El Nino to worsen haze situation in Malaysia

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The El Nino phenomenon is expected to occur in Southeast Asia sometime next month and the resulting hotter and drier weather is set to exacerbate the haze situation in the region.

In Malaysia, the air quality dropped to unhealthy levels in parts of Peninsular Malaysia last month. There were also reports of a transboundary haze by the Asean Specialised Meteorological Centre in various places in Myanmar, Thailand and Laos last month.

Universiti Kebangsaan Malaysia's Earth Sciences and Environment Department senior lecturer Mohd Shahrul Mohd Nadzir said during an El Nino event, changes in the speed of the westward moving winds along the equator cause the ocean surface temperatures to become warmer.

He said El Nino is associated with a reduction in rainfall in certain parts of Southeast Asia including Malaysia and the increased dryness creates the right conditions for fires to break out including in forests and areas where land-

clearing activities are taking place.

The fires release significant amounts of smoke and pollutants into the atmosphere, resulting in hazy conditions.

"In fact, El Nino can lengthen the dry season in the affected regions. The prolonged dry season increases the chances of fires occurring and persisting, thereby exacerbating the haze situation," he added.

Health risk

Shahrul said according to the European Union's Copernicus Climate Change Service, climate models suggest a return to El Nino conditions in the late boreal (northern hemisphere) summer and the possibility of a strong El Nino developing towards the end of this year.

"This year, about 23 hot spots were identified in Sarawak alone as the state braces for prolonged dry weather. Climate changes and the anticipated return of the El Nino weather phenomenon could fuel a new average temperature record in 2023 or 2024, according to climate scientists," he told Bernama recently.

Based on media reports, as of 2015, El Nino has hit Malaysia 12 times, with the first one occurring between 1951 and 1952. Thus far, the worst case of El Nino

occurred in 1997-1998, with the highest temperature of 40.1 degrees Celcius recorded at the Chuping meteorological station in Perlis on April 9, 1998.

Shahrul said when El Nino strikes, changes in atmospheric circulation can lead to a shift in wind patterns which, potentially, can cause smoke and pollutants to be transported over long distances.

"The combination of dry conditions, wildfires and the release of pollutants from various sources can lead to elevated levels of particulate matter such as fine airborne particles. These particles can contribute to the haze and pose health risks to the population, leading to respiratory issues and other adverse health effects," he said.

He said haze events in Malaysia can vary in intensity and frequency depending on factors such as weather patterns, land-use changes and human activities.

“It's important to note that while El Nino can exacerbate the haze situation, other factors such as land use and agricultural practices and illegal burning also play significant roles in haze formation,” he said, pointing to the severe haze in 2019 caused mainly by forest fires in Indonesia.

"Regular air quality monitoring and reducing sources of pollution are essential to preventing severe haze events."

Peatland fires

Greenpeace Southeast Asia regional campaign strategist Heng Kiah Chun said the haze is no longer confined to just Malaysia and Indonesia but also involves other Southeast Asian countries.

"For example, the recent transboundary haze was directly related to the growth of monoculture and agricultural activities in Thailand and other neighbouring countries. Land clearing for plantations has caused peatlands to become dry and vulnerable to fire.

"When deforestation and drainage occur, the water table is lowered, preventing further carbon intake. Once exposed to the air, peat starts to decompose, releasing carbon dioxide and causing land subsidence.

"With dried-out peat comes the risk of forest fires and the creation of haze. And, with the return of the hot and dry weather due to El Nino, Malaysia’s haze situation is set to worsen," he said.

Heng, who is also Greenpeace's spokesperson for the transboundary haze project, said haze can be prevented by taking the right measures to monitor and prevent peatland fires.

He said it is essential to stop peatland destruction and commit to the “No Deforestation, No Peat, No Exploitation” (NDPE) policy.

Commitments to NDPE are commonly seen in reference to agricultural commodity production used by downstream companies, traders, mills and growers. They are most common in relation to palm oil production.

