*Astraeus hygrometricus*);

♦ promotion of leaf growth of species like pak waan (*Melientha suavis*);

♦ cultivation and promotion of bamboo or grass shoots such as phai paa (*Bambusa arundinaceae*) and phai pek (*Arundinaria purilla*);

♦ promotion of seed germination of species such as teak (*Tectona grandis*);

♦ hunting wildlife such as wild pig (*Sus scrofa*), barking deer (*Muntiacus muntjak*), lan (*Varanus bengalensis*) and wild fowl;

♦ managing growth of a grass called yaa mai guard (*Thysanolaene maxima*) for the production of brooms (an activity undertaken by community groups in Nan Province); and

♦ promotion of yaa ka (*Imparata cylindrica*), which is commonly used for making thatched roofs.

Some 40 years ago, many Thai development policies identified rural communities as a cause of forest fires. Since that time, communities have been blamed for forest destruction and degradation. Yet, they are the ones affected most by the loss of the forest resources that they depend on. Over the decades, traditional and cultural practices have been replaced and eroded by economic development and the introduction of commercial farming. This has resulted in the loss of indigenous knowledge of and community responsibility for fire management, transferring the onus to the government instead. The consequence of this detachment is that fire is no longer regarded as a useful tool, but rather a danger to the communities.

Since many communities have adopted various unsustainable practices, fire has more harmful effects. In highland communities, these effects are more apparent due to higher fire intensities. At mid to high elevations, the fire risk is greater as high fuel loads, steep slopes and prevailing climatic conditions make fire behaviour unpredictable. Highland communities face intense fires in demanding terrain, thus requiring more elaborate fire management approaches.

The rapid expansion of agricultural development into previously forested highland areas has changed fire management from being a community concern to a nation-wide issue. The use of slash-and-burn cultivation to produce export crops is widely practised and has resulted in poorly managed fires. Since the introduction of "high-tech" intensive agricultural production systems, many highland villages have changed their tenurial systems from collective ownership to more individual arrangements, which have contributed significantly to regulatory problems. The abandonment of rotational shifting cultivation practices also makes fire management more difficult.

Traditional uses of fire and forest resources have changed considerably with altered land-use patterns and resource scarcity. In the past, some of the highland groups in Northern Thailand (e.g. Karen and Lua) practised rotational shifting cultivation. They had secure rights over the land that they

farmed, felt close to the land and the forests, and returned back to the same land after long fallow periods. Today, the government has assumed ownership, which in general has resulted in unclear land and resource security. When a fire breaks out, highland communities make no attempts to control it, as they have lost resource tenure and access. In addition, communities find it increasingly difficult to impose rules and regulations on outsiders because no tenure agreements with government counterparts are included in present regulations. This land tenure insecurity, and not the rotational shifting cultivation system *per se,* has increased forest fire problems in highland communities.

More uncontrolled fires are also occurring in Thailand due to climatic changes and fuel accumulation in dry dipterocarp forests. The villagers realize that uncontrolled fire destroys not only physical components of the ecosystem, but impacts also on social systems. Many community relationships disintegrate due to problems associated with fire events (Anan Duangkaewruan, 1999). For example, the social structure of the Mae Tha community in Chiang Mai Province broke down after a large fire that brought on drought and social problems, forcing the villagers to search for off-farm employment. In the Silalang Sub-district of Nan Province, permanent crop production and burning of the forest also led to drought and crop failures (Sathaporn, 1999).

The causes of forest fires continue to be debated. Some people argue that monocultures or inappropriate agricultural production is the main cause. Others point to poaching and recreational fires. All these activities cause forest fires and in looking for solutions the emphasis should not be on how fires start but what the underlying causes are and why fires are started.

