

## Melaleuca Forest Fire in 2002 in the Mekong River Delta, Vietnam

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A summary of EEPSEA Research project *Melaleuca Forest Fire in 2002 in the Mekong River Delta, Vietnam* by Mai Van Nam, Nguyen Viet Thao, and Quan Minh Nhut Pham Le Thong (School of Economics and Business Administration, Can Tho University, Can Tho, Vietnam; E-mail: mvnam@ctu.edu.vn).

Forest fires are a major cause of environmental destruction across Southeast Asia, resulting in loss of ecosystems and productive resources and creating smoke pollution. The fires that engulfed much of Sumatra and Kalimantan in 1997 had serious effects on neighbouring countries and attracted world-wide attention. Fires whose impact are mostly local are also a longstanding problem., but have attracted much less attention and little remedial action. A new study from Vietnam investigates the causes of fires that destroyed large areas of the country=s melaleuca forest in 2002. It blames a combination of bad forest and agricultural management and inadequate resources for fire prevention.

The study's authors recommends that both issues be addressed to assure the long-term protection of the forest. They also advise that more be done to improve the livelihoods of local people to give them an incentive to avoid exploiting the forest in a way that leaves it vulnerable to fire damage.

## Melaleuca forests under threat

The study was carried out by a team of researchers from Can Tho University led by Mai Van Nam, and looked at the Un Minh Melaleuca forests. These make up a biologically-rich area of coastal wetland forest and consist of two parts: the 30,000 hectare Lower U Minh located in Ca Mau province and the 21,000 hectare Upper U Minh in Kien Giang.

Owing to the forest's large area, its bio-diversity, and the opportunities it offers for people to make a living, immigrants from all over Vietnam have come into the area to make their homes. In particular, they have set up hamlets along the canals that flow around the forest. These people live mainly on forest resources and are gradually clearing land and encroaching on the forest areas. As a result, the forested area has been reduced dramatically by conversion to agricultural land, timber over-exploitation, wildlife hunting, and, most significantly, forest fire.

To begin their research into the region's forest fires, the researchers first looked at what measures had been put in place to prevent such disasters. They found that fire prevention in melaleuca forestland has been an important concern for local people and policy makers and that central and local authorities have introduced several forest protection policies for the U Minh forests in recent years. For example, 8,038 hectares of the forest core of the Upper U Minh have been designated as a National Park with strict protection. However, forest protection policies seem, so far, to have had little impact - forest fires continue to happen and contribute to the continual reduction in forest area.

## **The fires of 2002**

To get more details about the impact of forest fires, the researchers gathered information about the most recent fires affecting the area. They found that the

forest fire in the dry season of 2002 had been one of the biggest in the region for the last 30 years.

In the Lower U Minh area, about 5,000 ha of melaleuca forest were burned in March and April, 2002. This represented about 17% of the total forest area. In the Upper U Minh National Park, about 3,212 hectares were affected by fire, accounting for 40% of the total area. In the National Park, 194 hectares of peat were also destroyed by fires. Over 2,100 hectares of peat were also partially burned, leaving only about 600 hectares unaffected. Although the 2002 forest fire caused severe damage, the researchers found that about 60% of the burned area is now slowly re-generating.

In order to identify the best strategy for forest fire prevention, the researchers next investigated the causes of the fires. They first looked at whether weather phenomenon, such as El Nino, had had any effect. But monthly temperatures and rainfall in the area in 2002 were found to be similar to those in the previous four years. This suggested that socio-economic factors might be the main causes of the disaster. The researchers therefore investigated the management of land in and around the areas affected by the fires. They paid particular attention to those issues, such as fire-control infrastructure, manpower and forest management, that can have a bearing on fire prevention.

## **Not enough water, not enough money**

The researchers found that there was not adequate irrigation infrastructure in the area and that, because of this, there was not enough water available in the dry season for both agriculture and fire prevention. During the dry season from December to May, farmland around the forest becomes very dry - a tinderbox that could easily be set on fire by an accident or carelessness and spread into the forest. This problem was compounded by the fact that people in the area were known to carelessly burn rice-straw and rubbish in the buffer zone between cultivated land and the forests, where it could easily spark a fire.

This problem occurred because the melaleuca forest master plan - which incorporated an irrigation program - had not been implemented properly because of lack of cooperation between local authorities and professional scientists. Forest protection was also poor because of staffing and funding problem. There was only one forest protection officer per 1,000 hectares of forest land, while the budget for forest protection was about VND 50,000 VND (less than USD 3.5) per hectare per year.

## **Poverty is part of the problem**

Along with these infrastructure and finance issues, the researchers also found that there was a deeper social aspect to the forest fire problem. Since 1995, the government has banned the harvest of timber products in state-owned production forests to save forest resources from over-exploitation. In the past, the farmers in the study region had relied on forest production for much of their income. They have therefore become impoverished, with 55% of households in the Lower and Upper U Minh forests living in absolute poverty.

This endemic poverty discourages local people from working to protect the forests. Instead they are increasingly forced to illegally enter the forest to steal timber, collect honey and fish, hunt wild animals and collect other non-timber forest products. These are practised to such an extent that the health of the forest is undermined. The researchers found that this illegal activity, coupled with a lack of motivation to protect a forest for which they have no sense of ownership, was a significant reason for the increased risk of forest fires.

## **Putting people first**

In light of these problems, the researchers recommend a number of policies to reduce the likelihood of forest fire and to improve fire prevention. These included the following: upgrading the region's irrigation system to meet the water demands of forest fire prevention in the dry season; increasing the budget for forest fire protection so that salaries for firefighters could be raised and sufficient firefighting equipment purchased; and increasing the number of people involved in forest protection, primarily by giving local people some economic incentive to take part. They also recommend wider separation of agricultural areas from forest land and wide-ranging measures to deal with the poverty problem in the region. The latter include extension services, credit programs, and long-term land use rights. Together these could reduce the illegal use of the forests and the fire risk it involves.