On May 7, Environment Department said in a statement that they have prepared several measures to address instances of open burning that can deteriorate air quality. It said during dry weather, there are concerns about an increase in the incidence of open burning, especially involving peatland areas and waste disposal sites.

Heng said although the NDPE policy encourages best practices on existing lands, not all companies are committing to it.

"Major palm oil traders and producers have adopted the NDPE policy. Other companies that have not done so must stop peatland clearance and start restoring peatlands. The demand-supply chains from suppliers and traders must take steps to ensure adherence to the (NDPE) policy," he added.

Transboundary haze

To address the issue of transboundary haze, Asean member states signed the Asean Agreement on Transboundary Haze Pollution (AATHP) on June 10, 2002, in Kuala Lumpur following severe land and forest fires in 1997-1998.

The agreement was aimed at preventing, monitoring and mitigating land and forest fires and controlling transboundary haze pollution through concerted national efforts and regional and international cooperation.

Natural Resources, Environment and Climate Change Minister Nik Nazmi Nik Ahmad said recently he would lead the Malaysian delegation to the Asean Environment Ministers Meeting, 24th Sub-Regional Ministerial Steering Committee (MSC) meeting and the Technical Working Group meeting on cross-border haze on June 7 and 9 in Singapore.

"The meeting will discuss preparations among MSC countries in facing the dry and hot weather and the possibility of the El Nino phenomenon," he said in a statement.

Associate professor of environmental politics in the International and Strategic Studies Department at Universiti Malaya, Helena Varkkey, said all Asean member states, including the Philippines which is not severely affected by the haze, have agreed to the AATHP and have been coordinating well to address the issue regionally.

"The agreement (AATHP) itself is quite significant because it is the only Asean environmental legal instrument that recognises haze as a transboundary issue and applies standard operating procedures for monitoring, assessment and joint emergency response as well as for the development of a haze roadmap," she said.

She said although the AATHP, being legally binding, is a positive aspect, there are limitations in terms of enforcement mechanisms to ensure the countries are committed to their promises.

Transboundary Haze Act

Helena also said Malaysia needs to have its own transboundary haze legislation similar to Singapore's.

"Singapore has its own law that creates extraterritorial liability for entities engaging in setting fires abroad that cause transboundary smoke or haze pollution in their country.

"We should learn from Singapore's practice. Some of the things we are trying to propose are for the Malaysian Transboundary Haze Act to cover Malaysian companies by creating a framework or institutionalising a 'check and balance' system to ensure they are not only acting well in Malaysia but also abroad so as not to contribute to the haze," she said.

Singapore's Transboundary Haze Pollution Act came into operation on Sept 25, 2014. It seeks to deter firms or entities outside the country from carrying out activities that contribute to transboundary haze.

In 2019, the Malaysian government had drafted a similar law and wanted it tabled in Parliament but it was aborted after a change of government.

Meanwhile, Shahrul said in order to seriously overcome the haze problem, not only should the enforcement of environmental laws and regulations be stepped up but efforts should also be made to raise the community's awareness of air pollution.

He said to engage and empower communities to take action in reducing air pollution, air quality sensor networks can be used to complement traditional air quality monitoring systems and provide more comprehensive and localised information about air pollution levels.

"These sensors are typically small, portable and easy to install, making them suitable for deployment in areas with limited air quality monitoring infrastructure.

"However, it's important to note that while low-cost air quality sensors offer a convenient and accessible way to monitor air quality, they may not have the

same level of accuracy as professional-grade monitoring stations. Therefore, it is crucial to interpret the data from these sensors with caution and consider them indicative rather than definitive measurements.

"By providing access to real-time air quality data, these sensors can help raise awareness of the impacts of air pollution on public health and the environment and motivate individuals and communities to take steps to reduce their exposure to air pollution and contribute to improving air quality," he said.

He added that by using air quality sensor networks, it is possible to obtain real-time data on pollutant concentrations in the air, based on which public health advisories can be issued and timely responses to haze events can be facilitated by the authorities.

"These sensors can also provide more detailed information on the spatial and temporal patterns of air pollution, which can be used to identify pollution hotspots and inform targeted interventions," he concluded.

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