

# Global warming, causes, effects, and solution

## Outlines

### I. Introduction

Thesis Statement: Global warming is the increase in temperature for a long time. It is due to increasing concentration of major greenhouse gases primarily carbon dioxide and to a lesser extent methane. Carbon dioxide produces due to burning of fossil fuels. It has many negative effects on all forms of life.

### II. Overview of global warming

### III. Causes of global warming

(a) Industrialization

(b) Transportation

(c) Deforestation

(d) Agriculture activity

(e) Energy production

(f) Volcanism

(g) Movement of plate tectonic

### IV. Effects of global warming

(a) Rising temperature

(b) Heat, droughts, and wild fires

(c) Melting glaciers

(d) Heavy rainfall, floods

(j)

(e) Decline in agriculture production

(f) Decline in textile industrial production

(g) Increase food insecurity

(h) Effects on women

(i) poverty, unemployment and crimes

(j) Migration

vii Measures to mitigate global warming.

(a) Earth summit 1992

(b) Kyoto protocol 1997

(c) Bali Summit 2007

(d) Copenhagen sum. 2009

(e) Durban Summit 2011

(f) Paris agreement

(g) COP 27, 2022, COP 28, 2023.

(h) Reduction of fossil fuels use

(i) plantation

(j) Green transportation.

(k) Awareness

viii Conclusion

Global warming is the expected slow, gradual warming the lower layers at the earth's lower atmosphere due to increasing ~~man~~ concentration of man made green house gases, primarily carbon dioxide, and at the lesser extent methane. The burning of

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fossil fuels, petroleum, and coal, produce carbon dioxide one of the by products. These gases trap infrared radiation, which is the heat radiation, that cools the earth. The concentration of carbon dioxide is over 50% higher than it was before the start of the revolution of industrialization in late 1800s. This has become a threat and problem to all forms of life living on the earth planet. Each passing day getting warmer. It was because of the human activities, industrial revolution and agriculture activity, deforestation, a cause of global warming as well. Energy production by burning of fossil fuels, ~~pe~~ coal, gas, and oil release emissions, particularly carbon dioxide which known as  $CO_2$ . The concentration of carbon dioxide is increasing every passing day. Global warming put the all forms of life at risk living on earth planet as it go on to warm. Global temperature increased by 1.1°C warmer than it was in 1800 before the pre-industrial period.

In view of the effects of global warming started to have on life, this has become the global concern. In this regard, scientist joined hands to get information together. The United Nations formed a group of scientist for this purpose, as International panel on Climate change, or IPCC. According to IPCC report 2013, the global temperature increased at an average level. 2015 to 2019 were recorded the five warmest years, while 2010-2014 was recorded the warmest decade. In 2014 the global temperature recorded new highs, and the man made greenhouse gases 1.8 percent higher. If the temperature increased at this path it will be reached at the level of  $4.9^{\circ}\text{C}$  by the end of this century. Sea level rise to 0.80 (0.15 to 0.75) m between 1870 to 1900. The further increasing of sea level  $2.9$  ( $2.9$  to  $4.9$ )  $\text{mm-yr}^{-1}$ . The concentration of carbon dioxide increased higher than at any time in 800,000 years, while the concentration of methane increased at the level at ~~at~~ 800,000 years higher ~~than~~ at any time.

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According to recent report of National Oceanic Atmospheric Administration (NOAA) 2016, that year was recorded warmest year on record in the history at global temperature since 1800s. The overall global temperature was recorded  $14.98^{\circ}\text{C}$ . According to BBC report it was recorded  $17.67^{\circ}\text{C}$  all over the globe. In 2016, the highest temperature was recorded in the world. According to World Meteorological Organization (WMO) in 2017, fourth highest temperature in the world was recorded in Pakistan, Turbat in Balochistan. It was recorded at  $53.6^{\circ}\text{C}$ . The third global temperature was record in Kuwait that year at  $54.3^{\circ}\text{C}$ . In the same year in Larkana, Sindh highest temperature was recorded at  $49^{\circ}\text{C}$  degree celcius. Similarly, in 2015 the temperature recorded  $45^{\circ}\text{C}$  in Karachi.

