

NEIGHBOURHOOD WATCH ON FIRES IN EAST INDONESIA

Similar landscapes across northern Australia and Indonesia are driving a collaborative approach to understanding the social, political and economic drivers affecting fire management, reports Jenni Metcalfe

Uncontrolled fires bring devastation to the subsistence farmers of eastern Indonesia as well as to pastoralists, Aboriginal people and conservationists in northern Australia. Although fire is a fundamental part of traditional and current land management in the savanna lands of these regions, some burning regimes encourage weeds, promote soil and nutrient loss and threaten forests, property and water catchments as well as the livelihood of farmers.

Andreas, who lives in the Ngarukahiri village on the island of Sumba in East Nusa Tenggara Province (NTT) of Indonesia, says the impact of fire can be very destructive. "Annual crops in the garden can be destroyed as well as our house. This sort of fire can occur if we are not very careful in our use of fire. Usually fire helps clean out the gardens, but with little control these fires can escape and be destructive."

The impact and management of fire in eastern Indonesia were recognised as a high priority for research by the Indonesian Government and educational agencies a decade ago, and a collaborative project on fire management in Indonesia and northern Australia has been funded by ACIAR for the past three years. The project included research, education and training in fire, land and resource management and was a partnership between the Tropical Savannas Cooperative Research Centre, the Bushfires Council of the Northern Territory and Charles Darwin University.

The main eastern Indonesian partners were Wira Wacana University, Sumba and BAPPEDA (the Provincial Planning Boards in Sumba and Flores).

Australian project coordinator Dr Bronwyn Myers says the landscape of northern Australia is very similar to that of its closest neighbour, Indonesia. "This is particularly true of eastern Indonesia with its wet-dry monsoonal climate and extensive fire-prone savanna vegetation. Some of the issues and challenges faced are also similar."

While much has been documented about fires in northern Australia and western Indonesia over the past decade, little was known before this project about the extent, causes and impacts of fire in eastern Indonesia. For a long time, fire has been viewed as the key agent in converting tropical and monsoonal rainforest to savanna lands.

Focusing on the islands of Sumba and Flores in east NTT, the ACIAR project used satellite and Geographical Information System (GIS) technology to map the extent and timing of fires. The project also worked and consulted with the community to understand the social and economic causes and effects of fire.

The NTT, one of the Archipelago provinces of Indonesia, is made up of 566 islands, 50 of which are inhabited by 3.5 million people. With an increasing population, low rainfall and decreasing land productivity, this is the poorest region in Indonesia. More than 80 per cent of its inhabitants depend on subsistence agriculture for survival.

In most of the villages fire is used to clear and prepare old and new garden plots in readiness for planting in the wet season. It is also used in broad-scale hunting to round up animals, especially wild pigs and rusa deer, and to encourage pasture regrowth for cattle, horses and other livestock.

"The problem is that fire is too often used carelessly and wantonly with little regard for where the fires may end up," Dr Myers explains. "Uncontrolled landscape fires, especially in the late dry season, can destroy buildings and crops and inflict irreversible damage on mature forests."

Northern Australia has a similar problem with late dry season fires, but on a much larger scale and requiring much bigger fire breaks.

"The issues were not just agronomic or ecological," Dr Myers says. "We also needed to consider the social, political and economic drivers affecting the management of fire in the region. And this is not too different from the issues in Australia."

Current government policy in Indonesia reflects the country's Dutch colonial past, where all fires were seen as problematic.

Another issue is that land ownership systems vary from village to village, depending on local social structures. Open conflicts both within and between villages are common, resulting in a complete lack of fire management on disputed land. Fire can also be used as a weapon in these disputes. Conflicts are further exacerbated by land tenure issues between local communities and regulatory authorities.

"These ecological, social and political issues create a climate where fire impacts on the environmental assets, livelihoods and the economic well-being of many poor villages," Dr Myers says.

The project used focus groups to learn from the community. Through these processes, villagers were able to air their concerns and discuss solutions to current land management issues. This led to very real changes on the ground.

