

Climate change: Causes and consequences

Brainstorming

Causes

- Use of fossil fuels
- Uncontrolled deforestation
- Geopolitics
- Different human activities

Food waste

Plastic pollution

Textile waste

consequences

- Imbalance water conditions
- Rise in Temperature
- Economy loss
- Impacts on Human

Outline

1. Introduction:

1.1. Attention Grabber: Threat for human in today's history

1.2. General Statement: It is an inevitable phenomenon.

1.3. Thesis statement: The causes of climate change are use of fossil fuels, uncontrolled deforestation,

chemicals usage, and different human activities. These lead to imbalance water conditions, rise in temperature, economy loss and impacts on human.

2. Body:

2.1. Causes of Climate change:

2.1.1. Use of fossil fuels

a) Emission of greenhouse gases

- The new Emission Gas Report by the UN Environment Programme.

b) Rising energy demand

- CO₂ emissions from fossil fuels

& industrial purposes in Pakistan 1970-2023

(Published by Ian Tiseo, Oct 14, 2024)

c) Ocean acidification

- MIT scientists have found that

Ocean's ability to store carbon is reducing.

2.1.2. Uncontrolled deforestation

a) Over-population

• Report of Pakistan Bureau of Statistics (PBS).

b) Use for domestic and economy purposes

• 5% area contribute in 0.41% of GDP

c) live stock grazing for meat production

• In South America, massive forests have been cleared.

2.1.3. Established geopolitical stakes of the world power

• US-China Trade War

• Withdrawal of the USA from Paris Agreement

2.1.4. Different human activities

a) Food waste

• accounts for about 8-10% of annual ^{global} greenhouse gas emissions. (UN Climate Change 2024)

b) plastic pollution

• United Nations Environment programme

• Research by Ellen MacArthur foundation.

• OECD report - 2.8 GtCO₂ by 2040.

c) Fast fashion and Textile waste

• Emissions from textile manufacturing alone are projected to skyrocket by 60% by 2030. (UN Framework Convention on climate change)

2.2. Consequences of climate change:

2.2.1. Imbalance water conditions

a) Heavy Rainfall

• Rain in UAE (April 2024)

• Rainfall in different areas of Pakistan

b) Frequent floods

• loss of lives

• loss of infrastructure

→ 2025 report about climate released by European think-tank Germanwatch.

c) unpredictable droughts
Droughts in different years in
Pakistan

2.2.2. Rise in Temperature

a) Extreme heat.

- Death of 1300 people during the Haj pilgrimage 2024.

b) Melting of glaciers.

- formation of glacial lakes -

GLOFs

c) loss of species

- Severe wildfires and extreme heat threatened the species

2.2.3. Economy loss

a) Decreasing productivity as an industrial level.

- Pakistan is at risk of losing 6.5% to 9% of its GDP annually starting in 2050 because of climate change.

(Valerie Hickey, Global Director of climate change, world Bank.

1) Disasters-induced loss

- Weather-related disasters caused economic losses exceeding \$313 billion globally in 2022 (AON Weather, Climate & Catastrophe Insight, 2022).

e) Agriculture & Food production Declines.

- According to NASA, Climate change affect the maize & wheat production as early as 2030.

2.2.4. Impacts on humans.

a) effects on health

- 3.6 billion people already live in areas highly susceptible to climate change. Between 2030 and 2050, climate change is expected to cause approximately 250,000 additional deaths per year, from undernutrition, malaria, diarrhoea and heat stress alone.

b) Poverty & displacement (WHO)

According to UN climate change; By 2030, over 100 million people could be pushed into extreme poverty due to climate-related disasters.

c) Shrinking economic space for women

- Access of women to land, employment, and livestock dropped.

3. Conclusion:

Essay

The threat for human in today's history is neither World War-III neither global recession nor pandemic, it is climate change. As good policies can tackled the economic recession, the war will end with peaceful pacts and vaccine can help to overcome the pandemic, but when the climate is not good, the world will not survive, so how will human lives?