There are multiple causes of global warming. They include burning of fossil fuels, coal, gas, and oil, to produce energy, industrial revolution, agriculture activity, deforestation, and transportation. Further, volcanism and movement of tectonic plates.

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Industrial revolution, in the late 1800s, contributed to the greenhouse gases. A steam engine was introduced in those days which has affected the environment badly. Later on, advancement in new technologies has increased the industries. With the growing population, there was a dire need to meet the needs of people. Industries were established. Hence energy and power is required to run the industrial sector. The energy is produced from the burning of fossil fuels, coal, gas, and oil, produces greenhouse gas emission, particularly carbon dioxide, which is causing the global warming. According to dawn news paper energy production from burning of fossil fuels is one of the most important factors contributing to the greenhouse gases, carbon dioxide in the environment. Other gases also responsible for the global warming. As carbon dioxide is the cycle of the universe when it is increased from burning of fossil fuels warms the global temperature. When the sunlight traps the earth some heat reflects and

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Some is absorbed the earth due to gases in the atmosphere it leads to warm the earth surface.

Transportation also contributing to the global warming. In old times, people travelled through conventional methods. With the advancement in the world, the fastness in the people which is resulted into transportation. Vehicles required a huge amount of fossil fuels, ~~gas~~ gas and oil, emissions increased by rapidly. With the increasing population the demand of the people also increased which is led to global warming. Burning of fossil fuels, diesel, petrol and gas, release emissions, green house gases, carbon dioxide; hence, transportation is contributing to the global warming.

Another most important factor contributing to the global warming is deforestation, cutting down of the wild forests. Forests, all over the world, shrinking rapidly due to appetite at wood and charcoal. Timber mafia and industries of paper production contributing to deforestation. Further, most influential persons having political influence turned the forests.

into agriculture land. Most of the people using forests for livestock grazing. All the above factors are leading to rapid deforestation, cutting the wild forests. These consume the carbon dioxide from the atmosphere. Every plant is matter. When these forests are cut carbon dioxide returns to atmosphere causing global warming. Hence, in all above circumstances, deforestation contributing to global warming.

Agriculture activity is also contributing to the global warming. As the population is increasing, there is a dire need to meet the need of the food of the people. To meet the need of the food, fertilizers and chemicals are used to increase the production of wheat, rice and other crops and vegetables. Also requires fossil fuels to cultivate the land which is contributing to the fossil fuels. Using of fertilizers produces methane which contributing to the global warming. Further, according to dawn newspaper, the residue of crops is burned and contributes to the



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to global warming. Finally agriculture activity contributing to the global warming.

One most important factor of emissions in the environment is energy production. Most of the fossil fuels are burned to generate electricity. Energy is a lifeline of a country. With the increasing population the need of the energy is also increased to run the industries, households and other sectors of life. To run these sectors energy is required, and energy is produced from burning of fossil fuels. Most of the energy is produced from fossil fuels globally. As per World Bank report 80% of the energy is generated from fossil fuels. Consequently, production of energy is contributing to the global warming as a main source.

Over the million of years plate tectonic movement reconfigures the global land and ocean. It can cause the topography and the existence of mountains can cause orographic precipitation. Humidity generally decreases and diurnal temperature swings increases with

with the increasing elevation. Mean ~~temperature~~ temperature and the length of the growing season ~~decreased~~ with elevations.

Volcanism is also an important cause of global warming. It is a process of molten magma inside the earth escapes on the surface of the earth and affects the climate of the earth. Volcanic eruption, geysers, and hot springs are the examples of volcanism and release gases.

The eruption of Mount Pinatubo in 1991, the second largest terrestrial eruption of the 20th century affected the climate substantially.

Greenhouse gases also affect the ozone layer. Higher carbon dioxide causing, making hole in the ozone, which protects the earth from the UV rays. Hence, depletion of ozone layer leading to global warming.

