



Research Article

UNPREDICTABLE CLIMATIC CHANGES: CAUSES, EFFECTS AND SOLUTIONS

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ABSTRACT

“Climate change is a problem we face, and it's something we should not forget. Our world is changing in a fast pace, and a solution to this we have to get”.

Key words:

Generating power, Manufacturing goods, Cutting down forests, Using transportation, Hotter temperatures, More severe storms, Increased drought, Loss of species, Not enough food, Keep fossil fuels in the ground, Invest in renewable energy, Switch to sustainable transport, Help us keep our homes cosy

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INTRODUCTION

What is Climate change?

Climate change refers to long-term shifts in temperatures and weather patterns. These shifts may be natural, but since the industrial revolution, human activities have been the main driver of unpredictable climate change, primarily due to the burning of fossil fuels (like coal, oil, and gas) increasing greenhouse gas levels in the Earth's atmosphere.

What is greenhouse gas?

A gas that traps heat in the earth's atmosphere is known as Greenhouse Gas. It contributes to the Greenhouse Effect. Carbon dioxide, methane and water vapour are the most important greenhouse gases.

For example, climate change played the main role in causing large scale floods across Maharashtra in July 2021. Around 251 died, over 375,000 people were evacuated, over 2 lakh hectares of crops were damaged.

Causes of climate changes

The most prominent man-made causes of climate change include:

Generating power

Generating electricity and heat by burning fossil fuels causes a large volume of global emissions. Most electricity is still generated by burning coal, oil, or gas, which produces carbon dioxide and

nitrous oxide – powerful greenhouse gases that blanket the Earth and trap the sun's heat. Globally, a bit more than a quarter of electricity comes from wind, solar and other renewable sources which, as opposed to fossil fuels, emit little to no greenhouse gases or pollutants into the air.

Manufacturing goods

Manufacturing and industry produce emissions, mostly from burning fossil fuels to produce energy for making things like cement, iron, steel, electronics, plastics, clothes, and other goods. Machines used in the manufacturing process often run on coal, oil, or gas. The manufacturing industry is one of the largest contributors to greenhouse gas emissions worldwide.

Cutting down forests

Cutting down forests to create farms or for other reasons, causes emissions. Each year approximately 12 million hectares of forest are destroyed. Since forests absorb carbon dioxide, destroying them also limits nature's ability to keep emissions out of the atmosphere. Deforestation is responsible for roughly a quarter of global greenhouse gas emissions.

Using transportation

Most cars, trucks, ships, and planes run on fossil fuels. That makes transportation a major contributor of greenhouse gases, especially carbon-dioxide emissions. Road vehicles account for the largest part, due to the combustion of petroleum-based products, like gasoline, in internal combustion engines. Transport accounts for

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nearly one quarter of global energy-related carbon-dioxide emissions.

Producing food

Producing food causes emissions of carbon dioxide, methane, and other greenhouse gases in various ways, including through deforestation and clearing of land for agriculture and grazing, digestion by cows and sheep, the production and use of chemical fertilizers and manure for growing crops, and the use of energy to run farm equipment or fishing boats, usually with fossil fuels. All this makes food production a major contributor to climate change.

Powering buildings

Globally, residential and commercial buildings consume over half of all electricity. As they continue to draw on coal, oil, and natural gas for heating and cooling, they emit significant quantities of greenhouse gas emissions. Growing energy demand for heating and cooling as well as increased electricity consumption for lighting, appliances, and connected devices, has contributed to a rise in energy-related carbon-dioxide emissions from buildings in recent years. The self-centred modern man who is more interested in his own conveniences and comforts, lacks sanity and goes ahead with his selfish designs at the cost of the destruction of world pattern.

Excess consumption

Your home and use of power, how you move around, what you eat and how much you throw away all contribute to greenhouse gas emissions. So does the consumption of goods such as clothing, electronics, and plastics. Our lifestyles have a profound impact on our planet. The wealthiest bear the greatest responsibility: the richest 1 percent of the global population combined, account for more greenhouse gas emissions than the poorest 50 percent. This bears the witness to the fact that the greater the wealth, the more the greed.

Effects of climate change

Warmer temperatures over time are changing weather patterns and disrupting the usual balance of nature, posing many risks to human beings and all other forms of life on Earth. Nearly all land areas are seeing more hot days and heat waves; 2021 was one of the hottest years on record.

The direct consequences of climate change include:

Hotter temperatures

As greenhouse gas concentrations rise, so does the global surface temperature. The last decade, 2011-2020, is the warmest on record. Since the 1980s, each decade has been warmer than the previous one. Nearly all land areas are seeing more hot days and heat waves. Higher temperatures increase heat-related illnesses and make working outdoors more difficult. Wildfires start more easily and spread more rapidly when conditions are hotter. Temperatures in the Arctic have warmed at least twice as fast as the global average.

More severe storms

Destructive storms have become more intense and more frequent in many regions. As temperatures rise, more moisture evaporates, which exacerbates extreme rainfall and flooding, causing more destructive storms. The frequency and extent of tropical storms is also affected by the warming ocean. Cyclones, hurricanes, and typhoons feed on warm waters at the ocean surface. Such storms

often destroy homes and communities, causing deaths and huge economic losses.

Increased drought

Climate change is changing water availability, making it scarcer in more regions. Global warming exacerbates water shortages in already water-stressed regions and is leading to an increased risk of agricultural droughts affecting crops, and ecological droughts increasing the vulnerability of ecosystems. Droughts can also stir destructive sand and dust storms that can move billions of tons of sand across continents. Deserts are expanding, reducing land for growing food. Many people now face the threat of not having enough water on a regular basis.

