Global warming: Causes and Effects

Varsha Sharma,¹# Indu Nashier Gahlawat¹²*

¹Department of Education, ²Department of Biology, Aditi Mahavidyalaya, University of Delhi, Bawana 110039, Delhi, India

ABSTRACT

Global warming is a phenomenon that can be best defined as increase in atmospheric temperature throughout the globe. The main reason of global warming is greenhouse effect due to gases like Carbon dioxide, sulphurdioxide, nitrogen dioxide called as greenhouse gases. Increase in temperature causes glaciers to melt and thereby increasing the sea levels which potentially can cause flooding of low lying areas living a large no. Of people homeless. Not only on land it disturbs the life cycle and food chain in water ecosystem also as zooplanktons cannot survive in so much of thermally expanded areas. This global warming will alter precipitation rate and thus cause droughts also. Now, we can imagine at what urge of massive disaster we are standing floods and droughts both causing limitless damage to million of lives all across the world. It is analysed that in 100 years 0.5 degree of temperature has already increased. To mitigate global warming we can avoid human interference in temperature elevation by reducing the source of greenhouse gases (e.g., burning of fossil fuels, heat or transport)5. Hence, to see ourselves, our families, and our forth coming generations living healthy life we need to get sensitise towards environment and fight issue global warming.

Keywords: Green House Effect, Gases Emission, Industrialisation, Ozone Layer, Afforestation

INTRODUCTION

Global warming is a phenomena which is marked by increase in temperature not only confined to a particular area but throughout the world. Since the increase in temperature is causing warming of globe thats why called as global warming.¹

Global warming is caused due to enhanced greenhouse effect, the process in which gases like CO2, NO2 and SO2 called as green house gases trap the longer wavelength of infrared light or heat radiating from surface of earth thus causing increase in temperature not only CO2 but methane (CH4), chlooroflourocarbons (CFCs) also absorb infrared radiation and warm the atmosphere.

CAUSES

A. Greenhouse effect  
B. Emission of greenhouse gases  
C. Ozone layer depletion

Greenhouse Effect

Greenhouse effect is a process by which certain gases called greenhouse gases present in lower atmosphere trap the heat emitted by earth surface thereby causing increase of temperature in the atmosphere.²¹ The radiations coming from sun have relatively shorter wavelength, chiefly in visible areas and radiations are freely allowed to pass through greenhouse gases. Radiations absorb by earth surface are convected into heat which are emitted again in form of long wavelength infrared radiation by earth surface. The greenhouse gases present in atmosphere absorb these radiations and prevent them from escaping into upper atmosphere. Greenhouse effect is majorly caused by CO2 (55%) CFCS (24%) CH4 (15%)
and NO₂ (6%). Humans have increased the greenhouse effect by increasing amount of greenhouse gases like CO₂ and by CFC. Increasing emission of these gases will lead to greater warming and global climate change.

Since CO₂ and after gases trap sun’s radiation somewhat like glass does in a greenhouse the natural trapping of heat in atmosphere is referred to as greenhouse effect. The increase warming by increased level of gases that absorb infrared rays is known as enhanced greenhouse effect.

B. Before industrialization humans released few gases into the atmosphere but nowadays population growth, fossil fuel burning and deforestation extensively contributes of increased gases.

For instance CFCs which cause depletion of stratospheric ozone layer are released from refrigerators, air conditioners, NOₓ by extensive use of fertilizers and motor vehicles and above all CO₂ is emitted due to burning of forest, fossil fuel, coal, oil and natural gases.

**Ozone layer depletion**

Another serious issue that we need to be aware is ozone layer depletion which also leads to global warming. Ozone is colorless gas which is found in stratosphere of upper atmosphere. The ozone layer protects us from Ultraviolet radiation coming from sun. UV radiation are high energy electromagnetic waves which if enters earth atmosphere can lead to various environmental issues including global warming and so many health issues for all living organisms such as skin cancer malignant melanoma, squamous cell carcinoma are other types of cancer and eye damage cause by ozone layer depletion etc. Increase in Chlorine, the production and emission of CFC, increase in bromine level also accounts for major depletion in ozone layer. Several other compounds are volatile organic compound found in vehicle emissions, by products of industrial process. Aerosols and refrigerants cause not only skin cancer and eye damage but ageing of skin and damage to immune system and increase in UV radiations increase the temperature and thus enhance the global warming.

**EFFECTS OF GLOBAL WARMING**

There are many serious effects of global warming in our environment.

Melting of ice: due to thermal expansions, glaciers are melting at high rate causing significant rise in sea level. Sea level rise can be attributed to thermal expansion of ocean water caused by global warming because when water is heated, its density decreases but volume increases. This rising of sea level will lead to millions of homeless lives who will be compelled to be homeless especially the ones who live in coastal areas. Mountain glaciers around the world are melting frequently. The Gangotri glacier in India is diminishing at similar rate.

