

## Impact of Climate Change and Global Warming to the World Economy

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### Abstract

Climate change and global warming that are happening right now are two terms that are becoming increasingly popular. Because it is a significant change in climate, such as air temperature or precipitation, over a period of 30 years or more. The impact that will occur is like, extreme weather such as heavy rain that occurs continuously will cause flooding if the land is not ready to accommodate a lot of water overflow. Flood conditions make the environment dirty and become an excellent environment for nests and disease-spreading mosquitoes to live and reproduce. Under these conditions, cases of diseases such as malaria and dengue haemorrhagic fever will increase to the point of endemic. Meanwhile, extreme environmental conditions affect the human body's power so it is easy to get sick. Meanwhile, drought, due to the continuous increase in the earth's temperature, can cause bush and forest fires. The smoke produced from hourly and forest fires pollutes the air which also impacts human respiratory health. Under these conditions, cases such as respiratory infections will often be found.

**Keywords:** Climate Change; Global Warming; Environment; Forest fires; Significant change; Earth temperature

### Introduction

Environmental problems are basically everyone's problems and awareness campaigns are very important to improve the environment, assuming the role of all parties can be done in repairing environmental damage. Article 1 of the 1945 Constitution states that "sovereignty is in the hands of the people". Therefore efforts to preserve the environment in Indonesia are the strength of the people Article 28H paragraph (1) states that "everyone has the right to live in physical and spiritual prosperity to have a place to live. Have a good and healthy environment. very important for health care [1]. You have the right to accept Environmental issues have been widely discussed around the world since the Cold War, because many countries have realized how important the environment is for the survival of future generations. Increasing environmental awareness in people's lives and at the national level, especially at the national level, decreasing the quality of the environment that affects people's daily lives, such as increasing global temperatures and increasing various diseases caused by holes. The ozone layer and environmental issues are discussed on the international agenda.

Global warming has become a big problem all over the world. Because of its close relationship with the environment and greenhouse gases, this issue is at the top of everyone's agenda [2]. Many people understand that stopping global warming cannot be done alone, but requires cooperation involving various global communities. But there are still many people who don't know what to do to stop global warming. Global warming, natural disasters, various disease, etc. I don't know if it causes serious environmental problems. If urgent action is not taken to stop global warming, the consequences will be dire. Returning to individual consciousness is essential to combat the negative effects of global warming. We all need to understand that every action we take has consequences. Based on the previous discussion, the following conclusions can be drawn. Global warming has significant and serious consequences for the bio-geophysical environment (melting of polar ice caps, rising sea levels, expanding deserts, increased rainfall and flooding, climate change, extinction of some plants and animals, migration of plants and animals and pests, etc.). In addition, the factors that affect the socio-economic activities of the community include:

(1) Disruption of the functions of coastal areas and coastal cities;

(2) Disruption of infrastructure and facilities such as road networks, ports and airports;

(3) Destruction of residential areas;

(4) Reduced productivity of agricultural land;

(5) Increased risk of cancer and disease development, etc.

Global warming is a global problem because it is not only experienced by the people of Indonesia, but almost everyone on earth feels its effects. The greenhouse effect is the process by which the sun's heat is absorbed by a very thin layer of the Earth's atmosphere and then reflected back into space as infrared radiation. Earth's thin atmosphere traps infrared radiation, causing it to warm. Increasingly severe global warming (global warming) is very worrying about the future of this planet. If this problem is not addressed immediately, the consequences can be serious. The polar ice caps are melting and sea levels are rising. Heat waves also disrupted the climate, causing violent storms and destroying buildings in several cities. In this study, the form of development of existing research on various variables supporting strategies to reduce global warming is the same.

The issue of global warming was raised at the Earth Summit in Rio de Janeiro, Brazil in 1992 and remains a major issue throughout the world to this day. Developing countries accuse developed countries as the main culprit or cause of global warming due to carbon dioxide released by factories and vehicles. Unsustainable climate change due to global warming is now widely felt. Several regions in Indonesia have experienced a water crisis (drought) due to very little rainfall. And in other places it rains, floods and landslides. Based on the framework

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above, the research question is: What is the impact of global warming on the global economy?

