

# **Global Warming: Its Causes, Impacts, and Mitigating Strategies**

## **Abstract**

The pace of global warming has quickened since the 1950s. Its implications are multifaceted, as it exerts deleterious and even life-threatening impacts on various species. Although potentially overlooked contributing factors to global warming remain, past research evidence has attributed the main cause of global warming to man-made deforestation, overconsumption of goods and materials, emissions from power plants, manufacturing factories, and transportation. Therefore, collective efforts from individuals, communities, corporations, and the government are warranted to reverse or reduce the pace of global warming in order to ensure sustainability.

## **Introduction**

For this research paper, I chose the topic of global warming. Global warming has been a topic concerning me since I was little. Having spent most of my life in Saipan, I experienced a wide range of natural disasters during my time there. One of the most memorable ones is the Super Typhoon Yutu in 2018. I still vividly remember the mess that ensued in October 2018 when I was in the 9th grade. Soon after the disaster, the National Oceanic and Atmospheric Administration sent personnel down to my school and gave a presentation on what measures to take in the face of similar disasters and some other general guidelines. Among those things, the correlation between climate change, specifically global warming, and natural disasters stood out to me and left an indelible mark in my mind at the time. It was not until this year I got the chance to take this course and write a research paper of my choice that the mark resurfaced, propelling me to write about global warming.

Global warming, as the name suggests, is the phenomenon that the Earth's temperature rises mainly due to the emission of greenhouse gases. It has direct impacts on the environment and living organisms on this planet. While many of us may fail to resonate with the imminent and long-term threat of global warming and the urgency of mitigating it, the detriments of global warming are far more omnipresent than we might think. Therefore, the following sections will be dedicated to explaining the cause of global warming, the mechanism behind it, and its impacts on the environment, humans, and animals. Last but not least, the discussion section offers some brief suggestions as to what individuals and the government can do to reduce the negative impacts of global warming.

## **Method**

This paper incorporates evidence from peer-reviewed research articles from mainly the Madonna University Library. Some of the evidence is also acquired through Google Scholar and databases such as ScienceDirect and PubMed. Most of the research evidence was published within the last five years.

## **Results**

As mentioned before, one of the goals of this paper is to explore the cause of global warming. Knowing the cause of global warming is essential for us to understand the phenomenon as a whole and enables us to be aware of the daily practices that are contributing to global warming. First of all, the mechanism behind which global warming worsens is essentially the greenhouse effect, a process in which certain substances accumulate near the surface of Earth, trapping heat in the atmosphere, and preventing it from being released into space. These substances are termed greenhouse gases, which mainly include carbon dioxide,

water vapor, nitrous oxide, and methane, which then leads us to question where these greenhouse gases come from. There are various sources producing these gases. While emissions from car exhaust, power plants, and industrial factories that use fossil fuels as their power source are the culprits of global warming, things like deforestation and overconsumption of goods also make substantial contributions to global warming (Kabir et al., 2023). It is also worth a moment's attention that most of the research studies conducted on the causes of global warming view that human activities are the main contributor to global warming (Ahima, 2020).

#### *Evidence of global warming*

Although many may be unable to see the imminent threat of global warming or attribute all the urgency surrounding global warming to environmental activists' hidden agenda, research evidence has shown us that the idea is not delusional by any means. In the past 100,000 years, Earth's temperature has constantly fluctuated. However, in the recent 100 years, the average temperature has risen by about 1.8 Fahrenheit, with the most of increase induced after the 1950s (Wang et al., 2023). Taking the social background into context, the data reveals a salient pattern associated with the advent of the Industrial Revolution. The increase in Earth's temperature from 1950 to 2000 alone exceeds the increase from 1900 to 1950 by almost two-fold. The evidence further supports the argument that human activities are the culprits of global warming, which coincides with the findings by Trujillo and Thurman (2020) when they discuss the other possible explanations of global warming, including the sun's brightness, changes in Earth's orbit, and volcanic activities. At first glance, a mere 1.8 Fahrenheit increase during a 100-year span perhaps does not seem

significant, but it is the long-term impact that begs for immediate attention to the issue as well as individual responsibility manifested through environment-friendly practices.

### *Impact on the Environment*

The impacts of global warming are to be looked at through a holistic lens because they are interrelated closely. Global warming has direct impacts on the environment, some of which include air pollution, droughts, the melting of glaciers, abnormal rise of sea levels both as a result of water volume expansion under heat and the melting of glaciers and ice sheets, floods, heat waves, and wildfires (Chen et al., 2023). Furthermore, soil degradation, desertification, and disruption in ecosystems will lead to major transformations of landscapes in certain regions, matters trivial to Mother Earth, potentially life-threatening to various species and society.

