

IR-PT1
CSS-2024
Q5

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How do you define Climate Change and Global warming? what concrete evidence supports the assertion that the climate is under going change? Analyse the scientific discourse surrounding human-induced climate change, exploring the role of human activities in this phenomenon. Provide thoughtful suggestions for securing the climate on planet Earth, considering both individual and collective actions.

CLIMATE CHANGE AND GLOBAL WARMING - A BRIEF INTRODUCTION

Climate Change and Global warming are terms used interchangeably. As per the UNFCCC (United Nations Framework on Combatting Climate Change)

'Climate Change is defined as the change which is directly or indirectly attributed to the human activities; this results into a change in the composition of global atmosphere which instigates a change in the global temperature which further results in the global climate variability.' - (UNFCCC)

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While global warming is defined as.

"The thermal process in which greenhouse gases trap and reemit the heat that results in warming of the atmosphere and the entire Earth."

(Botkin & Keller)

EVIDENCE THAT SUPPORTS GLOBAL WARMING AND CLIMATE CHANGE

1a) Melting of Polar Ice Caps

In Antarctica, the polar ice caps are quickly melting due to rising temperatures. In 2018, an ice sheet broke away 4x the size of London city. NASA estimated that in the Arctic sea the ice loss is 11.5% per decade.

b) Heatwaves across the world

Rising global temperatures have led to heatwaves across the world.

Xingjiang, China recorded +52°C for the first time in history. London, UK recorded 40°C for the first. Greece suffered a heatwave for 20 days where temperatures were above 35°C.

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c) Flooding a common sight across the world

Pakistan has been hit with devastating floods in the 2022. Monsoon rains poured heavy amounts in matter of few days that resulted in 33 million being displaced. China, US, Italy, Russia all experienced severe flooding. Dubai in this year suffered from urban flooding.

d) Rising Sea Levels have washed many low lying areas

Jakarta, Indonesia is sinking at a pace of $\frac{1}{2}$ feet over the past 25 years. It has sunk 16 feet till. Tuvalu, Kiribati and Maldives all have lost their islands. In Pakistan, the Arabian sea has intruded upto 67 km into Thatta and Badin by turning its agricultural land into saline land.

ROLE OF HUMAN ACTIVITIES - IN THIS PHENOMENON

a) Rise of Urbanization lead to degradation of Crop Land

The population explosion has lead to a boom

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In urbanization. Today, our cities are many times the sizes they were previously. In Pakistan, a study by the urban unit concluded

'Lahore city by 12000 hectares

In the past 28 years from 1990 to 2018?'

This growth decimated agricultural lands and lead to various new phenomenonas such as smog and air pollution.

b) Rapid Industrialization has Increased Global Temperatures

Since the industrial revolution, the temperature has risen 1.2°C from (1850-2023), and has the potential to rise from current 1.4°C to 5.8°C till 2400. (IPCC). Man's quest to industrialize led him to decimate forest cover, release toxic gases in the atmosphere and pollute waterways. Burning of fossil fuels led to the release of harmful chemicals such as SO_2 , NO_2 and so on.

c) CFC's and the Depletion of Ozone Layer

Molina ^{and} Shearwood, two British scientists conducted a study and found the ozone layer was fast depleting. Use of CFC's or Chloroflourocarbons were attributed to the cause

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of ozone depletion. In September 2000, the size of the depleted layer was measured to be 28.4 million kilometers² square (km²). CFC were used in aerosols, refrigerants and solvents. When they were released, they damaged the ozone particles in the stratosphere.

d) War as a cause of Global Warming

As per a conservative estimate by the UN, 'the world's militaries contribute 5.5% of global greenhouse emissions.' Similarly, war lead to environmental degradation, creation of environmental refugees and complete destruction of habitats of humans, plants, animals and much more.

SUGGESTIONS FOR PREVENTING (URBAN SPRING) CLIMATE CHANGE AND MITIGATING ITS EFFECTS

State Levels

a) Promotion of Renewable Energy Sources

Transitioning to renewable and green energy

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sources can reduce the amount of GHGs released in the atmosphere. Moreover, the issue of smog and air pollution can also be curbed through this.

(b) Promotion of Sustainable Urbanization

Controlling Urban Sprawl and promoting concepts like Mixed-Use developments and Sponge cities can help our cities become environmentally sustainable and act as green engines of growth.

(c) Implementation of Environmental Commitments

Commitments like the Montreal Protocol, UNFCCC, SDG's and MDG's all lay the path for sustainable growth and development of countries. Implementation of these protocols and goals is a must to ensure a habitable and sustainable future.

(d) Strengthening National and International Environmental bodies:

Bodies such as the Environmental Protection Agency and United Nations Environment Programme, UN-Habitat and others must be strengthened to ensure cooperation both at the local and global level.

Individual Level

a) Change of Lifestyles to accommodate the Environment

At the individual, people have to change their lifestyles by opting for environmentally conscience choices. Cutting out plastics, switching to green technologies for energy and regulating the waste disposal of their homes is a step that can bring instant change at the community level.

b) Pushing for Environmentally friendly Legislations

Citizens must push for their legislators to pass environmentally friendly legislations that protects them and their future generations. Moreover, legislations relating to global peace and cooperation must be ^{lobbied for} passed in order to ensure a better and equitable world.

c) Environmental awareness to be spread in the community

Ignorance is a big cause of pollution. However, through awareness and guidance habits and lifestyles can change. Informed and motivated citizens must make an effort to spread

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among society and its members.

d) Environmental Campaigning - Greta Thunberg's Footsteps

Citizens should campaign rigorously for their environmental rights. As a clean environment is determinant to the survival and better upbringing of life Greta Thunberg is an example how she led a campaign (against) for environmental change.

CONCLUSION

Global warming is an issue that affects all and its effects are not limited to one region or class or ethnicities. It can be mitigated and reversed through a collective and concerted effort.