## Research methods

The method used in writing this research is a qualitative descriptive analysis technique, which seeks to describe the conditions of environmental problems, one of which is global warming. What is the impact on the economy, what are the coping strategies. Therefore, the type of research used in this research is qualitative research using descriptive methods. Qualitative research is a research process that produces descriptive data in the form of written or spoken and observed behaviour of people as the main data source [3]. In this study, the researcher did not change, add or manipulate the topic or research field, and the collection methods were journal literature, online and print papers, and literature review discussion methods, research materials. The purpose of descriptive research is to make systematic, factual, and accurate research on international environmental problems, and solutions to address these environmental problems.

## Results and Discussion

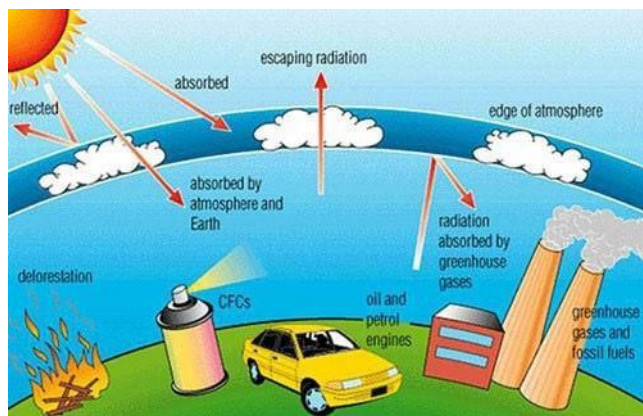
### Global warming meaning

Global warming is the process of increasing the average temperature of the earth's surface. There is some evidence that this is due to increased greenhouse gas (GHG) emissions into the atmosphere. The Intergovernmental Panel on Climate Change (IPCC) reports that the Earth's average surface temperature increased by about 0.60C during the 20th century compared to 1750, at the start of industrialization. 0.60C seems small, but these small changes can start to have harmful effects on our lives [4].

### The cause of Global warming

Global warming is caused by an increase in the amount of greenhouse gases in the air layer near the earth's surface (atmosphere) Figure 1.

Studies by experts over the past decades have shown that global warming is directly related to greenhouse gases produced by human activities. Specifically, the United Nations (UN) established the International Panel on Climate Change (IPCC) to monitor the causes and effects of global warming. Every few years, thousands of the world's leading experts and researchers, members of the IPCC, gather to discuss the latest findings on global warming, draw conclusions from new reports and findings, and agree on decisions from trouble [5]. One



**Figure 1:** Gas traps the sun's heat and causes the earth's temperature to rise above normal.

of the first things they discovered was that some type of greenhouse gas is directly responsible for the warming we are experiencing, and humans are the main source of greenhouse gas production. Most of these greenhouse gases come from livestock raising, the burning of fossil fuels in cars, modern factories, animal husbandry and power plants

### Impact of Global warming

As you know, global warming is caused by an increase in greenhouse gases. The effects of these gases affect many things related to human life [6]. Using computer models of atmospheric temperature and circulation to study global warming, scientists have now made several predictions about the effects of global warming. These effects include:

#### A. Weather effects

In the pre-industrial era, global warming raised average global temperatures by about 10 to 50 degrees. Global economic developments predict that global consumption of fossil fuels will continue to increase. This results in annual carbon dioxide emissions of 0.3-2%, and if the current trend of increasing greenhouse gases continues, global warming will lead to an increase of 1.5-4.50°C by 2030. Northern part of Earth (North Pole) has moved more than any other part of the Earth. In this case, among other things, the following results emerged: the iceberg Melting, land subsidence, areas that previously saw little snow may not receive as much rain, tropical areas become wetter as more water evaporates from the oceans, storm sizes increase, groundwater evaporates more quickly, and some areas will be drier than before [7]. Patterns become unpredictable and extreme.

