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Heatwaves and high PM2.5 levels frequently occur together, creating a dangerous, unseen environment that significantly increases health risks, particularly for children, the elderly and those with pre-existing conditions. — Filepic

Swift action needed

MALAYSIA is facing serious climate-related challenges.

We are experiencing rising heat exposure, shifting infectious disease patterns and persistent air pollution with those most affected being outdoor workers, urban communities, low-income households and vulnerable populations.

These are some of the findings revealed in the 2025 global report of the *Lancet Countdown* on health and climate change.

The report's executive director Dr Marina Romanello says the results highlight how climate change brings real health risks to the world.

"Climate change is starting to affect people's health, survival and is resulting in multiple coexistence threats that will ultimately undermine environmental, physical and socio-economic determinants of health and well-being, generating a perfect storm for ill health globally.

"Since the United States is backtracking on climate commitments, the situation is expected to deteriorate further," says Dr Romanello, who was speaking at the launch of the annual report, now in its ninth edition.

Monash University Malaysia organised the report's first regional launch recently, which placed a spotlight on Malaysia's health concerns from the effects of climate change.

Hot days and nights

According to the report's lead collaborator Prof Dr Meisam Tabatabaei, in Malaysia (for 2020-2024), children below the age of one experienced 801% more person-days of heatwave annually, relative to the 1986-2005 baseline average.

Globally, this figure was 304-389% in 2024.

"Exposure to heatwave causes heat-related illness, exacerbates underlying health conditions and leads to death with people over 65 and newborns particularly vulnerable.

"We don't visibly see the impact because we are living in the tropics but health is impacted and 85% of this could have been prevented if we had started being more sustainable a few decades back," he says.

While physical activity is essential for good physical and mental health, hot weather reduces the likelihood of engaging in exercise and increases heat illness risk when it is done.

In 2024, people were exposed on average, to a record 35.8% more hours per year during which ambient heat posed at least moderate heat stress risk if they undertook light outdoor exercise, compared to 1990-1999.

In Malaysia, individuals experienced 566 more hours per-person of at least moderate heat stress risk during moderate exercise (running).

Prof Tabatabaei says: "The solution is to have a warning system to tell people if there is a heatwave, don't exercise outdoors but we don't have it here.

"People think if the air looks clear, they can go jogging but PM2.5 is extremely dangerous.

"The area may be clear but you are surrounded by PM2.5 that penetrates so deeply into your pulmonary system and passes through many barriers to get you sick."

To reduce energy consumption, hospitals should have plenty of natural light coming in during the day. — Freepik

PM2.5 refers to fine inhalable particles with diameters generally 2.5 micrometres or smaller i.e. roughly 30 times smaller than a strand of human hair.

As a major component of air pollution, these tiny particles are produced by combustion (vehicles, power plants, wildfires) and can penetrate deep into the lungs and enter the bloodstream, causing serious cardiovascular and respiratory disease.

"Energy systems, which are highly dependent on fossil fuel, are the largest source of greenhouse gases and major contributors to air pollution.

"There has been no improvement over the last few decades – we're still polluting the environment," points out the professor of environmental biotechnology from Universiti Malaysia Terengganu.

The main culprit: coal

Coal is the most carbon-intensive fossil fuel and a major source of toxic air pollution, making its phase-out vital for health and climate.

Between 2016 and 2022, carbon emissions from fossil fuel combustion in Malaysia increased by 11%.

As of 2022, coal makes up 23% of the country's total energy and 47% of electricity energy, while renewable energy makes up less than 1% of total energy supply.

There were over 22,500 deaths attributable to PM2.5 in 2022 in Malaysia, and fossil fuels (coal and liquid gas) contributed to 61% of these deaths in 2022.

