

Fire! The Greatest Risk for Community Based Natural Resource Management in Northern Thailand (1)

by Peter Hoare (2)(3)

1. The Fire Problem

The large black areas, burned by uncontrolled fires between January and May in upland and highland areas of Northern Thailand, will be green by the time of the TG-HDP workshop. The damage to the natural resources caused by these uncontrolled fires are under-reported, and the magnitude of the problem is not recognized.

Most of the upland and highland soil erosion and stream sedimentation probably originates from these upland and highland areas burnt, outside the cropped areas. The high intensity rains at the beginning of the wet season result in most of the soil erosion before vegetation cover is re-established. For example in the Upper Nan Watershed Management Project (UNWMP) area 5,500 rai was cut and burnt for upland crops by farmers in 1997, but over 40,000 rai was burnt by uncontrolled fires. (ratio about 1:8). In 1998 the ratio of the area of upland fields cut and burnt for upland crops to the watershed area burnt could be as high as 1:50. In addition there is the damage by fire to the other natural resources including the reduction of forest biomass; reduced biodiversity and destruction of wild life habitats and effects on water quality.

In most years, after the first rains of the wet season, the environmental damage caused by uncontrolled fire is forgotten for another year. However, this is not the case in 1998 as the political fallout from the fire damage is still being felt. These recent events widely reported in the Thai press are the reason for the author proposing that uncontrolled fire presents the greatest risk for community based natural resource management in Northern Thailand.

2. The Thai Newspaper Reports (February - April, 1998)

The Thai newspaper headlines during the peak of the fire season from February to April 1998 drew public attention to the ecological damage caused by the forest fires, and also the changes in attitudes of policy makers. Some of the headlines from the English language press illustrate these points -:

27/3/1998 (Bangkok Post) - " Over one million rai razed say local groups they claim that 2/3 of the Huay Kha Kaeng Wildlife Sanctuary was damaged by fires- entirely man made; the Royal Forest Department claim that there was only slight damage by fire

1/4/1998 (The Nation) - " Park fire damage' bad Doi Intanond National Park officials say vast forest fires have caused serious ecological damage to about 7,000 of the parks 18,515 rai

One difference from previous years was that the severe fire damage from February to April in national forest reserves and national parks fueled the national debate concerning the 1997 cabinet resolutions allowing people to continue farming in national forest reserves. The political fallout following the severe 1998 fire season is still continuing

28/3/1998 (Bangkok Post) "Newin puts blame on enroachers" Deputy Agriculture Minister yesterday accused enroachers being behind forest fires that are raging across thousands of rai of land and ordered legal action against them.

15/4/1998 (Bangkok Post) New forestry chief raises the possibility that settlers in conservation forest may be relocated even though they settled before the declaration of the protected area. Also the Ministry takes the view that the April 17, 22, and April 29 cabinet resolutions of 1997 are impractical and encourage more forest enrichment.

22/4/1998 (Bangkok Post Pongpol stalls on forestry proposal " concerning the decision of the Minister not to revoke the cabinet resolutions of 17, 22, and 29 April, 1997: but reaffirming his intention to relocate forest dwellers in ecologically sensitive areas on a voluntary basis.

These recent newspaper articles together with the preliminary data from UNWMP on the 1998 fire damage led the author to propose three hypotheses for discussion at the workshop in relation to the community based natural resource management.

3. Hypotheses Proposed for Discussion

1. " Uncontrolled fire presents the greatest risk to improvements in community based management of natural resources in the upland and highland areas of Northern Thailand. Risk in this context includes political risk concerning the rights over who manages the natural resources, as well as air pollution and damage to the community resources of forest, water and soil. "
2. " The return of migrant labourers following the Thai economic crisis of 1997 has resulted in natural resource management becoming much more difficult for rural communities. Former village residents are returning to hunt for wildlife, and practice subsistence agriculture in their old villages, but their attitudes to natural resource conservation are different from the older residents - particularly in regard to the use of fire.
3. " The boundary for fire management is much larger than the boundary for village natural resource management, and requires the development of linkages for networking through village watershed networks, Organisation for Tambon Administration (OBT), and also at the Provincial and national level in order to develop effective fire management programmes "

Some case studies from the UNWMP are given to illustrate some of the above points. However, a short description of the project follows.