#### B. Sea level rise

As the atmosphere warms, so do the layers of oil in the oceans. So the volume expands and the sea level rises. About 30% of sea level rise comes from melting ice, the rest from rising temperatures. Changes in sea level have a major impact on life in coastal areas [8]. As a result of global warming, sea level in Indonesia will rise by 0.8 cm per year, which will cause the islands of the archipelago to sink by almost 1 m in the next 15 years. Considering that Indonesia is a maritime country (archipelago), of course this will be in the common interest.

#### C. Influence on Agriculture

The worst case of global warming is the continent of Asia. It is estimated that for every 2 degrees Celsius rise in temperature, agricultural production will fall by 30% by 2050 in countries such as China and Bangladesh. With the emergence of a developing climate sector, the agricultural sector experienced alternating droughts and floods, reducing production. Food shortages will increase in areas prone to drought and flooding.

#### D. Influence on Human health (Infectious Diseases and Death)

Chairman of the General Board of the Indonesian Doctors Association (PB IDI) Fachmi Idris said climate change would have an impact on natural disasters such as floods.

Dangerous for health. Rising global temperatures also cause heart disease. The harder you work, the colder you are, the more asthma and skin cancer. As a result of air pollution, carbon monoxide levels remain high, which can cause you to suffer from carbon monoxide poisoning. Carbon dioxide that enters the body forms carboxyhemoglobin (COHb) in the blood, which interferes with the ability of carboxyhemoglobin (COHb) to carry oxygen around the body. An additional consequence is low fetal weight, low intelligence. Children's brains increased infant mortality. Meanwhile, climate change also affects human health and causes various diseases.

As a result of climate change, vector-borne diseases such as dengue haemorrhagic fever (DHF) and malaria can be explained. DHF conditions are affected by the amount of rainfall and the number of rainy days. The more rainy days, the higher the DHF condition. Currently, 45% of the world's population lives in areas susceptible to malaria-carrying mosquitoes.

#### **E. Increased Intensity of Hurricane occurrence**

Hurricanes and cyclones are increasing due to global warming. Air and sea temperatures are increasing significantly [9]. This increases wind speed, which can create a powerful storm.

#### **F. Decreasing Agricultural production due to harvest failure**

Global warming can make climate change less favorable for food crops, and reduced agricultural food production due to poor harvests can lead to starvation. g. endangered species Rising temperatures can cause the extinction of millions of species [10]. This means that the diversity of species on Earth will decrease dramatically in the next few years.

#### **G. Living creatures threatened with extinction**

Increasing temperatures can cause the extinction of millions of species. This means that in the coming years the diversity of Earth's species will be much reduced.

### **The Impact of Climate change and Global warming on the economy**

If global warming gets worse, many countries in the world will go bankrupt. Especially poor countries that are experiencing increasingly severe droughts. On the other hand, higher rainfall causes floods. Countries that have low incomes will experience further losses due to a decrease in gross domestic product up to 4 times greater than rich countries. Countries in South Asia and sub-Saharan areas throughout the Middle East are the ones who will suffer the most from climate change [11]. Meanwhile, tropical countries will often experience unexpected floods and droughts due to unpredictable weather.

Lately we feel warmer than before without us realizing that this is the result of global warming. From 1980 to 2021, global temperature increases will double as fast as in the previous period. On August 26, 2021, according to BMKG Director Dwikorita, rising temperatures in Indonesia are believed to have disrupted Indonesia's current climate, which can cause intense extreme weather. Duration and Frequency. According to him, the temperature in Indonesia could reach 3°C in 2100 if the right measures are not taken. Indonesia's average surface temperature is below the global average, but if you look specifically at each city, several cities in Indonesia have temperatures above the global average. The increase in global CO<sub>2</sub> concentrations since 2000 is ten times the increase in 800,000 years, and the increase in CO<sub>2</sub> is proportional to the increase in global temperatures, so that on December 12, 2015, 197 countries (almost) signed the Paris Agreement [12]. All countries of the world) Maintain global temperature rise to 2°C, preferably 1.5°C, above pre-industrial levels. Since 2009, Indonesian farmers can no longer trust weather forecasts.