A warming, rising ocean

The ocean soaks up most of the heat from global warming. The rate at which the ocean is warming strongly increased over the past two decades, across all depths of the ocean. As the ocean warms, its volume increases since water expands as it gets warmer. Melting ice sheets also cause sea levels to rise, threatening coastal and island communities. In addition, the ocean absorbs carbon dioxide, keeping it from the atmosphere. But more carbon dioxide makes the ocean more acidic, which endangers marine life and coral reefs.

Loss of species

Climate change poses risks to the survival of species on land and in the ocean. These risks increase as temperatures climb. Exacerbated by climate change, the world is losing species at a rate 1,000 times greater than at any other time in recorded human history. One million species are at risk of becoming extinct within the next few decades. Forest fires, extreme weather, and invasive pests and diseases are among many threats related to climate change. Some species will be able to relocate and survive, but others will not.

Not enough food

Changes in the climate and increases in extreme weather events are among the reasons behind a global rise in hunger and poor nutrition. Fisheries, crops, and livestock may be destroyed or become less productive. With the ocean becoming more acidic, marine resources that feed billions of people are at risk. Changes in snow and ice cover in many Arctic regions have disrupted food supplies from herding, hunting, and fishing. Heat stress can diminish water and grasslands for grazing, causing declining crop yields and affecting livestock.

More health risks

Climate change is the single biggest health threat facing humanity. Climate impacts are already harming health, through air pollution, disease, extreme weather events, forced displacement, pressures on mental health, and increased hunger and poor nutrition in places where people cannot grow or find sufficient food. Every year, environmental factors take the lives of around 13 million people. Changing weather patterns are expanding diseases, and extreme weather events increase deaths and make it difficult for health care systems to keep up.

Poverty and displacement

Climate change increases the factors that put and keep people in poverty. Floods may sweep away urban slums, destroying homes and livelihoods. Heat can make it difficult to work in outdoor jobs. Water scarcity may affect crops. Over the past decade (2010–

2019), weather-related events displaced an estimated 23.1 million people on average each year, leaving many more vulnerable to poverty. Most refugees come from countries that are most vulnerable and least ready to adapt to the impacts of climate change.

Solutions to unpredictable climate change

Mahatma Gandhiji says “The earth provides enough to satisfy every man’s needs but not every man’s greed”. Only by inculcating in humans the immortal principles of love for nature, a sense of responsibility towards the earth and the welfare of the world can lessen the greed in human nature.

Steps we can take up to slow down climate change would include

Keep fossil fuels in the ground

Fossil fuels include coal, oil and gas – and the more that are extracted and burned, the worse climate change will get. All countries need to move their economies away from fossil fuels as soon as possible.

Invest in renewable energy

Changing our main energy sources to clean and renewable energy is the best way to stop using fossil fuels. These include technologies like solar, wind, wave, tidal and geothermal power.

Switch to sustainable transport

Petrol and diesel vehicles, planes and ships use fossil fuels. Reducing car use, switching to electric vehicles and minimising plane travel will not only help stop climate change, it will reduce air pollution too.

Help us keep our homes cosy

Homes shouldn’t be draughty and cold – it’s a waste of money, and miserable in the winter. The government can help households heat our homes in a green way – such as by insulating walls and roofs and switching away from oil or gas boilers to heat pumps.

Improve farming and encourage vegan diets

One of the best ways for individuals to help stop climate change is by reducing their meat and dairy consumption, or by going fully vegan. Businesses and food retailers can improve farming practices and provide more plant-based products to help people make the shift.

Restore nature to absorb more carbon.

The natural world is very good at cleaning up our emissions, but we need to look after it. Planting trees in the right places or giving land back to nature through ‘rewilding’ schemes is a good place to start. This is because photosynthesising plants draw down carbon dioxide as they grow, locking it away in soils.

Protect forests like the Amazon

Forests are crucial in the fight against climate change, and protecting them is an important climate solution. Cutting down forests on an industrial scale destroys giant trees which could be sucking up huge amounts of carbon. Yet companies destroy forests to make way for animal farming, soya or palm oil plantations. Governments can stop them by making better laws.

Protect the oceans

Oceans also absorb large amounts of carbon dioxide from the atmosphere, which helps to keep our climate stable. But many are overfished, used for oil and gas drilling or threatened by deep sea mining. Protecting oceans and the life in them is ultimately a way to protect ourselves from climate change.

Reduce how much people consume

Our transport, fashion, food and other lifestyle choices all have different impacts on the climate. This is often by design - fashion and technology companies, for example, will release far more products than are realistically needed. But while reducing consumption of these products might be hard, it’s most certainly worth it. Reducing overall consumption in more wealthy countries can help put less strain on the planet.

Reduce plastic

Plastic is made from oil, and the process of extracting, refining and turning oil into plastic (or even polyester, for clothing) is surprisingly carbon-intensive. It doesn’t break down quickly in nature so a lot of plastic is burned, which contributes to emissions. Demand for plastic is rising so quickly that creating and disposing of plastics will account for 17% of the global carbon budget by 2050 (this is the emissions count we need to stay within according to the Paris agreement).

These changes may seem small, but every effort counts. When we work together, we can make a significant difference to help reduce the effects of climate change.

CONCLUSION

Alexandria Ocasio says “We don’t have time to sit on our hands as our planet burns. For young people, climate change is bigger than election or re-election. It’s life or death.” We are in danger of destroying ourselves by our greed and stupidity. The principles of equity and justice-towards humans and nature alike-must be placed front and centre as we seek to protect the most vulnerable among us from the worst ravages of climate change.

“Let’s pledge, not to play with nature more, Plant more trees, save pollution and be assure, Nature will pay back all the dividends, Giving generation next, a healthy and safe land”.

(Lines from the poem ‘If Nature Suffers’)

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