Some countries that are at urge of massive loss due to rising of sea levels are Bangladesh, Vietnam, Maldives etc. A rising sea level could cause Bangladesh to lose its land which will displace millions of people.

Effects on organisms: A research in California has stated that population of zooplankton in California current had decline by 80% since 1951, apparently because the current has warmed slightly. The decline in zooplanktons in California current has affected the entire food web there and population of planktons eating fishes and sea birds have also decline.

Biologists generally agree that global warming will have especially several impact on plants because they cannot move about when environment condition change.

(3.) Effects on human health: due to increased temperature so many people are suffering from heat related illness and ultimately deaths.

Climate change gives suitable warm areas for mosquitoes to expand their range into newly warm areas and spread malaria, dengue and yellow fever and encephalitis causing several problems.

(4.) Effects on planting: rise in sea level may cause flooding of river deltas leading to significant increase in disease causing organisms and thus reducing crop yields.

(5.) Change in precipitation patterns: due to warming of regions, precipitation patterns will change, causing some areas to have more frequent droughts. Changes in precipitation patterns could affect availability and quality of fresh water in many locations.
WORLDWIDE EFFECT OF GLOBAL WARMING

Greenhouse gases are majorly produced in developed countries, the rate of production by developing countries is also increasing rapidly.

The greater effect of global warming could be in developing countries because they have less economic resources, fewer technical expertise due to which they are not well able to fight with issue global warming. Also developed countries have better house structure, medical care and water treatment plants due to which they can better deal with it.

As far as India is concerned, ours food production will be extremely affected and could delay the progress the diminishing poverty in country. Hence, in our country it can make our social and environmental condition unfavorable to live in.

MITIGATION OF GLOBAL WARMING

Since the automobiles contribute too much of CO₂ we can do one thing i.e. increase energy efficiency of automobiles and appliances and thus reducing expedition of global warming.

Afforestation i.e planting trees in a wide no. is a low technological and less expensive strategy to bring about change in global warming. This will remove atmospheric carbon dioxide from air. Since, plants and trees live for 100 years CO₂ will be separated from environment for a very long time.

Managing carbon levels: Many countries are investigating carbon management, ways to separate CO₂ produced during fossil fuel burning and separated from atmosphere. So many countries have developed several power plants which trap CO₂.

Sea curing: we can add iron to sea which is an essential element for many organisms to grow. sea is good source of nitrogen but does not contain iron so adding iron will lead to growth of so many phytoplanktons and as the phytoplanktons will undergo photosynthesis they will reduce the level of CO₂ from the water whose fulfillment would be done by atmospheric CO₂ and thus reducing amount of atmospheric CO₂.

ADAPTATION OF GLOBAL WARMING

Since, we know as much as we try some amount of human induced global warming is inevitable. Government is planning to make people aware of adapting themselves towards climate change and warming of various regions of society.

One of most common example of this is that people due to rise of sea level will leave their homes in coastal areas and move to land areas to skip danger of floods and fear of loosing of lives along with homes.

So we should get sensitize towards our environment to protect it and fight with global warming to make our earth a better place to live in.

CONCLUSION

As we saw that our environment is facing serious threats of emission of green house gases and its effects Ozone Layer depletion which all come along with Global Warming we are facing so many issues regarding our health and surroundings.

People are suffering from skin related diseases such as skin cancer and many more. Hence we should be aware and cautious of our deeds and we all should take a step forward to protect our earth.

REFERENCES & NOTES

5. Pacific north west National Lab, Richland, WA (United States).
on soil organic C Storage. Soil biology and biochemistry, 27(6), 753-760.

AUTHORS BIOGRAPHIES

Dr. Indu Nashier Gahlawat is presently an associate professor at Aditi Mahavidyalaya, Delhi University, Bawana- 110039. She has done B.Sc. (H) Botany from DU in 1989, M.Sc. (botany) from DU in 1991, M.Phil (1991-92), “Ecological, Ultra-structural and Reproductive Studies in Cryptonemiales (Rhodophyceae): A Survey” and had completed her Ph.D during 1992-96. She is specialized in histochemistry, ultrastructure and algal reproductive biology. She has taken part in various seminars and conferences related to biology. She has several papers published on her name on various topics such as red algae, biodiversity and many more. She has profound interest in botany and working in various dimensions of biology.

Ms. Varsha Sharma is pursuing her bachelor degree in elementary education from department of education, Aditi Mahavidyalaya, Delhi University. She has participated in story telling competition regarding scientific concepts and won second rank. She has attended various workshops such as integral education, innovative practices, work and energy, time management, stress management etc. She has got certificates of merit and subject topper in biology and contemporary India in her academics. She has participated in various student activities in college such as notice board making, waste material activity, wall designing. She has volunteered in admission in department of education university of Delhi. She has interned with primary school students in various programs under B.el.ed. She has interest in reading, teaching and working for environment.