

GLOBAL WARMING EFFECTS AND CAUSES

Prof. Dr. Pramodini V. Kadam

Assistant Professor, S.M.B.S.T. College, Sangamner

Dist – Ahmednagar, State – Maharashtra.

ABSTRACT

Global Warming is the increase of Earth's average surface temperature due to effect of greenhouse gases, such as carbon dioxide emissions from burning fossil fuels or from deforestation, which trap heat that would otherwise escape from earth. Increase of temperature on the earth by about 3° to 5° C (5.4° to 9° Fahrenheit) by the year 2100. Almost 100% of the observed temperature increase over the last 50 years has been due to the increase in the atmosphere of greenhouse gas concentrations like water vapor, carbon dioxide (CO₂), methane and ozone. Greenhouse gases are those gases that contribute to the greenhouse effect .The largest contributing source of greenhouse gas is the burning of fossil fuels leading to the emission of carbon dioxide.

Keywords: Global Warming, carbon dioxide emissions, Greenhouse gases, earth, ozone

INTRODUCTION

Global warming is arguably the most critical and controversial issue facing the world in the twenty-first century. *Global Warming: A Very Short Introduction* provides a concise and accessible explanation of the key topics in the debate: how and why changes are occurring, setting these changes in the context of past global climate change, looking at the predicted impact of climate change, exploring the political controversies of recent years, and explaining the proposed solutions. Recent developments from US policy to the UK Climate Change Bill, and where we now stand with the Kyoto Protocol are described.

Global Warming is the increase of Earth's average surface temperature due to effect of greenhouse gases, such as carbon dioxide emissions from burning fossil fuels or from deforestation, which trap heat that would otherwise escape from Earth.

DEF

- Global warming is defined by the American Heritage Dictionary of Science as “an increase in the average temperature of the Earth’s atmosphere,” either by “human industry and agriculture” or by natural causes like the Earth has “experienced numerous” times “through its history.”
- Some writers use the phrases “global warming” and “climate change” to mean temperature changes strictly caused by human activity.
- Other writers use adjectives such as “man-made” and “anthropogenic” to distinguish between human and non-human causes. (“Anthropogenic” means “of human origin, and “AGW” stands for “anthropogenic global warming.”

Just Facts’ Standards of Credibility require the use of “language that is precise and unambiguous.” Hence, when human causes are stated or implied, this research uses terms like “man-made” and “human-induced.”

Main effects of global warming

There are two major effects of global warming:

- Increase of temperature on the earth by about 3° to 5° C (5.4° to 9° Fahrenheit) by the year 2100.
- Rise of sea levels by at least 25 meters (82 feet) by the year 2100.

Cause and effect for global warming

1. Carbon dioxide emissions from fossil fuel burning power plants

Our ever increasing addiction to electricity from coal burning power plants releases enormous amounts of carbon dioxide into the atmosphere. 40% of U.S. CO₂ emissions come from electricity production, and burning coal accounts for 93% of emissions from the electric utility industry [EPA, pg. 10]. Every day, more electric gadgets flood the market, and without widespread alternative energy sources, we are highly dependent on burning coal for our personal and commercial electrical supply.

2. Carbon dioxide emissions from burning gasoline for transportation

Our modern car culture and appetite for globally sourced goods is responsible for about 33% of emissions in the U.S. with our population growing at an alarming rate, the demand for more cars and consumer goods means that we are increasing the use of fossil fuels for transportation and manufacturing. Our consumption is outpacing our discoveries of ways to mitigate the effects, with no end in sight to our massive consumer culture.

3. Methane emissions from animals, agriculture such as rice paddies, and from Arctic seabed's

Methane is another extremely potent greenhouse gas, ranking right behind CO₂. When organic matter is broken down by bacteria under oxygen-starved conditions (anaerobic decomposition) as in rice paddies, methane is produced. The process also takes place in the intestines of herbivorous animals, and with the increase in the amount of concentrated livestock production, the levels of methane released into the atmosphere is increasing. Another source of methane is methane clathrate, a compound containing large amounts of

methane trapped in the crystal structure of ice. As methane escapes from the Arctic seabed, the rate of global warming will increase significantly.