There are multiple effects of global warming. These include, rise in temperature, heat waves, drought, wildfires, floods, glacier melts, heavy rainfall and social and economic effects.

Rise in temperature is one most important effect of global

warmings. Human activities, industrialization and energy production as well as agriculture activity contributed to the rise in global temperature. According to estimates and news paper the earth is warmer  $1.1^{\circ}\text{C}$  than it was before the preindustrial period. The industrial revolution came in the late 1800s. Recently the outgoing year 2023 was warmest year on the record in the history of global warming. The global temperature was recorded at  $14.98^{\circ}\text{C}$ . This is the stark example of rise in temperature at the earth surface.

Global warming warming has also contributed to the heat waves, droughts, and wildfires in the entire world. According to dawn news paper, in Jolt, Kansas faced heat waves and temperature recorded at  $48^{\circ}\text{C}$  which was the highest temperature in that year. It took the lives of more than 400 people. Droughts also caused by rise in temperature. These hit the developing countries and put into water scarce countries. Most parts of the world are facing

severe water shortage due to droughts and heat waves put the all forms of life at risk. Wildfires became common in many parts of the world due to global warming in present and future.

Rise in temperature leading to melting glaciers in all over the world (which is rising to water problems in the world) as more water for a short period of time and then leading to water shortage leading to put the lives of the people at risk.

Increase in temperature also affects the weather pattern. It led to the extreme weather events like heavy rainfall, heat waves and droughts. Heavy rainfall and melting glaciers contributing to floods in the world.

According to newspaper, the country faced a devastating floods in 2022 which damaged the most parts of the country. According to local estimates the accumulative loss reached at 30 billion dollars. According to World Bank estimates, the country faced a loss at 16.3 billion dollar in that floods. Accounted for 33 million people affected.

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As temperature getting increase, soil losing its fertility and resulting into decline in agricultural growth. In 2007 floods most of the crops in Punjab and Sindh washed away which is led to decline in production of crops. Being an agriculture country, the country is not meeting its target wheat and other crops. In 2007 the wheat production of the country was 10.8 million tons against the requirement 29.6 million tonnes.

Global warming also affected the industrial sector. According to dawn newspaper in 2013 the production of cotton declined by 34 percent due to floods in 2007 and industrial sector put at risk. Global warming has put agriculture and industrial sector at risk which badly affected the national economy of the country. As in 2003 the country imported two million tons of wheat from Russia which is additional burden on foreign exchange reserves of the country. Which are already facing troubles. Global warming also affected the export of the

export at the country, which is had effect on national economy. Global warming put world in food insecurity. As said losing it fertility owing to global warming it exacerbated the already already food insecurity at domestic and international level. The food production due to heat waves, droughts, and floods. World is facing food insecurity due to global warming.

It also affected the women and children in rural areas. As in rural areas most of the women and children work in agriculture sector. The global warming put their lives and livelihoods at risk due to heat waves, droughts and floods. Already vulnerable segments of the society put more under violence.

Poverty, unemployment and crime increased as already poor people lost their livelihoods. According to United Nation 793 million are living in poverty and expected to 135 million to 189 million people further will slip into poverty. It led to mass migrations

In recognition to the threats and consequences of the global warming and climate change, the world leaders and international organization started to responding the global phenomenon of global warming. In this regard, the United Nations conference on Environment and development held in 1992 known as Earth Summit. In this meeting some key steps ~~took~~ were taken to fight global warming. These include, systematic scrapping production, the production of toxic material such as gasoline and other toxic materials reduced to keep the environment safe. Another important decisions was taken alternative energy sources to replace the fossil fuels which is the main source of green house gases. Reliance on public transportation to prevent green house gases. An achievement of this meeting which is led to Kyoto Protocol.

