

ExpertView

Anti-haze damming has flow-on effect

A more sustainable approach is needed in draining peatlands in Riau



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Haze pollution in Singapore is commonly associated with the widespread burning of forests and agricultural lands in Indonesia and Malaysia.

Transboundary haze is a particular problem during dry seasons, especially during El Niño years of lower than usual rainfall when droughts are more pronounced and the risk of wildfires heightened. But the critical role of water as a means of preventing and suppressing haze-forming biomass fires is often overlooked.

Riau, the Indonesian province on Sumatra's central east coast, is the production centre of some of the most egregious perpetrators of biomass burning, as well as a major victim of haze pollution.

Plantations are an increasingly common feature of Riau's agricultural landscape.

The province is home to over two-thirds of Indonesia's pulp and paper production, covering an estimated 1.7 million ha.

Riau also hosts more than 2.4 million ha of palm oil. Land scarcity has increasingly forced plantations onto peat swamps, largely

composed of decomposing organic material rich in carbon.

To prepare peatlands for plantation agriculture, water must first be drained. Drainage schemes have so far been implemented on an area more than 50 times the size of Singapore.

Before the last four decades of plantation expansion, large swathes of eastern Riau supported very low levels of human activity and agriculture.

The unsuitability of peatlands to most forms of cultivation once allowed these landscapes to retain high levels of biodiversity, much of which has yet to be properly documented and studied. These characteristics are now being lost through the extensive modification of peatlands.

Large-scale drainage schemes linked to plantation development have fundamentally altered the hydrology of what are essentially water-saturated landscapes, releasing carbon into the atmosphere and massively increasing the risk of biomass fires.

Researchers at Gadjah Mada University in Yogyakarta, Indonesia, have mapped more than 71,000km of canals constructed on Riau peatlands to prepare for agricultural expansion.

Only 0.4 per cent of an original total of 4.9 million ha of peatland in Riau remains in a relatively pristine state.

WHEN CANALS ARE DAMMED

Companies with global operations and plantations in Riau have responded to external pressure and legislation aimed at preventing and suppressing haze-causing fires by blocking some of the drainage canals. The largest canals are so deep and wide that major structures are required to dam them.

The idea is that by damming the canals, the peatlands will remain wet, especially during the dry season. Wetter peatlands mean fewer fires, and fewer fires result in less haze. That, at least, is the theory.

But damming canal networks on plantations has denied critical water supplies to surrounding communities. Water retained by dams on plantations disrupts the efforts by neighbouring communities to prevent and suppress fires on their own lands.

Less water for community-owned land, in turn, impedes crop production, reducing local food security and forcing changes in livelihoods.

Moreover, many communities lack the resources to build dams of the depth and strength as those constructed by plantation concession holders. Lacking heavy equipment, they often rely on makeshift wooden canal blocks and sandbags to keep their properties wet.

As a result, while dams may

A canal blocking structure in a Riau peatland. Such dams keep peatlands wet and prevent fires during dry seasons, but they also deny critical water supplies to surrounding communities.

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reduce the risk of biomass fires on large peat plantations, the opposite happens on adjacent community lands. In the monsoon season, local communities become more vulnerable to flood damage as plantation companies open the sluice-gates on their dams, releasing large volumes of water.

This absence of a holistic approach to the management of peatland hydrology has the potential to produce water conflicts.

The reduced dry season flow of water to peatland communities adds weight to government and corporate arguments that communities are incapable of managing their own resources and require top-down stewardship.

These sorts of narratives shift blame for inappropriate peatland management and pave the way for major plantation companies to further expand their concessions without addressing the underlying problem of water sharing.

Fortunately, public awareness of the need for peatland restoration and conservation is growing, as are multi-sector and multi-stakeholder approaches to the search for solutions to the haze problem.

Big businesses, communities and non-governmental organisations have invested in cooperative fire mitigation strategies under the working umbrella of Fire Free Alliance.

Singapore non-government organisation People's Movement to Stop Haze, an alliance member, is actively engaged in bringing about incremental changes to make the plantation sector more sustainable through their work with Indonesian peatland communities and Singapore-based businesses.

In Riau, local organisations like Mitra Insani, Elang Foundation, Walhi and Jikalahari are also working with international partners to generate opportunities for peatland communities to manage their resources and livelihoods in more equitable and ecologically sustainable ways.

Yet what is still missing is a proportionate emphasis on water as an essential resource that has to be managed, even on saturated landscapes such as peatlands, in a holistic manner in order to prevent biomass fires and resultant dry season haze.

Unusually heavy rainfall over the past 18 months or so has played a major role in reducing the haze experienced in Singapore and neighbouring parts of Indonesia and Malaysia. Whether this will remain the case in coming years will depend, in large part, on whether we manage to get right the hydrological management of the extensive areas of peatlands in the region.

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• This is the second of four articles in the Expert View series by Asia Research Institute academics.