

November | Issue 11 | Volume 1

# EARTH HERO

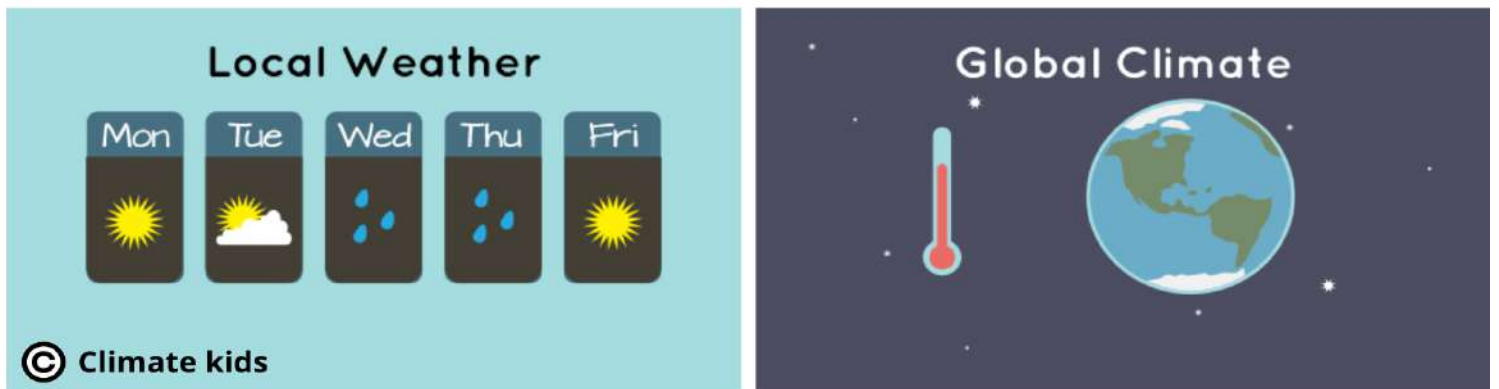


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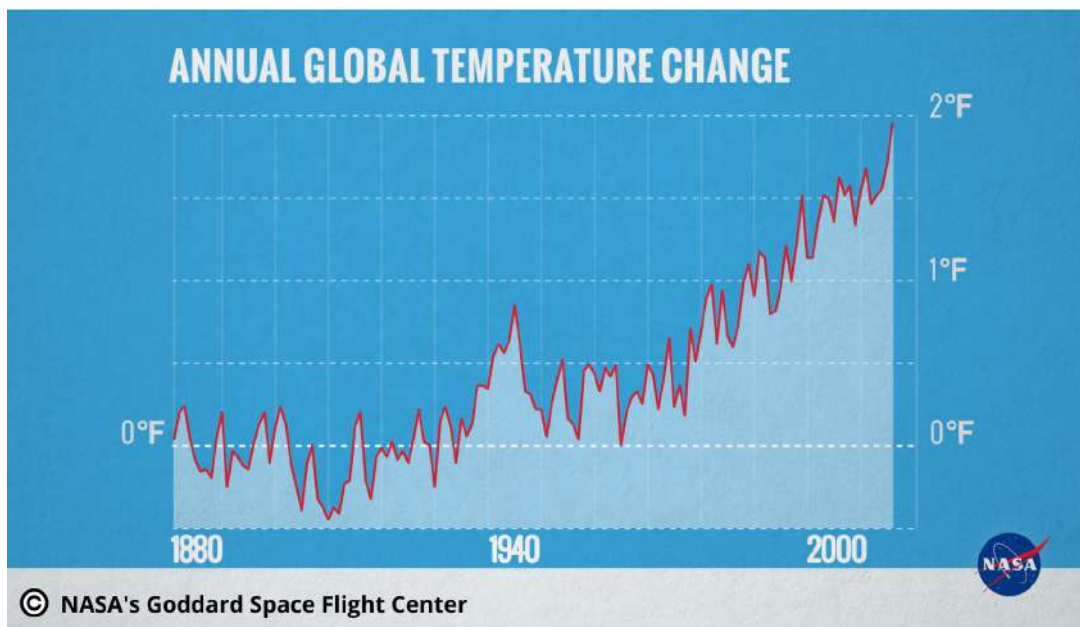
# ENVIRONMENTAL ISSUE (CLIMATE CHANGE)

