



Wake-up call as global crisis deepens

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CATASTROPHIC multi-year megadroughts accompanied by intense wildfires are hitting every continent except Antarctica.

In Malaysia, last year's unprecedented series of floods may have lulled the public into thinking that we are being spared the effects of global warming. However, the Malaysian Meteorological Department has already warned us to brace for sweltering weather just a month or two away.

Torrential rainfall is the other side of the climate coin. Last year's worsening storms were accompanied by warm temperatures, unlike previous decades when sustained rains meant cool days.

In fact, 2024 laid a milestone as the world experienced the first full year in which global temperatures exceeded 1.5°C above pre-industrial times. On July 21 and 22, 2024, the Earth went through its two hottest days ever since global temperature records began in 1940.

"We are living in a dangerous new era," says climate scientist Friederik Otto, who leads the World Weather Attribution network.

Record-breaking temperatures in the atmosphere and oceans act like fuel for extreme weather around the world. A hotter atmosphere absorbs more moisture, leading to massive downpours. The amount of water vapour in the planet's atmosphere reached a record high in 2024.

Atmospheric heating also increases the occurrence of extreme drought. Almost 50% of the global land area is now affected by at least one extreme drought-month a year.

The Americas suffered severe drought last year, and up to September, more than 400,000 fires torched millions of hectares in the US, Canada and the Amazon Basin - usually one of Earth's wettest places.

For 20 days since Jan 7 this year, two monster conflagrations ravaged Los Angeles County, burning an area the size of Washington DC. Los Angeles had no substantial rainfall since May last year.

Today, we bring you Part Two of our heart-jolting series on the global ecological crisis. We have explained (in Part One) that the holistic information we collate is stacked in two piles like weights on opposing seats of a seesaw to provide clear indication for all Malaysians as to which direction we are heading - complete victory over climate change in a best-case scenario (seesaw right seat) or complete defeat by climate change in a worst-case scenario (left seat).

Movements of the seesaw are noted on a scale, with the numbers +1 to +10 on the right side, and -1 to -10 on the left side, with +10 points representing complete victory and -10 points representing complete defeat.

Complete victory means the global ecological crisis ends its run; complete defeat means devastation for many countries including Malaysia if it chalks up the maximum -10 points.

We ended Part One with humanity's score standing at -4 points (minus four). Today, we discuss the heatwaves that incur a minus point.

However, take heart: we are also highlighting one climate action that earns Malaysia a plus point.

Heatwaves and heat-related deaths

Earth's average surface temperature in 2024 was the warmest on record, topping the record set in 2023. The new record comes after 15 consecutive months (June 2023 through August 2024) of monthly temperature records - an unprecedented heat streak, and the past 10 consecutive years have been the warmest 10 on record.

"Once again, the temperature record has been shattered - 2024 was the hottest year since record-keeping began in 1880," America's National Aeronautics and Space Administration (NASA) administrator Bill Nelson disclosed in January. NASA scientists further estimated that Earth in 2024 was 1.47°C warmer than the mid-19th century average.

To put that in perspective, temperatures



Earth's average surface temperature in 2024 was the warmest on record, topping the record set in 2023. The new record comes after 15 consecutive months of monthly temperature records. - ADIB RAMI YAHYA/THESUN

during the warm periods on Earth three million years ago were only around 3°C warmer than pre-industrial levels," said Gavin Schmidt, director of NASA's Goddard Institute for Space Studies.

"Not every year is going to break records but the long-term trend is clear," Schmidt said. "We're already seeing the impact in extreme rainfall, heatwaves and increased flood risk, which are going to keep getting worse as long as emissions continue."

"When changes happen in the climate, you see it first in the global mean, then you see it at the continental scale, and then at the regional scale. Now, we're seeing it at the local level. The changes occurring in people's everyday weather experiences have become abundantly clear."

A 2024 study by the World Resources Institute (WRI) sees the Earth's current warming path driving big increases in heatwave length and frequency in roughly 1,000 of the world's largest cities.

"The findings are especially striking because by 2050, an additional 2.5 billion people will live in cities, with the most growth in Asia and Africa," WRI noted.

