

After the peat fires, Riau shows down-to-earth approach to ending haze



Riau takes pride in being a major oil exporter. But one export it wants to stop is haze. In late February through March, the province in central Sumatra withstood wildfires that razed 21,000 hectares of drained and dried peat swamps. It is a serious problem: half of Riau is an extensive peat ecosystem. At the height of the fires on March 2, satellite images counted 1,234 hot spots spread across five regencies and the port city of Dumai.

The fires were caused by deliberate peat burning to clear the land for lucrative oil-palm planting. The police arrested 116 individuals suspected of arson. The Environment Ministry found burning had been done on land operated by 26 companies. Big growers lost their palm crops to the wildfires. Small growers with plots of up to 5 hectares (ha) were also unable to harvest.

Canals have been built to drain the moist peat swamps that cover much of eastern Riau. Dried peat allows for easier burning. However, the fires spread quickly due to the brittle-dry peat brush and strong winds. Unlike in June 2013, the wind did not blow eastward across the Malacca Strait — fortunately, for Malaysia and Singapore.

The burning plants also released great amounts of carbon dioxide into the air. Any buildup of large volumes of carbon gases in the atmosphere can accelerate global warming. More than three quarters of Indonesia's carbon emissions start from carbon-rich areas. More than 70 percent of this comes from outside forest zones, according to the National Disaster Mitigation Agency (BNPB). This means peat fires.

Riau's peat ecosystem suffers from bleeding, or over-drainage. This makes the peat, which is accumulated decayed vegetation, highly vulnerable to fire. The province's 4 million-plus ha of peat land is half that of the whole of Sumatra's peat expanse. The wildfires were such that President Susilo Bambang Yudhoyono hastened to Riau and oversaw the firefighting effort from Rusmin Nurjadin Air Force Base outside Pekanbaru, the provincial capital.

As peat can run deep — more than 3 meters underground — total extinguishing of such fires is no sure thing.

The bill for material losses was estimated at Rp 15 trillion. Some Rp 150 billion was spent on putting out the fires, according to the BNPB.

Wildfires occur annually in Sumatra, Kalimantan and Papua, which have big peat ecosystems. In the midst of the Riau wildfires, Riau University (Unri) on March 3 set up its Total Solution on the Haze Hazard task force (STBA).

The task force seeks to apply approaches from an academic perspective to prevent wildfires from recurring. Many motivated faculty members in multiple disciplines have joined the STBA initiative. The task force chief is Unri rector Ashaluddin Jalil, while Haris Gunawan is secretary. One approach in haze mitigation is to restore the function of burned-out peat swamps as a safeguard against wildfire. Tanjung Leban village in Bengkalis regency is one place where widespread fires occurred, causing considerable damage.

Tanjung Leban is a five-hour drive north of Pekanbaru. Tanjung Leban, and particularly its subvillage of Bukit Lengkung, suffered greatly. A big fire happened on Feb. 20 destroyed homes and the small family-owned oil-palm plots.

Village head Haji Atim said he encourages residents to plant pineapples. Pineapples are easy to grow and can be harvested in one year. The fruit is marketable and can resist fires because of its thick leaves, he said.

Atim has 12,000 pineapple seedlings in a 50-by-50 meter plot behind his house. "The village now has 80 hectares planted with pineapples. We have procured big buyers who will take the produce," he said.

Pineapples are a short-term solution. A long-term option is forest plants. Haris was guided on a visit to a 2.5 ha experimental plot owned by Muhammad Nur, a local elementary school teacher.

Nur said he had allowed his land to be used as an experimental plot to grow seven commercially viable but environmentally friendly forest plants to replace the less eco-friendly oil palm he previously raised, which was repeatedly burned.

The land, like most parts of eastern Riau, was originally moist peat swamp that was drained for oil-palm cultivation. Now Nur's land is being rewetted by blocking the water flow in two canals on either side of the plot.

As the 3-meter-wide canals are blocked by stacks of sandbags, the water level in the canal rises and is absorbed by the canal banks. This water feeds into the ground and sustains the plants grown on the plot.

"I've allowed Dr. Haris from the university to use my land as an experimental plot in 2012 to replace the oil palm that was constantly destroyed by wildfire. Hopefully the seven forest plants grown here can give promise," said Nur.

Nur admits that harvesting may not come for five to 10 years after planting. Apart from the long-term commercial return, a co-benefit is preserving these species of forest plants to allow younger generations to realize that there are such natural assets.

But what can cause threats to the plot? "Fire," Nur replied matter-of-factly. But he is confident the moist soil can lower that risk.

Haris concurred. "We are in the beginning of the dry season. Fires could flare again," he admitted. The Jakarta Post reported on June 26 that satellite images had identified 386 hot spots across Sumatra, with 95 percent occurring in Riau.

Haris explained that the blocking of the canals allows the peat in the soil to regain its moisture. This serves two functions. It induces multicultural cultivation against the water-hungry monoculture of oil palm, while a functioning wet peat swamp can be a fire check and a flood buffer.

Peat up to three meters thick can hold up to 2,700 millimeters of water. This volume equates to one year's rainwater. Haris is a peat specialist and wears another hat as director of Unri's Center for Tropical Peat Swamp Restoration and Conservation (CTPRC).

Haris has the vision to use this experimental plot as an example for all parts of Tanjung Leban and Riau, if not the country, that these forest species can re-green drained-out peat land and reduce carbon emissions.

"The wildfires were an extraordinary crime. This [rewetting of drained peat] is one way to stop fires," Haris asserted.