The villagers' dependence on forest resources, particularly non-timber forest products (NTFPs), is the main reason for burning the forest. They believe that fires stimulate the growth of mushrooms and wild vegetables. Unsustainable development and government policies have perpetuated their forest dependence by changing land-use patterns and imposing restrictions without an adequate analysis of potential impacts on local livelihoods. Impacts of alternative fire management approaches should be analysed, and communities and the authorities should be informed of the costs and benefits of fire on forest resources and the appropriate ways to control fire (Nugen, 1999).

3. Community-based fire management: rationale and development

Many academics, policy makers and development workers are debating whether communities are capable of managing forest fire. The academic community has supported CBFiM by clearly stating that the community is the key to the survival of forests through integrating indigenous knowledge, conservation values and sustainable livelihoods. Managing the forest with the full involvement of community members is more effective for managing fire if it is an entrenched social responsibility in the first place (Chamarik and Santasombut, 1994; Wasee, 1996; Sukwong, 1998; Ganz *et al.*, 2001).

Many communities have strong traditions that help enhance forest richness – biological and cultural diversity – through innovative means of forest fire management and integrated forest management. After all, it is in their best interest to manage the forest and forest fires to meet their livelihood needs. They realize that short-term solutions like fire lines – if they are well maintained – can only provide protection against fire itself. They cannot stop people from setting fires. This implies that forest fire management requires the long-term commitment and co-operation not only of community members but also those of outsiders. One example of this broader approach is establishing networks of communities that share similar problems (Box 1).

Opportunities for CBFiM exist all over Thailand. At present the financial resources devoted to fire prevention and suppression are not spent effectively. Although the budget for governmental fire management and the number of Forest Protection Units have increased, forest fire occurrences have also escalated. If implemented on a large scale, CBFiM is likely to improve forest management and reduce costs to the government.

Box 1: The forest fire management network of Mae Khan Watershed

Villagers of Mae Khan Watershed have long been using indigenous knowledge to manage fire as part of their rotational shifting cultivation system. In the early 1990s, fires increasingly spread outside the village. In response, villagers developed a collaborative fire protection plan for the whole village. As time passed, fires began to encroach on the village. As a solution, the villagers approached neighbouring communities to set up a collaborative fire protection network around the forest areas. Now, the concerned villages co-ordinate their efforts in community-based forest fire management for protecting the watershed.

For CBFiM to be effective, three fundamental components need to be understood:

- ecology and forest fire behaviour, particularly forest fire regimes;
- the community, particularly its needs and the behaviour of its members; and
- the relationships between fire and the community.

A fundamental understanding of fire ecology is necessary as communities are managing fire – or ought to be managing fire – within a certain fire regime that is suitable for the ecology of the forest type under forest management. A situational analysis at the village level is necessary to consolidate critical information on opportunities for and constraints to implementing CBFiM. This analysis considers the natural, political and socio-economic environment. The integration of information about the fire regime, the variety of stakeholders and the situational analysis into an operational plan is the basic premise of decentralised fire management. The Thai government should take the leadership in CBFiM in the region and ensure that the modernisation of forest fire management in Thailand is based on sound knowledge.

4. Forest fire management: a call for collective planning

Fire management is part of forest management planning. This has been evident in the Mae Tha community of Chiang Mai, Na Pho Nue village of Ubon Ratchatani, Ka Lor community of Yala and Rom Pho Tong village of Chasoengsao (Box 2). Forest management requires a plan that considers and provides for community benefits. Similarly, proper fire management calls for a fire management plan that responds to community needs. For example, if the community relies on mushrooms or young grasses for its livestock, or has fruit trees that need to be protected, then annual prescribed burns should promote the growth of mushrooms or young grasses, while ensuring that the fruit trees are not destroyed.

Box 2: Collaborative fire management in Ban Rom Pho Tong, Eastern Region

Fire management planning and activities are part of Rom Pho Tong Village's community forest management plan. In 1995, a community forestry development programme was prepared, followed by a management plan in 1997. The villagers co-operated with the local Forest Fire Control Unit to train village forest fire volunteers. Forest fires still occur but are less likely to cause substantial damage.