Climate change is an inevitable phenomenon and is no longer a myth.

Pakistan ranks 5th most vulnerable out of 180 countries in 2024, same as 2023, showing high susceptibility to climate risks. Pakistan's population suffers more from climate change despite contributing less than 1% to global greenhouse gas emissions.

The causes of climate changes are excessive use of fossil fuels, uncontrolled deforestation, chemicals usage and different human activities. These lead to imbalance water conditions, rise in temperature, economy loss and impacts on human.

The main cause of climate change is the ^{excessive} use of fossil fuels. The burning of fossil fuels releases greenhouse gases like carbon dioxide and methane into the atmosphere. Fossil fuels are by far the largest contributors to global climate change, accounting for over 75 percent of global greenhouse gas emissions and nearly 90 percent of all carbon dioxide emissions. As greenhouse gas emissions blanket the Earth, they trap the sun's heat. This lead to global warming and climate change. The new Emission Gas Report by the UN Environment Programme

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finds that there has been progress since the Paris Agreement was signed in 2015. Greenhouse gas emissions in 2030, based on policies in place, were projected to increase by 16 percent at the time of agreement's adoption. Today, the projected increase is 3 percent. However, predicted 2030 greenhouse gas emissions still must fall by 28 percent for the Paris Agreement 2°C pathway and 42 percent for the 1.5°C pathway. Moreover, the increasing energy demands contribute more to the climate change. As the population is increasing day-by-day, the energy demand also increasing in various aspects of daily life. Fossil fuel use and industrial purpose in Pakistan produced nearly 200 million metric tons of carbon dioxide (MtCO_2) emissions in 2023. Fossil CO_2 emissions in Pakistan have more than tripled since 1990.

Similarly, the CO_2 emitted from fossil fuels is absorbed by the ocean, changing its pH. The oceans that cover 70% of Earth's surface, generate 50pc of oxygen, hold 60 times more carbon than atmosphere, and absorb almost 30pc of CO_2 (10 billion tons released every year, 3 bn ton absorbed by ocean) are acidifying rapidly. MIT scientists have found that rising temperatures due to global warming are slowing the ocean's ability to store carbon, adding yet another risk factor to keeping 1.5°C alive. All these reasons make the fossil fuels, a major cause of climate change.

The second cause of climate change is uncontrolled deforestation. Forests are critical in regulating the Earth's climate.

As the population grows, more land is needed for housing and infrastructure, which leads to deforestation. Pakistan's population has increased to 241.49 million

with an annual growth rate of 2.55%, according to the 2023 census. This increase in population needs greater number of resources to live. According to a report of Pakistan Bureau of Statistics, the population is increasing by 2.4 percent annually. Moreover, in this era the forest clearing projects are widely spread by the developing as well as developed countries. It not only proceeded by domestic purposes but also for economic ones. During Covid-19 lockdown, all sectors were closed except construction that largely uses the forest wood. 5% area of deforestation contributes 0.5% of Gross Domestic Product (GDP).

In the same way, countries established geopolitical stakes are of key value in the problem of climate change. After the World War II, the world was unipolar, made by the United States. It has no fear of any country. In the twenty-first

century, China is surpassing it in economic and geostrategic zone. It came out as an emerging superpower. To counter its growth, the USA is taking many steps. Having eyes on the Maritime affairs and China's bilateral relations with other countries. The America and china have entered the trade war of the century since 2017. To curb china, America has withdrawn from Paris Climate Agreement for second time in January 2025. This allow it to emit carbon dioxide freely, therefore, all these steps cause climate change.

lastly, the different human activities like food waste, plastic pollution, Fast fashion and textile waste, etc contribute to the climate change. Food waste is responsible for climate change by increasing greenhouse gas emissions and wasting resources. About a third of all

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human-caused greenhouse gas emissions is linked to food. Approximately 1.3 billion tons of food intended for human consumption are wasted or lost each year, enough to feed 3 billion people. Food waste accounts for about one-quarter of annual greenhouse gas emissions; if it were a country, it would be the third-largest emitter.