4. Project Description

The Upper Nan Watershed Management Project was designed as a traditional watershed management project to address environmental rehabilitation and protection through awareness-raising, empowerment by development of alternative or additional means of income via introduction of revolving funds, development of sustainable agriculture (expansion of irrigated lands, agro-forestry), training, micro-watershed land use planning, application of GIS, tree-planting, and community forestry. The project is located along the Yao River one of the main tributaries of the upper Nan river basin in Song Kwae and Tha Wang Pha Districts.

The objectives of the project as per Project Document are:

1. *A sustainable organizational framework and financial basis for continued forest protection and soil and water conservation effects beyond the project period established in project villages and at local government agencies.*
2. *The area and quality of forest cover in the project area is increased considerably by the year 2003 through improved land use planning, improved cultivation practices and better fire control*
3. *Holistic land use systems aimed at sustainable and environmentally sound production and improved quality of life developed by the involved parties and applied by a majority of land users.*

The project belongs to the Watershed Management Division (WMD) of the Royal Forest Department (RFD). The project covers 6 Watershed Management Unit covering an area of 985 square kilometers and 45 villages of mixed ethnic backgrounds - hilltribes and lowland Thai in the same watersheds. There are 26 of the 44

villages which are in National Forest Reserves of Pa Nam Yao and Pa Nam Suad.

In addition to the Watershed Management Office of RFD in Nan, there are other government agencies which are charged with matters environmental, namely a number of provincial line agencies (forestry, agriculture, fisheries, public welfare) as well as the administration units under the Ministry of Interior such as district (amphur) an sub-district tambon). The latter have gained an increasingly strong influence since the new Constitution of Thailand was promulgated last year. The new Constitution as provided the local level bodies with responsibility for environmental management as well as with financial means to engage line agencies which now would be a accountable to the district and tambon level. They are therefore important partners in the ongoing planning in the project.

The history of implementation so far entails a process where project staff, in particular watershed management unit chiefs for the purpose of planning have met regularly with senior management and TA as well as with the project - hire staff of community coordinators (15). Thus, for each watershed unit, there are one watershed unit chief and 2-3 community coordinators. Although the project is presented in the donor's annual. Limited funds limit NGO collaboration to occasional ad hoc interaction in areas of where work overlaps. (Ewers and Padklang, 1998)

5. Data from the 1997 Fire Season

The project community fire management programme started in 1997. This included training and equipping of village forest fire volunteers and in some villages the making of community firebreaks close to the village. In some villages there had been a previous fire management programmes under the RFD Accelerated Watershed Rehabilitation programme.

In the 1997 dry season the data from the survey by the 15 project Community Coordinators in 40 villages and field mapping showed that about 5% of the project area (about 46 square kilometers out of 912 square kilometers) was burnt. About 40% of the fires were lit by hunters and gatherers, 40% from fires that escaped from upland swiddens, about 10% were lit by graziers and about 10% from causes unknown.

The recall data from 1996 and 1997 from the Watershed Management Chiefs of RFD showed that the areas burnt in 1996 and 1997 were larger, possibly up to 10% of the project area. In 1997 the fire danger period was reduced by unseasonal rain in March of 47 mm (6 wet days), and early rain in April of 102 mm (17 wet days). The community level data collected by the project Community Coordinators showed that there were 952 families out of a total of 4,220 who planted 5,500 rai of upland fields in 42 villages in 1997. Of these 660 families (69%) made firebreaks, and informed the village committee before burning. (Maneeratana, Hoare, 1997)

All the villages in the project area have their own rules and regulations concerning natural resources and society. They recognize the importance of controlled burning of upland fields and fines are specified for fires escaping from upland fields. These regulations were collected by the Community Coordinators and published by the project (UNWMP, 1997).

The results from the 1997 fire season gave a sense of optimism that progress was being made in the training and awareness programme on forest fire management, resulting in improved management of natural resources by the rural communities

6. Preliminary Data from the 1998 Fire Season

The Community Coordinator community fire management survey for 1998 will not be completed until June and preliminary data are presented here.

When it became evident that the 1998 fire season would present more risk the previous year, for the reasons given in the introduction, it was decided to employ a short-ten-n forest fire control consultant to assist in training the trainers of village fire volunteers and to assist the RFD staff prepare forest fire management plan for the 6 Watershed Management Units in the project area.