The report on Malaysia also revealed that in 2024:

> Heat exposure resulted in a loss of more than 3.5 billion potential labour hours, 163% more than in 1990-1999
> The service sector accounted for 19.5% of losses
> The manufacturing sector accounted for 16% of losses
> The agriculture sector accounted for 32.5% of losses
> The construction sector accounted for 32% of losses.

Many coastal communities are dependent on fisheries for food and income, and sustained ocean heating poses a threat to Malaysia's marine economy.

Coastal average sea surface temperatures have risen by 0.37°C from 1981-2010 to 2022-2024, intensifying coral bleaching and degrading marine habitats.

"If you look at Redang Island (in Terengganu), more of its coral reefs are bleaching and the consequence is that fish cannot lay eggs as they rely on coral reef systems for food, shelter, nurseries and breeding grounds.

"As the fish population declines, marine productivity declines and communities will be hit hard as their livelihood will be impacted.

"And when you go to the market, you won't be able to find marine cod fish, only lower quality aquaculture ones – maybe in 30-40 years, there will be no more catch and we have to be prepared for this."

With regards to dengue, Malaysia has seen a 44.7% risk in dengue transmission risk measures by the climate-defined basic reproduction number in 2015-2024 compared to 1951-1980.

While our mortality rate is lower than the South-East Asia average, incidence remains substantially high and puts stress on our healthcare system.

"Our mortality is lower, probably because we have a more robust health system," he says.

Global fever

According to Prof J. A. Jayalal, president of the Commonwealth Medical Association, the world is having a fever.

"Imagine, if you get a fever and your temperature rises by one degree, you cannot go to work but now the whole world is getting a fever with increasing temperatures.

"This is impacting all sectors, especially health – air pollution is causing chronic obstructive pulmonary disease, lung diseases, reduced brain cognition in children and adults, malaria, dengue, etc," says the surgeon from India.

The average global temperature for the period 2023-2025 is estimated at 1.48°C above the pre-industrial average, nearly reaching the 1.5°C threshold set by the Paris Agreement.

While individual years (2023-2024) have exceeded this threshold, the long-term, multi-decade limit has not yet been breached.

However, current trends indicate this threshold could be passed permanently within the next decade without rapid, massive emission cut.

Generally, hospitals are considered a place for healing the sick and bringing health to people.

Unfortunately, they are also becoming a source of the disease and problem.

Prof Jayalal says: "Ten percent of the carbon produced in hospitals are directly or indirectly from the equipment used, people moving around in motorised vehicles, anaesthetic drugs, etc.

"If you go to some of the hospital rooms – even during the day – you need to switch on the lights.

"We need to convert energy sources to the built environment."

Hence, the organisation is on a mission to improve health, human rights and well-being across 56 Commonwealth countries.

"We are instructing those who build hospitals to use solar energy, not electricity; there should be plenty of natural light coming in during the day; air circulation and ventilation must be prioritised and the hospital should be surrounded by lots of plants.

"There should be an indoor garden as studies have proven that a hospital in a metropolitan city with no plants produces nine times more heat than a hospital surrounded by plants.

"Natural vegetation is important as it reduces the temperature of surrounding areas; so the air-conditioning requirement will be reduced," he says.

Prof Jayalal reveals that nine out of 10 of the world's most polluted cities are in India, with Ghaziabad in Uttar Pradesh and New Delhi topping the list.

"In developed countries, the external pollution is less but the internal pollution is high – e.g. animals live indoors, heat is produced for thermal regulation, chemicals are used to clean indoors – all these affect internal air quality.

"Approximately 60% of diseases are zoonotic in origin, meaning they are transmitted from animals to humans.

"If you have a good planet and animal system, then all will be good," he concludes.

While Malaysia has developed multiple climate and public health strategies, including its National Policy on Climate Change, National Health Policy and health adaptation planning, speakers at the launch stressed that the greatest challenge is not policy ambition, but delivery across sectors.

Economic, energy, environmental and health systems still operate in silos, leaving gaps in how climate risks are managed on the ground.