According to UN climate change, Food loss and waste account for 8-10% of annual global greenhouse gas emissions - nearly five times the total emissions from the aviation sector. Similarly, plastic pollution also leads to greenhouse gas emissions at every stage of its lifecycle. 91% of all plastic that has ever been made is not recycled; it releases greenhouse gases when exposed to sunlight. As per the United Nations Environment Programme, approximately 430 million tonnes of plastic is produced globally

each year. The Ellen MacArthur foundation estimates that by 2050, there will be more plastic (by weight) than fish in our oceans. Plastic waste has already made its way into the deepest parts of the ocean, including the Mariana Trench, which is nearly 41 km. By 2040, plastic production and use could emit 2.8 gigatone of CO_2 equivalent (GtCO_2) of greenhouse gases annually, according to OECD. The Fashion industry accounts for 10% of global carbon emissions and nearly 20% of wastewater, or about 93 billion cubic meters, from textile dyeing. Much discarded clothing is non-biodegradable and ends up in landfills, while microplastics from materials like polyester and nylon leech into soil and water sources. According to UN Framework Convention on climate change, emissions from textile manufacturing alone are projected to skyrocket by 60% by 2030. All these activities

contribute to climate change through carbon emissions, water consumption, and waste.

The different causes of climate change are now manifesting in a range of significant consequences.

Firstly, imbalance water conditions are the main consequences of climate change.

Imbalance water conditions characterized by heavy rainfalls, frequent floods and droughts. Rising temperatures cause more moisture to evaporate into the atmosphere, which can lead to more frequent and intense storms and heavy rains. In April

2024, the United Arab Emirates received two years' worth of rain in a single day, turning parts of the desert-state into a sea, and hobbling Dubai's international airport. Similarly, in Pakistan, the number of rainy days in 2022 was much higher than normal at most stations in Sindh and

Balochistan as well, as in northern regions such as Khyber Pakhtunkhwa and Gilgit-Baltistan provinces. This condition of heavy rainfall also leads to the frequent floods, which has devastating consequences for people and infrastructure. Pakistan has been ranked as the most vulnerable country to climate change in 2022, followed by Belize and Italy, according to data in the Climate Risk Index (CRI) for 2025 report released by European think-tank, Germanwatch. The report highlights that over 33 million people were affected and over 1,700 lives were lost due to the floods. Over 8 million people lost their homes and were internally displaced due to the 2022 floods, while 1.3 million houses were damaged. The reconstruction costs for Pakistan have been estimated at \$16 billion. Flooding, exacerbated by climate change, has significant negative effects. Moreover,

droughts in Pakistan are becoming more frequent and intense due to climate change. Most severe droughts were 1952, 1969, 1971, 2000, 2001, 2002, 2015, 2018, and 2021-22. In 2023-24, Sindh has been the hardest hit by this winter drought, receiving 40% less rainfall than normal so far. While, Punjab has recorded 61% less precipitation, according to PMD data from Sep 2024 - Jan 2025. Thus, all these are the results of the climate change.

Secondly, the rise in temperature is the major consequence of climate change. According to the World Bank, Pakistan ranks among the top 10 countries most affected by climate change. Apart from the devastating floods, we face periodically, a significant direct consequence of climate change is rising temperatures and increased heatwaves.

In June 2024, more than 1,300 people died during the Hajj pilgrimage in Saudi Arabia where Temperatures hit 51.8 degree Celsius. More over, the rise in Temperature causes the increasingly melting of glaciers. The glaciers, which are a significant source of fresh water for the country, are melting rapidly due to rising global Temperatures associated with climate change, resulting in formation of numerous glacial lakes. The glacial lakes result in glacial lakes outburst flood, causing loss of lives & infrastructure. In the same way, Climate change poses risk to the survival of species on land and in ocean. These risks increase as temperature climbs. 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. Forest fires contribute to this loss by destroying habitats, food

sources, and shelter. Wild fires also impact wild life through smoke and heat. Between January and September 2024, more than 400,000 fires were recorded across South America, shrouding the continent in choking smoke. Therefore, climate crisis has increased the average global temperature and is leading to more severe conditions on Earth.