In 1998, the Community Forestry committee started to extend its fire management network to the neighbouring communities of Ban Khao Klui Mai and Ban Sam Pran. A few months later, the network reached 20 villages around the eastern forest. During monthly network meetings, the forest fire situation in each village is discussed together with other development and conservation activities. A self-motivated forest fire network has been initiated as a result of the meetings and the collective action on forest fire management.

As several cases indicate, there are strong linkages between CBFiM and other development and conservation activities. CBFiM should be considered a component of land-use planning and natural resource management. Rather than taking on an independent identity, it should be an integral part of an overall community capacity-building process.

5. Promoting participation in fire management: a four-step process

Step 1. Agreeing on common objectives and a collaborative management plan

In fire management, clear objectives are necessary. They must address all actors with vested interests in the forest area with regard to:

♦ where to control fires;

♦ where to burn; and

♦ what methods to use.

Clear and agreed upon objectives avoid misunderstandings and frequent jurisdictional problems. If the villagers request that local organizations should take charge of fire management, then the Fire Control Units should provide information and training to all actors to raise awareness of the roles and responsibilities of each member of the community.

Step 2. Managing the budget by local authorities

Fire management costs money. Many problems and obstacles (e.g. the lack of equipment, budgets and personnel) restrict government agencies from collaborating with communities to manage fire effectively. To remedy this situation, communities must be informed about financial problems and ask for the support of local organizations such as sub-district councils and the local administration. Alternative and innovative funding mechanisms need to be sought at the local levels. Financial systems that will show how CBFiM can be effective while reducing costs should be encouraged.

Step 3. Supporting information for fire management

Many villagers are interested in information on the effects of fire on the production of mushrooms and other NTFPs. Unfortunately current research on such issues is very weak. Credible research and the timely dissemination of appropriate technologies are needed to influence the adoption of improved practices.

Step 4. Shifting from protection and suppression to management

Forest fire management in Thailand has been centralised within one government department. Recent valuable experiences in CBFiM and collaborative fire management with other government projects are disregarded. Research potentially leading to improved fire management is ignored and community involvement in decision-making is difficult to promote. The following recommendations can help improve fire management:

♦ Increase community involvement in forest fire management

♦ Adjust existing laws and policies, as appropriate, to enhance community involvement in fire management

Policies and laws need to promote collaborative management and the co-operation between people and government agencies

♦ Search for alternative ecologically sound forest fire management

Improved forest management is required for managing forest fires, especially in watershed areas.

♦ Analyse forest fire management experiences to identify opportunities for improved community collaboration

Participatory analyses are necessary to investigate the forest fire situation, which will aid in collaborative planning and applying religious rites – such as forest ordinations – to raise people's awareness to conserve forests, and assist in enrichment tree planting, natural forest restoration and fire management activities.

♦ Provide technical knowledge on fire management

Technical knowledge on fire management should be extended to all actors. Training should be provided not only to highland but also to the foothill and lowland communities who also use fire in land-use practices.

♦ Conduct research to support management decision processes

Greater efforts should be placed on understanding the effects of fire on forest products. If alternatives are found to manage NTFPs that villagers depend on and information is adequately disseminated, then a reduction in the number of fires may follow.

♦ Develop local networks to support fire management

Encourage the establishment and development of local groups and organizations in each community for the planning and implementation of fire management. If these organizations (e.g. village committees or groups of teachers, youth and women) can work together with the officials at the community level, then fires will be managed efficiently.

These seven recommendations are based on the principle that "fire management is the joint duty of all people and organizations to plan." Therefore, it is necessary that the communities, officials and non-governmental organizations plan how to manage fire together. The co-operation of the communities is absolutely necessary as they can develop and implement fire protection methods faster and more effectively than outsiders (Sathaporn, 1998). Local communities have clear understanding of local conditions and circumstances important for successful fire management.

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