"Fire is a usual occurrence in our land ... ACIAR provides us with training in decreasing fires, planting more trees and protecting our springs," says one of the villagers. Another says: "Our focus group has decreased burning and increased trees."

Similar comments came from another village: "Because of the project between the Australian and Indonesian governments, our problems with fire have become less ... because we are planting (trees),



Villagers being trained in prescribed burning practices in East Sumba.

BRONWYN MYERS



Paulina Hada Ndima, of the ACIAR fire project team in East Sumba, demonstrating controlled burning practices.

TANIA PAUL

our community will not burn because they know it would destroy our hard work.”

Some of the new management practices discussed with villagers included leaving steep slopes unburnt and not burning all the hill-sides around the villages. Fire management integrated with agroforestry practices was demonstrated in several villages.

Eastern Indonesian project leader Dr Siliwoloe Djoeroemana says it was very important for the villagers and the local government officials to be made aware of the benefits of prescribed burning.

“The project brought about good cooperation in managing fire at the village level between local government, local departments of forestry and NGOs,” he declares. “There is goodness in people in rural areas. They are very honest and they know what they need and if you give them the opportunity they will get involved.”

Training and education was an important part of the project. Field training and demonstration days were held in Sumba and Flores for villagers and government officers. Villagers were trained in the strategic use of fire at the same time as they worked with the project to develop agroforestry plots.

“Agroforestry is an important alternative farm income that we hope will encourage more strategic use of fire in land management,” Dr Myers explains. “By creating fire breaks around the seedlings, gardens and houses during the early dry season, they were protected from larger hot fires later in the dry season.”

Josef Maan, a project officer in Flores, says the benefits of the project have been three-fold: economic, environmental and institutional. “The project supported villagers to form a small credit union where they can save and borrow money for their needs,” he says. “When they plant vegetables in summer and get profits from the sale of these vegetables, they can save some money.

“To help in conservation, the villagers are planting trees like mahogany, eucalypts and local species in the contours to protect from spring floods and erosion and to keep their land fertile. Fire breaks decrease the amount of fire on their land.”

Rohan Fisher, a Darwin-based fire researcher, worked with the project’s local GIS officers to map the extent and timing of fires in Sumba and Flores. This resulted in further training and capacity building for the Indonesian GIS officers and indicated that about 50 per cent of the study area in Flores and 19 per cent of the area in Sumba was burnt each year. The villagers took part in mapping and now actively refer to the land use maps when planning their burning activities.

On a regional scale, BAPPEDA officials are enthusiastic about the improved mapping capabilities and are using the maps for their regional plans.

Wilfrida Ruba is a Ngada government officer trained in GIS through the project. She is now working to share her skills with other officers in the region. “With this project, I learnt about GIS application in the agricultural sector,” she says. “This knowledge provides us with spatial data that is an effective and accurate information system. This has led to better control and management of burning practices for local people.”



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PARTNER COUNTRIES: Indonesia
PROJECT: Impacts of fire and its use for sustainable land and forest management in Indonesia and northern Australia (FST/2000/001)
DESCRIPTION: To develop and implement appropriate fire management strategies and policies for Indonesia and northern Australia
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BRONWYN MYERS

Course materials explicitly related to tropical savanna ecology and management were jointly developed by Charles Darwin University and Satya Wacana Christian University in Indonesia. The Crawford Fund supported cross-visits between the universities.

“Education and human resource development are very important,” Dr Siliwoloe says. “Without the skills for good land management it is very difficult to develop sustainable agriculture.”

Government officers in NTT have acknowledged the outcomes of the project and want to extend it further in the region, especially to West Timor. A new project, funded by AusAID, is helping with this process.

“The key to successful fire management, whether it is in Indonesia or northern Australia, is two-fold,” Dr Myers concludes. “It requires a coordinated and supportive policy framework and a cooperative partnership between government authorities and local communities.”

Dr Siliwoloe agrees: “Cooperation between the people, local government, NGOs and professional institutions is very important for sustainable rural development.”

Top: An inventory of forest resources in Dorameli, Ngada, Central Flores; above: Forest resource inventory trainers Dr Jeremy Russell-Smith and Dr Taka Nuhamara, in East Sumba.