Climate change can be defined as the global phenomenon of climate transformation characterized by the changes in the usual climate of the planet and typical weather patterns in a place. Climate change is largely caused by human activities. Before we talk further about climate change, we need to understand the difference between weather and climate. Weather describes what is happening right now in a specific place. For example, if it is raining where you are, that is a way to describe today's weather. Other examples of weather-related events are snow storms, hurricanes and tornadoes. On the other hand, climate describes the weather conditions expected in a region at a particular time of year. Our climate in Malaysia is tropical. A simple way to describe climate change is a long-term climate condition resulting in unbalanced weather on Earth, threatening the future of humankind and the stability of the global economy. Weather can change daily but climate takes a long period of time to change.



According to Nasa's definition, climate change is "a broad range of global phenomena created predominantly by burning fossil fuels, which add heat-trapping gases to Earth's atmosphere. These phenomena include the increased temperature trends described by global warming, but also encompass changes such as sea-level rise, ice mass loss in Greenland, Antarctica, the Arctic and mountain glaciers worldwide; shifts in flower/plant blooming; and extreme weather events."

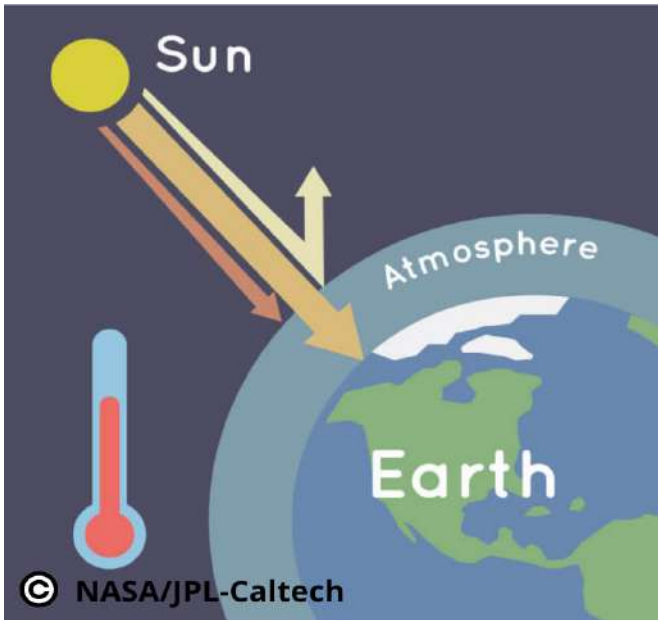
The Earth's climate has constantly been changing but scientists observed an unusual change recently. The average temperature of the Earth has increased rapidly over the past 150 years.



The graph above shows the annual global temperatures from 1880 to 2000. In the past 100 years, the global air temperatures near Earth's surface have gone up about two degrees Fahrenheit (1.2 Celsius). As a matter of fact, the past five years have been the warmest five years in centuries. This change is alarming to many people and has been a big concern among scientists. The Earth's climate continues to warm thus, resulting in increased intensity and rainfall during big storms and hurricanes. The continued climate warming is expected to cause drought and heat waves to the Earth's surface. The continuous increase of earth's surface temperature, even by one or two degrees, could significantly impact the human of health, plants, and animals.

The greenhouse effect is a natural process that traps heat and makes the Earth warm. When the sunlight reaches the Earth, the atmosphere functions as a barrier to trap the heat and reflect some of the energy back into space. This is similar to a greenhouse where the glass walls capture the heat from the sun during the day. Most of the energy is absorbed by greenhouse gases (such as carbon dioxide) and reflected in all directions, which makes the Earth warm. Naturally, it keeps plants, animals,

and surroundings warm, even on cold nights. Without the greenhouse effect, living things could not survive the low temperatures.



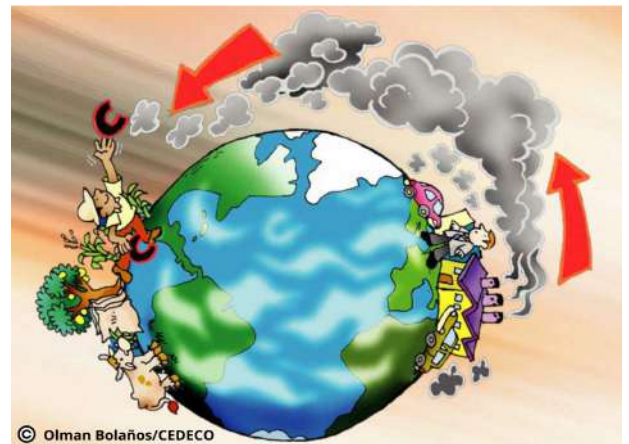
Over the recent years, however, human activities have changed our natural greenhouse effects. Uncontrolled human activities have increased certain gases like carbon dioxide (CO<sub>2</sub>) and methane in the Earth's atmosphere, and thus, trapping more of the sun's heat, resulting in a much warmer climate.