### *Impact on animal*

Both marine life and terrestrial animals will be affected by global warming, and the impacts have already been observed in the past and are expected to worsen in the future. The temperature rise that is expected to exponentially increase in the future can be detrimental to the health of certain terrestrial animals such as elephants, cheetahs, and various livestock where their metabolism, immunity, and brain function may deteriorate, rendering them more susceptible to infection and diseases, endangering their existence altogether (Lacetera, 2018; Nardone et al., 2010). The heat may also deprive certain terrestrial animals of water supply (Lacetera, 2018). The natural disasters accompanying global warming further compound the predicament, increasing the likelihood of accidental deaths for terrestrial animals in particular. Nonetheless, global warming does not always exert negative impacts on animals; for

terrestrial animals living in extremely cold regions, it may improve their welfare and health (Lacetera, 2018).

Marine life, on the other hand, though not affected as much compared to terrestrial animals, can exhibit differing sensitivity to global warming according to their lifestyle and habitat (Albouy et al., 2020). For example, polar bears can be disproportionately affected by global warming compared to marine mammals living in areas absent of glaciers and ice sheets. As mentioned before, ice sheets and glaciers melt due to rising temperatures, which, given that polar bears spend most of their lives on ice, poses existential threats to polar bears. It is projected that more than half of the polar bears would die by 2050 mainly because of global warming (Amstrup & Bitz, 2023). Many marine life will also have to migrate to colder water because of the ecosystem disruptions from global warming.

#### *Impact on human*

Being the perpetrator, humans will eventually become the victims of global warming. Natural disasters such as storms, heat waves, floods, and wildfires can occur across the globe because of global warming, increasing the risk of injuries and deaths, and posing serious threats to human life. On top of that, global warming can pose a wide range of health hazards to humans. The spread of pathogens is undoubtedly a central focus across the globe following the pandemic, but no matter how we try to suppress it, the rising temperature provides a hotbed for certain pathogens and viruses to spread, as was the case for COVID-19 when heat waves sped up the outbreak in the summer of 2022 (Lian et al., 2023; Rossati, 2017). Besides, the air pollution that comes along with global warming because of a clogged atmosphere can cause respiratory diseases and lung damage. The ecosystem disruptions including droughts,

soil degradation, and desertification can potentially reduce the global food supply, creating food desert, malnutrition, dehydration, and hunger, especially among those who are already living in famine or areas that lack access to fresh water and food supply (Rossati, 2017). Previous research has also pointed out that mental disorders tend to become more prevalent during natural disasters (Rossati, 2017), so the detriments of global warming are both physical and mental to human beings.

## **Discussion**

As seen above, global warming has multifaceted implications. Humans ought to be held accountable and start to mobilize to at least reduce the negative impacts of global warming because it not only affects humans ourselves but also the ecosystem within which plants, animals, and humans survive. Sustainable development can only be achieved when we embrace a harmonious relationship with our surroundings and species that co-exist with us on Earth. Thus, it is important to point out strategies and daily practices that can mitigate the risk global warming brings to Earth as a whole. The actions countering the speed of global warming will have to rely on both the government and individuals.

There are several things each of us can do to slow down the pace of global warming. One of the causes of global warming is the overconsumption of goods. When we consume too much of anything, be it food, plastic bags, or cardboard, more resources are required to dispose of them, which leads to an increased consumption of fossil fuels and higher levels of air pollution. In addition, our use of transportation, electricity, and gas requires input from power plants. As our consumption increases, power plants need to use more fuels to keep up with the demand, essentially speeding up the pace of global warming by producing

greenhouse gases. By limiting our use of things requiring fossil fuels and things that need fossil fuels to be disposed of, we can expect to mitigate the detriments of global warming.

Central to individual actions against global warming is environment-friendly practices. The step could be furthered when we try to spread the message, encourage collective efforts, and initiate certain activities on a community level. For instance, we can practice foraging within communities and plant vegetables and fruits in our backyard. These activities not only enable us to have greater access to fresh, healthy food but also slow down the progress of global warming by reducing the consumption of fuels required for us to drive to grocery stores or restaurants when we can just get some of our food sources within walking distance and absorbing greenhouse gases through forestation. To get to the root of the problem, community leaders can conduct meetings, education classes, and workshops to raise awareness among children and other members of the community so that people can at least have some discernment as to what should be done and what to avoid to minimize the risk of global warming in the long run.

Collective efforts warrant intervention from the government as well. One of the ways to tackle global warming is by raising carbon taxes, as it would serve as a deterrent for corporations using fossil fuels. Moreover, the government can distribute more resources and funding toward research conducted on clean energy technologies and measures that aim to mitigate global warming in order to maintain technological, industrial, and economic development without sacrificing the ecosystem and the welfare of living organisms.

In some sense, the fight against global warming comes down to a tug-of-war on a continuum. On one side of the continuum, it is the desire to innovate and make economic,

technological, and industrial progressions; on the other side, it is the question of whether we can preserve the current living conditions for our future generations and species at the brink of endangerment and extinction. It is also a moral quandary featuring self-preservation and self-containment. The idea of abandoning Earth and moving to Mars does not seem feasible in any near future and certainly contradicts narratives embracing the ‘unconditional love’ offered by Mother Earth. The fight against global warming starts with each one of us and ends with partial or complete substitution of the current fuel sources, preferably not with the extinction and endangerment of humans and other organisms.



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