On 11 December 1997, The United Nations Framework conference on climate change was signed. Its main focus was on to fight the green house emissions. Japan entered later in this protocol in 2005. Following

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are the same key points of the Protocol. All the countries signed and ratified the protocol to contain four greenhouse gases. emissions, carbon dioxide, methane, nitrous oxide and sulphur dioxide) and two other groups (hydrofluorocarbons and perfluorocarbons) reduce by them. The countries agreed to reduce the emissions by 5.2% at the level of 1990. Emissions do not include this is international aviation and shipping, but in addition industrial gases and chlorofluorocarbons which are dealt with under the Montreal Protocol 1987 on substance and deplete the ozone layer.

The 2007 United Nations climate change conference held in Bali ~~into~~ International Center, Nusa Dua, in Bali, Indonesia from 3 December 3 to 15 December 2007. Conference of parties and meeting at parties including this. Initial European Union proposal global temperature to peak in 10 to 15 years and decline well ~~return~~ and half 2000 by 2050 for developing countries and for developed countries 20-40%.



below at 1990 level by 2020. The United States opposed this meeting.

The United Nations climate change conference held in Denmark city Copenhagen known as Copenhagen. Some important steps were taken in this meeting. These include reduction in green house gases by  $2^{\circ}$  degree celsius, while urging further to  $1.5^{\circ}$ . Alternative energy sources to replace fossil fuels to be adopted. New and additional resources approaching 30 billion dollars will be channelled to the poor countries. Developed countries will make efforts to reduce green house gases and developing countries will report about their plans to reduce green house gases.

One of the most important meeting held in Paris known as Paris agreement, COP 21 in 2015. Some key steps were taken in this meeting. These include that the reduction in green house gases to  $2^{\circ}$ , while more urging to  $1.5^{\circ}$ . Establish commitment by all the Nationally Determined Contributions to reduce green house gases. Climate change

Finance. to 100 billion dollars by 2020 and further increased by 2025.

Recently, in the last year, COP28 was held in Dubai UAE from 30 November to 12 December, 2023. Some key points are there at the meeting that the green house gases to be reduced by 43% below the level at 1990 by 2030 and ~~100~~ by 2035. The main focus of this meeting was to transition away from fossil fuels and alternative renewable energy sources to be used to reduce green house gases. Poor countries to be aided by climate finance.

Some steps should be taken at national level by the country to away from fossil fuels. Alternative renewable energy sources to be adopted like solar, wind, hydro, tidal and biomass which are the cheapest and environmentally friendly methods to generate electricity to meet the needs of the people.

Green transportation should be introduced the country to avoid green house gases which are the main sources of carbon dioxide contributing to the global warming.

Deforestation is another most important factor contributing to the green house gases, primarily carbon dioxide. For example, trees and plants consume carbon dioxide from the environment. When trees are cut down or deforestation carbon dioxide consumed by plants returned to the environment. This process causes global warming. The country should save plants and ~~and~~ the ministry of climate change with the cooperation of ministry of agriculture and forest department should launch plantation campaign. Finally the country should stop deforestation and increase afforestation and save the forests. In 1947, 33% of the land was covered by forest and now chronic to 3-4% which is very bad.

In conclusion, the country is going through its worst challenges at the history. Social, political and economic challenges are more common in Pakistan. Global warming has further exacerbated economic challenges. According to World Bank, Pakistan ~~is~~ faced a loss of 16.3 billion

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billion dollars. According to local estimates the 2007 devastating floods hit the country at 30 billion dollar with more than 1700 casualties, 33 million people affected in 2007 flood. With 9 million people were displaced, 28000 schools were damaged, 45% of the crops washed away in Sindh and most parts of the Punjab. With more than 3100 km roads, 410 bridges, and rail tracks were damaged. 1.8 million houses were also damaged. Similarly in 2010 floods 29 million affected and more than 1900 people lost their lives and 1.84 million ~~people~~ houses were damaged. Pakistan ranked among the countries most vulnerable to climate while the country shares less than 1 percent of the green house gases. So the country should take measure to shift from fossil fuels to renewable methods in transportation, agriculture and energy sector which the cheapest way and environmentally friendly method. The country should introduce green transportation. Tree plantation should be launched to contain the green house gases.