

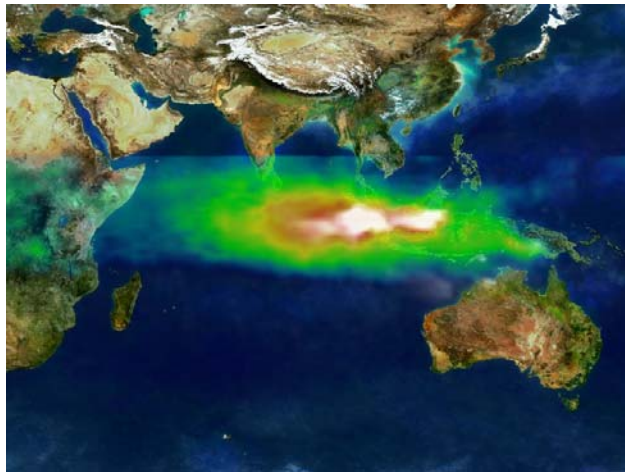
## Case Study on Climate Change and Human Rights

Peat land farmers in Central Kalimantan, Indonesia

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### The climate problem

Indonesia is rated as the third largest CO<sub>2</sub> polluter in the world, primarily due to poor management of its peat lands. Of an estimated 22.5 million hectares, 10 million are drained and decomposing or even burning, emitting vast amounts of CO<sub>2</sub> and spreading smoke and haze across the region.<sup>1</sup>



Satellite mapping of haze from forest fires in Indonesia, 22 October 1997 (Nasa)<sup>2</sup>

This has enormous implications for the environment. Carbon emissions from the 1997/98 fires amounted to an estimated 15-40% of annual global fossil fuel emissions.<sup>3</sup> Smoke and haze also led to serious respiratory problems. Thousands of hospitalisations and over half a million outpatient treatments were recorded. Economic damage and loss were estimated at over USD 8.7 billion. In 2006, recurrence of such spectacular fires spread haze over swathes of South East Asia. Biodiversity loss is also a major issue, for which orangutan are a flagship species.

Central Kalimantan has seen some of the most egregious mismanagement. Over less than 20 years, the Dayak tribes who traditionally populate the lowland river basins and plains of Central Kalimantan have witnessed large-scale deforestation and drainage of peat swamp for logging, agriculture and settlement. This has led to fundamental changes in the ecology of the area, increasing vulnerability to fire.

The 'million hectare' ex-Mega Rice Project offers a stark example of development impacts on peat land. Begun in the mid-1990s, the project aimed to convert around 1,400,000 hectares of peat swamp to rice cultivation. It ended in disaster. Thousands of kilometres of newly-excavated drainage and irrigation channels dried the peat, increasing risk of uncontrolled fires. As the channels opened access, rampant logging also took hold. Within 3-5 years, little original forest remained.

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<sup>1</sup> Wetlands International & Delft Hydraulics, 2006; UN-FCCC, 2006

<sup>2</sup> Nasa Total Ozone Mapping Spectrometer (TOMS) 22/10/1997

<sup>3</sup> Page *et al*, Nature, 2002



**A view of burned trees and scrub in the drained peat swamp of the ex-Mega Rice Project**

The increased severity of burning in recent years is a direct result of such processes of draining peat swamp and deforestation. Now, even in 'normal' years, over 1.5 million hectares of forest in Indonesia are destroyed by fire - on 'bad' ones a lot more.<sup>4</sup> In 1997/98, fires destroyed nearly 10 million hectares, over half of it forest land, and the majority of it in Kalimantan.

### **Local problems**

Mismanagement of peat land has made a great contribution to the internationally heralded issues of haze, carbon emissions and biodiversity.

But for residents in the 'million hectare' area, including the thousands of Javanese trans-migrants brought in to farm the failed rice conversion scheme, the impacts felt include both ecological change directly and conflict due to proposed solutions for conservation and climate change.

- **Livelihoods.** There are an estimated 600,000 people living on the peat lands of Kalimantan. With the destruction of the forest, communities who relied on forest products such as timber and rattan lost important income sources. Local livelihoods are now overwhelmingly dominated by agriculture, notably rubber cultivation. For farmers working the nutrient-poor peat soils of the area, fire is an essential low-cost tool for clearing land and releasing nutrients. As a result, no-burning legislation to reduce haze and emissions cause them deep concern. For example, already a number of farmers have been detained and fined for setting fire to clear and restore nutrients to the peat soil on which almost all depend for livelihoods. Forbidden to use the only low-cost means they know for cultivation, many are confused about how they should survive.
- **Biodiversity loss.** With the draining of the peat swamp and the clear logging of forest, loss of habitat and biodiversity are key international concerns. But while local inhabitants also suffer loss of timber and other valuable forest products, and experience impacts on crops and fish stocks due to acidification,<sup>5</sup> they can find themselves in conflict with conservation agendas. For example, habitat conservation, including for species such as orangutan, sometimes experiences opposition from those whose livelihoods depend on exploitation of the forest.

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<sup>4</sup> Barber & Schweithelm, 2000

<sup>5</sup> See eg. The Ecology of Kalimantan, MacKinnon, 1996

- **Vulnerability to disaster.** Over-drainage caused irreversible changes to the peat soil, reducing its capacity to hold water. This has greatly increased the frequency and severity of flooding in the rainy season. Meanwhile, in the dry season, dried peat propagates fires set for forest clearing. These can now easily burn out of control, destroying assets and impacting health. Yet, efforts to restore the peat land hydrology by raising water levels can also conflict with livelihoods that have since been established around waterways. In some areas, blocks and sluices have been dismantled by local communities who depend on them for transport.

### **Seeking locally viable solutions**

While tensions can emerge with efforts to reduce burning and emissions and promote conservation, local communities on the peat lands of Central Kalimantan do share points of common interest with such agendas.



### **Community fire brigades enable farmers to protect their crops**

For small farmers in the area, the impacts of fire on livelihoods and health are the most compelling. Although issues of global emissions, regional haze, and biodiversity loss might feel abstracted from their daily concerns, the impacts of uncontrolled fire are experienced directly. Surveys in CARE intervention areas in 2003 found that approximately 25% of household assets were lost annually to fire, notably through burning of young rubber trees. Meanwhile, 30% of under-5s suffered from respiratory diseases. With smoke reducing visibility to less than 2 meters at the height of burning season, local residents need little convincing about the deleterious health impacts.

Efforts to control burning can therefore generate local support when they directly address problems experienced by local communities. For example, the Indonesian government, and a number of non-governmental organisations, have seen some success in supporting community fire brigades to control and combat burning that jeopardises their crops.

Meanwhile, although they can meet with opposition, better land use and water level management are also in the interests of communities. Conserving the ecological function of peat swamp forest can help prevent flooding and reduce the risk that fire will burn out of control. Yet, this requires patient work to raise awareness and demonstrate how local interests will be served. At the same time, where conservation conflicts with local livelihood needs, such as for use of waterways, forest exploitation, or use of fire for agriculture, local communities will demand solutions.