"This data should serve as a wake-up call to every city and national government leader," said Rogier van den Berg, the global director of WRI Ross Centre for Sustainable Cities.

According to government figures, 100 people across India died as a result of a heatwave in May and June last year. Activists claimed many deaths were unaccounted for.

Malaysia was not spared, as 648 Level One and Level Two heatwave alerts were issued in February and March last year. Level One status indicates daily maximum temperatures of between 35°C and 37°C, and Level Two is between 37°C and 40°C.

Last February, a 22-year-old man in Pahang died of a heatstroke, and newspapers reported in June last year that 18 Malaysians died on the Hajj pilgrimage.

Last July, there were 2,000 bush and forest fires destroying 11,500ha, mostly in Selangor,

Johor, Perak and Sabah.

A heatwave this year has already begun in Kedah and farmers fear that if it stretches into mid-March, it will jeopardise padi quality as excessive heat often leads to diseases and pest infestations, with brown hoppers fast reproducing in warm and humid conditions.

You may be surprised that a temperature below 41°C can bring death in Malaysia, whereas Rio De Janeiro and Sydney have registered 41°C with no fatalities. The difference in consequences is due to humidity. Heat stress is a combination of high temperature and high humidity. It is called a wet-bulb temperature.

As this combined level approaches the fatal body temperature limit, it becomes hard to shed heat through perspiration. Brain damage and heart and kidney failure become increasingly likely. The theorised human survival limit of 35°C wet-bulb temperature represents 35°C of dry heat combined with 100% humidity - or 46°C at 50% humidity.

Heatwaves are now linked to more than 150,000 deaths globally every year.

For its failure to anticipate the devastating consequences of heatwaves and take preventive measures, humanity lost another point. The score is now -5 points. This continuous ride down the negative path is making us dizzy. Let us begin to view things positively.

The first plus point chalked up is the invention of a copycat tree leaf. Everyone has gazed at solar panels installed on rooftops. Each panel has two sheets of glass and sandwiched between them are 60 to 72 photovoltaic or PV cells, which are square pieces of silicon typically 162mm on each side and a fifth of a millimetre thick.

Embedded in the cell are thin wires on the front and an electrical contact on the back. Run a circuit between the front and the back, and in direct sunlight this cell behaves like a tree leaf to provide seven watts of electric power.

Once in place, solar panels can last for

decades, make no noise, emit no fumes, use no resources and cost almost nothing to generate power.

The total worldwide installed solar energy capacity in 2013 reached 1.6 million gigawatts (GW) accounting for 5.5% of the world's electricity production. Malaysia's total was 1.93 GW (1,933 megawatts). This contributed to 3% of the total nationwide power generation. Malaysia's solar power generation is negligible. Why is it so?

It is because the initial scheme was that you, the consumer public, had to pay if you wanted solar panels. Even with rebate schemes in place, it would take several years to recoup your investment through savings on electricity bills and sales to the Tenaga Nasional Berhad grid for the surplus power generated. Few people showed interest because their top concern was the cost of living and rising prices.

However, last month in a cutting-edge renewable energy initiative, the Energy Transition and Water Transformation Ministry introduced the Community Renewable Energy Aggregation Mechanism.

The new scheme allows homeowners to lease or rent their rooftop space to third parties who can then aggregate multiple rooftops to develop a PV power generation system.

Renewable energy developers can consolidate rooftop space to establish solar power generation systems. The green electricity generated will then be distributed to local consumers through the existing utility company's distribution networks. The implementation guidelines are being finalised.

For this initiative, Malaysia scores its first plus point. The net score is now -4 (-5 +1). Now, we are getting somewhere.

This column suggests that the first institutions to be approached upon activation of the lease scheme should be all houses of worship.

Worshippers of every religion will then get to see climate action at work every time they congregate. Rooftop solar panels are also a visible sign of unified religious action to save the environment.

In Part Three, we shall discuss another green development that may earn Malaysia a plus point. However, also bear in mind that there are still other factors that incur minuses.

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