Normal fluctuations in the growing season. Consequently, cultural failure is a common phenomenon in all parts of Indonesia. Referring to the 2011 tempo report, it was defeated in 2011 and failed in 2011.

Due to the effects of global warming. In 2017, Indonesia is the biggest problem in the world in 2017 and contributes to emissions due to forests and forest destruction [13].

According to a new study of 135 countries, climate change will eliminate 4% of the world's annual economic output by 2050. S&P Global reported on Tuesday and hurricanes, droughts and Haricha (26-4-2022). This rating agency assigns credit scores to countries based on the health of their economies.

"On many levels, this is a world problem," said Roberto Sifon-Arevalo, government credit analyst at Standard & Poor's. "What really stand out is that many (poorer) parts of the world need international assistance." In the base scenario, where most governments avoid the new "RCP 4.5" climate change policies, low- and middle-income countries could suffer 3.6 times grosser domestic product (GDP) losses than rich countries. Bangladesh, India, Pakistan and Sri Lanka are hit by wildfires, floods, severe storms and water shortages, putting South Asia at risk of 10-18% of GDP, about three times that of North America and 10 times that of Europe. But Central Asia, the Middle East, North Africa and sub-Saharan Africa also suffered significant losses. East Asia and the Pacific is experiencing similar levels of impact as sub-Saharan Africa, primarily from storms and floods rather than heat waves and droughts. Countries near the equator or on small islands are more at risk, but countries whose economies depend more on sectors such as agriculture are more likely to suffer than countries with large service sectors [14]. S&P Siphon-Arevalo said the credit ratings of some countries had been lowered by extreme weather, such as some Caribbean islands after severe hurricanes. However, he said the new data would not be fed into the company's national ranking model because there was still uncertainty about how the country should adapt to the changes. "We're trying to tell you what's important and where it is," says Siphon-Arevalo. "But we are assessing the baseline, not the worst case scenario."

In many countries, the impacts and costs of climate change are already increasing. According to insurance company Swiss Re, about 0.3% of global GDP has been lost annually to cyclones, fires and floods in the last decade alone.

The World Meteorological Organization (WMO) also estimates that, on average, over the last 50 years, a weather, climate, or water-related disaster occurred every day somewhere in the world, resulting in 115 deaths and losses each day. Over \$220 million. A study by a group of British universities researching global warming last year predicted that by 2030, more than 60 countries could drop in the rankings due to global warming [15].

### **The cause of Global warming**

The main causes of global warming are pollution and emissions of carbon dioxide trapped in the Earth's surface and atmosphere. According to the United Nations (UN) states that fossil fuels, such as oil, gas and coal are the biggest contributors to global climate change. The use of fossil fuels contributes at least more than 75 percent of greenhouse gas emissions and 90 percent of carbon dioxide (CO<sub>2</sub>) emissions. Even though fossil fuels are used almost all over the world, especially for industrial and manufacturing purposes. Fossil fuels function in making consumer products such as cement, iron, steel, electronics, electricity, plastic, clothing, and other goods. In addition, mining and other industrial processes also release greenhouse gases. This condition is exacerbated by the rampant logging of forests. Forests function as carbon dioxide filters. Unfortunately, every year the UN records that 12 million hectares of forest are destroyed, either for agricultural, residential, industrial or other reasons.

### **Global warming prevention measures**

The many impacts caused by global warming make us have to take

action immediately to overcome them. Here are some examples of ways to prevent global warming that we can do from now on.

### 1. Save electricity

Humans can take advantage of electrical energy from burning coal. Even though carbon dioxide emissions from burning coal reach 44 percentage of the world's total, this shows coal as the single largest source of increasing Earth's temperature. Therefore, we must start saving electricity by using it wisely and smartly [16].

### 2. Reduce motorized vehicles

Gasoline and diesel will be used by humans as fuel for motorized vehicles. Even though the fuel comes from petroleum refining. The results of burning this fuel are called carbon emissions. Thus, the excessive use of motorized vehicles is one of the factors causing the increase in the temperature of the Earth's surface.