Climate change has direct consequences, this includes raising the minimum and maximum temperature of our planet, rising sea levels, increasing ocean temperature, increasing heavy rain and hail, shrinking glaciers, thawing permafrost, and changing flower blooming times. In Malaysia, we have seen the effects of climate change through increased incidents of floods which have been caused by higher yearly rainfall. The areas that are badly affected are usually places that have inadequate water drainage and coastal zones. There have also been reports where the flower blooming times in the rainforest have changed due to extended drought and longer time of warming season.



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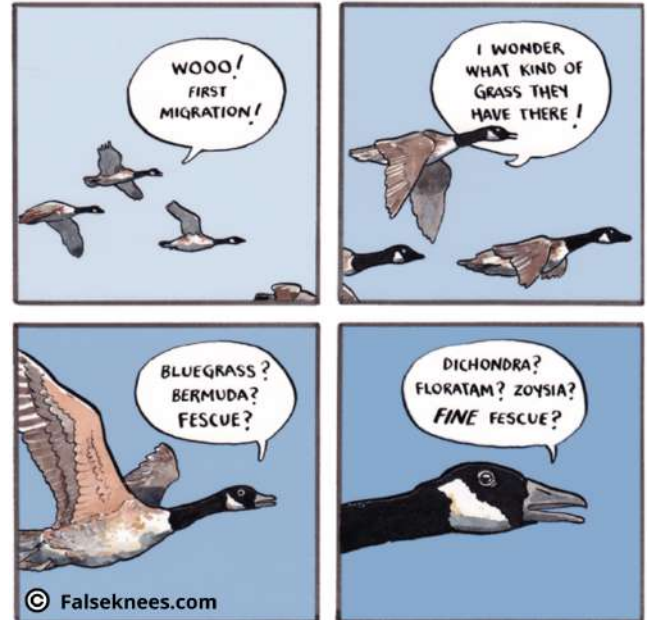
The effects of climate change can be seen in the agriculture and livestock sector. Due to higher temperatures, it reduces the crop that is being planted while encouraging weed and pest proliferation. Changes in precipitation also increases the likelihood of the production of long-run crops decline and short-run yields failing. Even though there will be more crops in some regions, the overall impact of climate change on agriculture is damaging as it could threaten global food security. Climate change has a direct effect on livestock as well. A study done by Jean M Rust found that the increased temperature and higher intensity of heat waves has a negative impact on animal health and welfare. It causes metabolic disruptions, oxidative stress, and immune suppression causing infections and death.



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Species migration is affected by climate change. Due to rising temperatures and changing rain patterns, migratory species have to change their migration time. Some bird species migrate a little earlier than usual. A warm temperature and changing ecological conditions could alter the species habitat, causing some species to move across their habitats, causing some species to move across their habitats.

For example, as an adaptation to their surroundings, less mobile species such as trees and plants, can only migrate through reproduction and seed distribution. The species will slowly change their distribution rather than migrate to another landscape or habitat. Another challenge for many species is differing rates of migration such as a pollinator and its preferred food plant may become separated, causing interdependent species to be separated as their environment has changed



due to the problem of geographic separation. Other cases that are related to climate change are barriers to species migration. Some species need to migrate to adapt to climate change, but urbanization and unsuitable habitat caused the species to limit their population or shift their distribution. In the worst cases, these isolated populations decrease in number and lead towards species extinction.



The impact of climate change is not just seen on the environment, it also impacts human socioeconomic conditions. Major hurricanes can cause over \$100 billion in damages. Governments would need to spend a lot of money to repair all the damages and rebuild the infrastructure. The survivors would need assistance to rebuild their damaged houses and properties. This causes a huge impact on the financial aspect of the people involved.

Next month, we will discuss in detail the solutions to combat climate change. Can you think of any solutions before the next issue comes out?