4. Deforestation, especially tropical forests for wood, pulp, and farmland

The use of forests for fuel (both wood and for charcoal) is one cause of deforestation, but in the first world, our appetite for wood and paper products, our consumption of livestock grazed on former forest land, and the use of tropical forest lands for commodities like palm oil plantations contributes to the mass deforestation of our world. Forests remove and store carbon dioxide from the atmosphere, and this deforestation releases large amounts of carbon, as well as reducing the amount of carbon capture on the planet.

5. Increase in usage of chemical fertilizers on croplands

In the last half of the 20th century, the use of chemical fertilizers (as opposed to the historical use of animal manure) has risen dramatically. The high rate of application of nitrogen-rich fertilizers has effects on the heat storage of cropland (nitrogen oxides have 300 times more heat-trapping capacity per unit of volume than carbon dioxide) and the run-off of excess fertilizers creates 'dead-zones' in our oceans. In addition to these effects, high nitrate levels in groundwater due to over-fertilization are cause for concern for human health.

6. Global Warming Effect: Rise in sea levels worldwide

Scientists predict an increase in sea levels worldwide due to the melting of two massive ice sheets in Antarctica and Greenland, especially on the East coast of the U.S. However, many nations around the world will experience the effects of rising sea levels, which could displace millions of people. One nation, the Maldives, is already looking for a new home, thanks to rising sea levels

7. Global Warming Effect: More killer storms

The severity of storms such as hurricanes and cyclones is increasing, and research published in Nature found:

8. Global Warming Effect: Massive crop failures

According to recent research, there is a 90% chance that 3 billion people worldwide will have to choose between moving their families to milder climates and going hungry due to climate change within 100 years. One of the main causes of this will be the spread of desertification, and its accompanying effects.

9. Global Warming Effect: Widespread extinction of species

According to research published in Nature, by 2050, rising temperatures could lead to the extinction of more than a million species. And because we can't exist without a diverse population of species on Earth, this is scary news for humans.

This 6th mass extinction is really just a continuation of the Holocene extinction which began at the end of the last ice age and has resulted in the extinction of nearly all of the Earth's megafauna animals, largely as a result of human-expansion.

Widespread species loss and lists of endangered species just keep growing. This is a concerning matter on many fronts.

10. Global Warming Effect: Disappearance of coral reefs

A report on coral reefs from WWF says that in a worst case scenario, coral populations will collapse by 2100 due to increased temperatures and ocean acidification and its effects. The 'bleaching' of corals from small but prolonged rises in sea temperature is a severe danger for ocean ecosystems, and many other species in the oceans rely on coral reefs for their survival.

11. The greenhouse effect

When sunlight reaches Earth's surface some is absorbed and warms the earth and most of the rest is radiated back to the atmosphere at a longer wavelength than the sun light. Some of these longer wavelengths are absorbed by greenhouse gases in the atmosphere before they are lost to space. The absorption of this long wave radiant energy warms the atmosphere. These greenhouse gases act like a mirror and reflect back to the Earth some of the heat energy