Moving forward, climate crises resulted in economy loss through various pathways.

Firstly, certain industries such as agriculture, fisheries, housing and real estate, and tourism are under huge stress due to climate change. As for halting economic output, frequent disruptions in power, water supply, and transportation services cause the idling of labour and capital, resulting in weakened efficiency and productivity in industry. Pakistan is at risk of losing 6.5% to 9% of its GDP annually starting in 2050 because of

climate change. (Valerie Hickey, Global Director of Climate Change, World Bank).

Secondly, climate change has intensified natural disasters such as hurricanes, floods, wildfires, droughts, and heat waves, leading to severe economic losses globally. These disasters damage infrastructure, disrupt industries, and increase government spending on disaster relief and recovery. Weather-related disasters caused economic losses exceeding \$313 billion globally in 2022 (AON Weather, Climate & Catastrophe Insight, 2022). Thirdly, climate change severely impacts agriculture and food production, leading to economic loss at local, national, and global levels.

The UN estimates that land degradation could lead to a cumulative loss of \$23 trillion by 2050, affecting agricultural productivity and food security.

In addition, climate change affects humans in multiple ways. It poses significant

threats to human health, including increased risks of heat-related illness, spread of infectious diseases, and disruptions to food and water security, as well as mental health impacts. 3.6 billion people already live in areas highly susceptible to climate change. Between 2030 and 2050, climate change is expected to cause approximately 250,000 additional deaths per year, from undernutrition, malaria, diarrhoea and heat stress alone. Moreover, climate change exacerbates poverty and drives displacement. Rising sea levels, extreme weather events and prolonged drought force millions of people to loss or move away from their homes every year in search of food, water, shelter or job. According to UN climate change; By 2030, over 100 million people could be pushed into extreme poverty due to climate-related disasters. In

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addition, climate change amplifies existing gender inequalities, shrinking women's economic space by impacting their access to land, employment and livestock. Women's economic right are also further curtailed during times of climate emergencies particularly due to displacement and security concerns. Among female respondents, the already low access to land dropped to 28%, employment to 26% and livestock to 29%. (Oxfam survey in flood-affected areas in Pakistan). So, the climate change impacts the all aspects of human beings.

Although, the curse of climate change has caused a chunk of damage to the earth, yet the world is taking steps to curb it. Proliferation of forests, firstly, is an important reversible factor which can be helpful to mitigate the impacts of climate change to a large

extent. The other factors that can help to combat climate change are minimize the use of synthetic fertilizers, emphasize the use of renewable energy, switch to sustainable transportation, lessen the use of coal-based products, etc.

In a nutshell, climate change is the most significant problem facing the world. The main causes of climate change are excessive use of fossil fuels, uncontrolled deforestation, establishment of geopolitical stakes of the world power, and different human activities that lead to imbalance water conditions, temperature rise, economy loss, and disruption to humans. On the other hand, if the world, working as a unit, can curb the pandemic of Covid-19 that claimed more lives in a single day than why cannot it control the climate change. The need is to take useful steps in this regard. ^{As} ~~For~~ an example,

Costa Rica, a country in the central American region of North America, actively addressing climate change through policy and action. It has a strong commitment to renewable energy, aiming to achieve 100% renewable energy by 2030. It is aiming to become carbon neutral by 2050. Hydroelectric power is a major source of electricity in Costa Rica, and the country has invested in expanding its hydroelectric capacity. The mitigation of climate change is difficult but not impossible.

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I'll refine myself.

ii) Please suggest the steps to improve my essay writing.