



Fact file

Fires and haze in Southeast Asia

Fires in forests and former forestlands occur in Indonesia in the dry season every year, particularly in the provinces of Riau and Jambi on the island of Sumatra, and West Kalimantan and Central Kalimantan on the island of Borneo. The haze that spreads to other countries is mostly caused by smoldering (flameless) fires on peatland. Most fires are deliberately lit. Some then escalate and get out of control; some may smolder in peatlands for months or even years.

The high-impact air pollution event of June 2013 over Singapore was caused by fires of limited extent and duration burning in recently deforested peat soil areas of Riau province. The 2013 fires were not as extreme as the 1997 and 2006 El Niño-induced fires, but rather a high-impact event preceded by a brief dry period.

Why do people light fires?

- For local communities, smallholder farmers and companies, fire is a cheap and effective tool for clearing land for slash-and-burn agriculture and to access swamps.
- Large companies have also used fire to clear land in oil palm and timber plantations on both peat areas and non-peatlands.
- Fire is used as a “weapon” in land tenure conflicts, usually between companies and communities. Large-scale developments contribute to expanding use of fires by communities because developments attract migrants and improve access to previously remote areas; they also can trigger conflicts where local communities feel their land has been unfairly taken away.
- Large-scale developments, such as oil palm and timber plantations, make the landscape more prone to fire by degrading the peatlands through logging and drainage.
- When peatlands are drained, as in plantation developments, upper layers dry up and become prone to fire.

What does the climate have to do with it?

- Fire events usually occur during drought years induced by climate anomalies from the Pacific (El Niño Southern Oscillation) and Indian oceans (Indian Ocean Dipole).
- However, even in non-El Niño years, fires can occur — fires in June 2013 and February 2014 were exacerbated by a regular short dry period, not El Niño. Experts predict that 2014 will be an El Niño year.

What laws in Indonesia aim to

prohibit the lighting of fires?

- Burning to clear land is prohibited under Law No. 32/2009 on the Protection and Management of Environment and Government Regulation No. 4/2001 on Management of Environmental Degradation and/ or Pollution linked to Forest or Land Fires.
- Possible penalties for those found guilty of breaching Law No. 32/2009 include fines and prison terms.

Why haven't the legal restrictions worked?

- Enforcing legal restrictions on large companies has proven difficult, partly because of diffused responsibility across different levels of government and the judiciary.
- Assembling sufficient evidence to support legal prosecution is onerous. In the few court cases that have attempted to prosecute alleged illegal burning, criminal responsibility and civil liability have been difficult to prove.
- Local institutions often do not have the capacity, resources or political will to enforce laws.
- Research has shown that some large companies were more willing to risk being found guilty and pay a penalty than to institute costly preventative measures.



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Why is the haze worse in some years?

- The haze in Singapore and elsewhere was generated mostly by smoldering fires on peatland.
- In dry years, the peat below ground can catch fire and smolder for months. The haze lingers because the fires do too: Peat fires are 3 to 4 meters underground; firefighters must insert a hose into the peat to douse the fire.

What are the implications for efforts to reduce emissions for climate change mitigation?

- Peat fires are a major contributor to carbon emissions. Indonesia's greenhouse gas emissions from peat fires increased from 172,000 Gg CO₂-eq. (gigagrams of carbon dioxide equivalent) in 2000 to 451,000 in 2005. Peat fires were Indonesia's largest single source of greenhouse gas emissions in 2005 (about 40 percent of emissions).
- Indonesia has voluntarily committed to mitigating climate change by reducing its greenhouse gas emissions by 26 percent by 2020 and 41 percent by 2050. More than half of this reduction was meant to come from the forestry/peatlands sector. Avoiding peat fires is crucial for Indonesia to meet its targets.

What was the relationship between oil palm and the 2013 haze crisis?

The haze crisis was, at least in part, caused by the clearing of land for plantation estates. According to the World Resources Institute, 20 percent of the fires in June 2013 were in oil palm concessions.

How much has the haze crisis cost?

No comprehensive estimates have yet been made of the cost of the fires and haze in June 2013 or early 2014.

What steps have been taken in the aftermath of the 2013 fires?

- High-level regional talks in late 2013 led to the adoption of a proposed transboundary haze monitoring system.
- In January 2014, CIFOR hosted a multi-stakeholder workshop in Jakarta to discuss research into the haze crisis.
- In February 2014, Singapore proposed a law to fine those responsible for burning Indonesian peatlands.
- In March 2014, Indonesia vowed to ratify a regional 2002 agreement to fight transboundary haze.

More resources

More information about this topic — including an in-depth, hyperlinked version of this fact sheet — can be found here: blog.cifor.org/fire

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