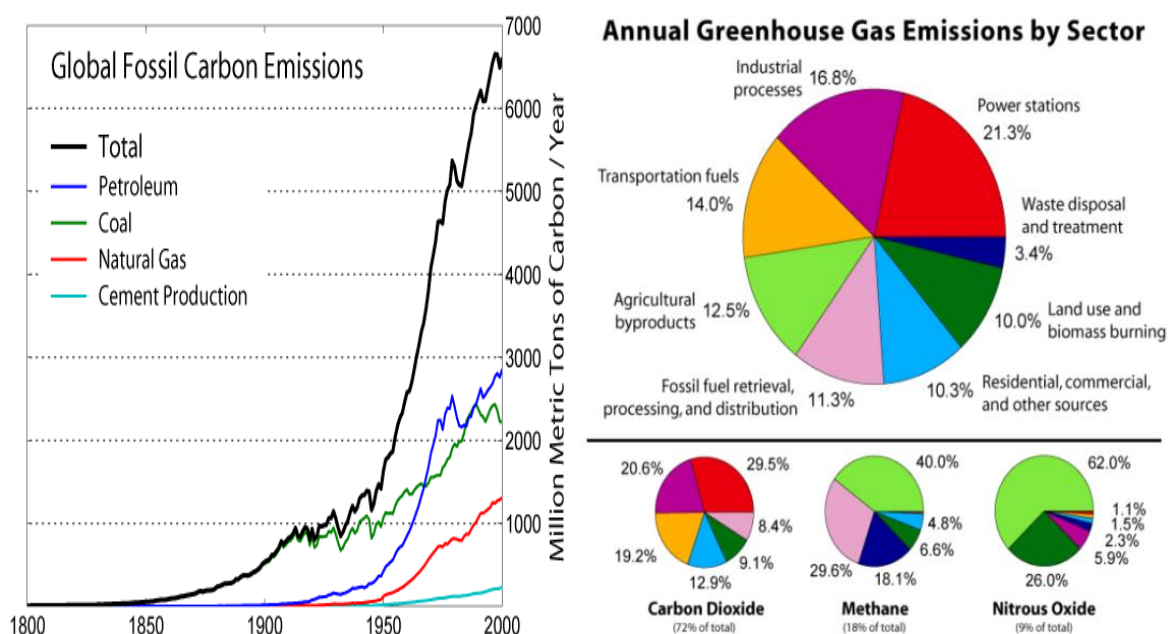
which would otherwise be lost to space. The reflecting back of heat energy by the atmosphere is called the "greenhouse effect".

The major natural greenhouse gases are water vapor, which causes about 36-70% of the greenhouse effect on Earth (not including clouds); carbon dioxide CO₂, which causes 9-26%; methane, which causes 4-9%, and ozone, which causes 3-7%. It is not possible to state that a certain gas causes a certain percentage of the greenhouse effect, because the influences of the various gases are not additive. Other greenhouse gases include, but are not limited to, nitrous oxide, sulfur hexafluoride, hydro fluorocarbons, per fluorocarbons and chlorofluorocarbons.

Global warming causes by greenhouse effect

Almost 100% of the observed temperature increase over the last 50 years has been due to the increase in the atmosphere of greenhouse gas concentrations like water vapor, carbon dioxide (CO₂), methane and ozone. Greenhouse gases are those gases that contribute to the greenhouse effect the largest contributing source of greenhouse gas is the burning of fossil fuels leading to the emission of carbon dioxide.

Greenhouse gases in the atmosphere (see above) act like a mirror and reflect back to the Earth a part of the heat radiation, which would otherwise be lost to space. The higher the concentration of greenhouse gases like carbon dioxide in the atmosphere, the more heat energy is being reflected back to the Earth. The emission of carbon dioxide into the environment mainly from burning of fossil fuels (oil, gas, petrol, kerosene, etc.) has been increased dramatically over the past 50 years, see graph below.



www.globalwarmingart.com/wiki/Image
www.en.wikipedia.org/wiki/Image

Global warming contribution of fuels& how it Calculate

The best way is to calculate the carbon dioxide emissions based on the fuel consumption. For your convenience, please find below a table of the most common used fuels:

Reading example:For each liter of petrol fuel consumed, 2.3 kg carbon dioxide (CO₂) is emitted.

fuel type	unit	CO2 emitted per unit
Petrol	1 liter	2.3 kg
Gasoline	1 liter	2.3 kg
Diesel	1 liter	2.7 kg
Oil (heating)	1 liter	3 kg

REFERENCES

- 1) www.indiacelebrating.com/essay/environmental-issues/global-warming/causes-and-effects-of-global-warming/
- 2) www.en.wikipedia.org/wiki/Effects_of_global_warming
- 3) www.planetsave.com/2009/06/07/global-warming-effects-and-causes-a-top-10-list/