Danced and RFD provided knapsacks and simple fire fighting tools for the village fire volunteers for the 45

project villages. The training of village fire volunteers was completed with the supply of village fire fighting equipment. However one weakness of this approach was that the habitual fire lighters such as cattle herdsman and hunters did not come to this type of training.

Another approach was to have an evening village meeting to discuss the fire problem followed the next day by a working bee to cut a village firebreak, usually to protect one to two square kilometers of community forest near the village. This approach resulted in high levels of participation with most households participating.

Serious damage was caused to RFD forest rehabilitation area resulting from fires lit by hunters and graziers at the end of February. At a meeting of the Nan Provincial Development committee on March 5, the Director of the Nan hospital expressed his concern for public health from smoke pollution. On March 8 the Nan airport was closed by smoke haze, and Thai Airways flights canceled.

The Governor of Nan called a special meeting of government officers and local administration to address the fire damage problem on 25 March, 1998. There it was estimated that over 50% of the upland and highland areas had been burnt. It was decided that the local administration prepare a list of the habitual fire lighters and efforts be made to protect the remaining unburnt areas.

Serious fires continued through March until early season rain began on March 31 and continued for several days and reduced the fire danger for 2 weeks - a similar weather pattern to 1997.

In summary in 1997 only 5% of the project area was burnt, preliminary data from 1998 indicates that over 50% of the project area was burnt including considerable areas of the Royal Forest Department (RFD) forest regeneration areas. Over 90% of the fires were started by people living in the rural communities or itinerant visitors from nearby regional centres due to a combination of factors including 1) the large number of migrant workers returning to villages due to the 1997 crisis, 2) the large increase in the price of the rice over the past few months leading to an increase in the area of upland fields cut & burnt, 3) the cyclical accumulation of fuel on grassland areas not burnt for 3 or 4 years and 4) the unusual weather patterns (Apinun Ploadpliew, 1998

7. Case Studies from the 1998 Fire Season

The following case studies illustrate some of the points in the hypotheses for discussion.

7.1 The political and physical risks of fires to improvements in community natural resource management. The fact that 26 of the 45 project villages are located in National Forest Reserves was recognized in the Project Document which formed the basis of the Memorandum of Understanding between the Royal Thai government and the Government of the Kingdom of Denmark. There have been a number of RFD Project Directors in the first one and a half years of project implementation and their interpretation of the Project Document and policy towards the community management of natural resources has varied widely - making continuity of project implementation difficult.

For example for one RFD Project Director considered that the term "community woodlots" which was used in the Project Document could not be used in the Inception Report and the term "Watershed Conservation Forest" was used instead. Another Project Director considered at first that it was necessary to have community woodlots in designated areas in order to reduce the illegal cutting of timber over a wider area. However this policy changed following the severe fire damage in the project area in February and March towards a view that people and forests could not co-exist in national forest reserves and villagers should be moved from ecologically sensitive areas in national forest reserves.

These rapid shifts in policy at the project level seem to be catalyzed by severe forest fire damage.

7.2 Former village residents have different attitudes and values concerning natural resource management than the older residents. The economic crisis of 1997 resulted in many migrant workers returning to villages after several years in Bangkok and other cities. These people were not part of the changing awareness in the project villages for the need to conserve and manage natural resources created in the past few years by NGOs and the project.

The importance of the jungle spice " Ma Kwaen " in the community natural resource management in some project villages in Song Kwaen District of Nan Province was highlighted in the poster presentation at the ICRAF Regional Workshop on " Strategies for intensification of shifting agriculture in Southeast Asia " at Bogor in June, 1997.

Ban Yod and the 3 surrounding villages of Pang Sang, Pa Singh, and Pa Luk are Northern Thai and Lue villages near the Lao border in Song Kwae District which derive considerable income from the jungle spice "Ma Kwaen" (*Zanthoxylum limonella*) - over 4 million baht in 1997. The " Ma Kwaen " tree is very susceptible to fire damage, and in these villages the village rules and regulations specify heavy fines of up to 100,000 baht for 13 trees killed by fire. Because of the high value of the trees, their susceptibility to fire damage, and the high village fines on uncontrolled fires there had been minimal fire damage prior to 1998.

However this changed on March 6, 1998, when a former resident of Ban Yod lit a fire to try and smoke an ant eater out of a tree. The fire spread and burned out of control for two days and nights. The result was one house destroyed and several hundred rai of " Ma Kwaen " destroyed and the damages estimated at around 10 million baht. The person who lit the fire fled, presumably to Bangkok and has not been back to the village so the village rules and regulations cannot be used against him.