### 3. Reduce trash

Why can garbage affect the increase in temperature on the surface of the Earth?

Garbage that has accumulated emits methane gas and nitrogen oxidants which play a role in global warming and keep the heat in our atmosphere.

Therefore, we must reduce waste by recycling items that can still be used again.

### 4. Not cutting trees

Trees need carbon dioxide from the atmosphere for photosynthesis. If there were fewer trees, carbon dioxide would still be in the atmosphere. Carbon dioxide levels in the atmosphere can damage zinc, iron, and protein which are human nutrients from plants. This research was presented by the US National Center for Biotechnology Information [17].

Carbon dioxide can trap heat in the atmosphere, so that the average temperature of the earth's surface can increase. So we have to ensure that plants and trees are around us so that carbon dioxide can be absorbed in the process of photosynthesis.

### 5. Reforestation

Tom Crowther, a researcher from ETH Zurich, stated that planting trees is the best solution to the current global warming problem. This is because trees can trap carbon dioxide and carbon in the atmosphere to carry out photosynthesis. Instead, trees actually provide oxygen and food reserves for all living things on Earth.

### 6. Using Environmentally friendly fuel

Biogas as an alternative energy is referred to as an environmentally friendly fuel. The reason is because these fuels produce lower carbon emissions than emissions from fossil fuels.

Biogas is a gas produced from the fermentation of organic materials, such as animal and human waste, household waste and biodegradable waste.

Biodegradable waste is all waste that can be broken down or decomposed by other living organisms and comes from plants or animals. Biogas is usually used as vehicle fuel or to generate household electricity [18].

### 7. Using alternative energy

Alternative energy reduces the risk of environmental damage

arising from the excessive use of petroleum. The use of alternative energy utilizes renewable natural resources, so it cannot reduce the availability of natural resources on earth.

### 8. Recycle

As previously explained the accumulated waste plays a role in global warming and keeps the heat in our atmosphere. Therefore, recycling is a solution to prevent the adverse effects of global warming from increasing. Recycling is the activity of processing waste into other useful objects.

### 9. Reduce plastic use

Reporting from the official website of the Ministry of Energy and Mineral Resources of the Republic of Indonesia, plastic is formed from elements such as carbon, oxygen, hydrogen, chlorine, sulfur and nitrogen. Some of the basic ingredients for making plastic come from petroleum and natural gas. If humans use more and more plastic, then oil and natural gas are used more and more.

### 10. Not doing environmental pollution

Environmental pollution is a situation when there is contamination in nature which causes harm to the environment and living things.

Countermeasures against Climate Change and Global Warming.

According to Wahono Widodo and friends in Natural Sciences (2017) The following are efforts that can be made to tackle global warming:

- As much as possible use renewable energy and reduce the use of fossil fuels which can cause pollution;
  - Save vehicle fuel efficiency, either by using public transportation or switching to non-emission vehicle types such as bicycles or electric vehicles;
  - Reducing deforestation or deforestation and planting more trees;
  - Reduce consumption of products containing chloro-fluorocarbons (CFCs) and switch to using environmentally friendly products;
  - Reducing plastic waste by reducing its use and recycling;
- Support greening activities and nature conservation.

## Conclusion

Global warming is a global problem because it is not only experienced by the people of Indonesia, but almost everyone on earth is feeling its effects. Global warming is the process by which the sun's heat is absorbed by a very thin layer of the Earth's atmosphere and then reflected back into space as infrared radiation. Global warming is getting worse, many countries in the world will experience bankruptcy. Especially poor countries that are experiencing increasingly severe droughts. On the other hand, higher rainfall causes floods. Countries that have low incomes will experience further losses due to a decrease in gross domestic product up to 4 times greater than rich countries. Countries in South Asia and sub-Saharan areas throughout the Middle East are the ones who will suffer the most from climate change. Meanwhile, tropical countries will often experience unexpected floods and droughts due to unpredictable weather.

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## Conflict of Interest

None

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