The fires which caused much of the damage to the RFD reforestation and natural regeneration areas in February and March were mostly lit by cattle herders and itinerant visitors lighting fires at night for hunting wild life. The culprits could not be apprehended and fined under the village rules and regulations. It is apparent that a much wider networking is needed to reduce the risk of fire damage to the village natural resources,

7.3 The need to extend the boundary for fire management to village networks, OBT, provincial and national level. The severe fire damage to community and national resources in the project area has led the rural communities and Watershed Management Unit Chiefs to realise that networking through village watershed networks, and the Organisation for Tambon Administration (OBT) is needed to reduce the risk of future fire damage to community resources and RFD reforestation and natural regeneration areas. Meetings to decide on the first steps in preparing fire management plans have been held. The steps include:

- to define the boundaries between villages for fire control. Unless these boundaries are defined fires starting in the " periphery " areas between the village agricultural areas and the RFD forest regeneration areas fires are blamed on other villages
- to agree on rules and regulations concerning and fire control and fines as well as the management of natural resources including non-timber forest products
- special attention need in the preparation of a fire management plan needs to be given to fire control in the " periphery " areas between the RFD reforestation and forest regeneration areas where many fires are lit by hunters and graziers.

8 Conclusion

The experience from the 1998 fire season shows that fire is a serious risk to community based natural resource management in Northern Thailand. However, quantitative data are difficult to obtain. There is a need for remote sensing and field measurement to assess the true extent of fire damage to the community and national natural resources.

Any community based natural resource management plan should include a fire management plan as a central component. Serious fire damage can occur within a few days during the peak fire danger period in February and March. This in turn can result in the political, social and physical gains in natural resource development being lost within a short space of time.

The area of this fire management plan needs to cover a wider area than the village boundary and include village networks, OBT and higher level cooperation.

The habitual fire lighters and the returning migrant labour need special attention as they may not have participated in the training and awareness programmes on fire management. Just one returning migrant labourer can cause a tremendous amount of damage as shown by the case study (7.2) where over 10 million baht of damages was caused to the natural resources of 3 villages within 2 days.

As many fire start outside community boundaries it is important to develop community fire management plans which involve networking through watershed networks, OBT, and at the district and provincial level. Cooperation between government officers and village communities must be strengthened to reduce the risk of fire damage to natural resources.

At the national level there needs to be a better data base in order to prepare long-term plan fire management plan. The improved data collection would need to include the use of satellite imagery for monitoring and address issues such as the disincentives to government officers to report the real fire damage. Also the issue of increased penalties for fire damage need to be addressed, and the use of mass media to make the public aware of the danger of lighting of fires in the open during days of acute fire danger.

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References

Apinun Ploadpliew, 1998, Forest fire management plan for Upper Nan Watershed Management Project, UNWMP, Khao Noi Nan.

Borpit Maneeratana, and Peter Hoare 1997, When shifting cultivators migrate to the cities, how to regenerate the forest?, paper prepared for the ICRAF workshop in Bogor on " Indigenous Strategies for Intensification of Shifting Cultivation in Southeast Asia " at Bogor, Indonesia, June 23-28.

Kirsten Ewers and Yongyuth Padklang, 1998, Upper Nan Watershed Management Project, paper presented at the workshop on Danish Assistance to Capacity Development in Environment, May, 1998, Danced & Danida, Denmark

Peter Hoare, Borpit Maneeratana and Wichai Songwadhana, 1997, " Ma Kwaen " a *Zanthoxylum limonella* Ajungle spice used in the intensification of shifting cultivation intensification in North Thailand with indigenous technology ", paper presented at the ICRAF workshop at Bogor in June, 1997

Upper Nan Watershed Management Project (UNWMP), 1997, Project Document, Danced, Ministry of Environment and Energy, Copenhagen.

Upper Nan Watershed Management Project (UNWMP), 1998, Inception report second draft), RFD, Khao Noi, Nan

UNWMP, 1997, Village rules and regulations for 44 villages in the project area, RFD, Khao Noi, Nan

(1) Paper for the Community Based Natural Resource Management Experiences in Upland and Highland Areas funded by GTZ and organized through the TG-HDP in Chiang Mai from June 1 to 5, 1998

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