

The Threats of Global Warming and the Ways to Counter it

Outline

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a Hook

b What is global warming?

c Thesis statement: Global warming poses alarming threat to earth's ecological balance and human societies, and requires a serious and combine actions to tackle it by reducing greenhouse gas emission, switching towards renewable energy sources, and promoting sustainable practices.

2 What are the threats of global warming?

a Heatwaves

b Glacial melt - floods

c Disturbed pattern of rains - urban flooding
(case in point: Dubai rains 2024)

d Rising sea level

(case in point: Indonesia shifting capital)

- e Acidification of oceans
- f Drought - ground water depletion
- g Loss of biodiversity
- i Social-economic threats

3 What are the ways to counter it?

- a Reducing fossil fuel dependency
(case in point: US CO₂ emission)
- b Reforestation
- c Renewable energy sources
- d Promote public transport
- e Joint efforts on global level
(case in points: Kyoto protocol, COP28)
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4 Pakistan take on global warming.

- a Effects on Pakistan
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Essay

In the summer of 2022, I visited my grandfather in Jamshora, Sindh, for a break from my studies and to meet my family. My grandfather owns agricultural lands that have been in our family for generations. One evening, while sitting in verandah overlooking the fields, he began to share how these lands used to look like fifty years ago.

Back then, he said, these lands were lush and green. There was abundance of water and canals were flowing but now scarcity of water and unpredictable rain patterns have reduced the crop yield.

He added, prolong monsoon causes rivers and canals to overflow and wash away the crops. All these climatic changes have caused serious issues for people, whose livelihood depends upon agriculture.

Global warming is the biggest cause of climate change. It is the

rise in average temperature of earth's atmosphere over a short period of time. Climate is changing since the inception of our planet earth but greenhouse gas emission fueled by human activities has played the role of catalyst in this process.

Global warming poses alarming threats to the earth's ecological balance and human societies, and requires serious and combine actions to tackle it by reducing greenhouse gases emission, switching to renewable energy sources, and promoting sustainable practices.

The most dangerous threat of global warming is frequent heat waves. Heat waves are the main cause behind multiple other threats posed by global warming indirectly. Heatwaves are caused by excessive CO_2 emission, which is trapped in our environment and prevent radiation from sun to escape. This produces areas of low pressure air surrounded by areas of high

pressure air. The low pressure air falls into the low pressure area and creates a vicious cycle of following glowing air and these high in temperature winds travel from Northern hemisphere to southern parts.

Pakistan experienced hottest months of April and May 2022 in past 61 years. Frequent heatwaves took away many lives in Southern Sindh. The temperature of Jacobabad, Sindh rose to 51.1°C and it was recorded as the highest across South Asia. This trend is continued since then and rapid increase in temperature is recorded. This year Karachi's wet bulb temperature was noted 52°C . Wet bulb temperature is recorded with the consideration of humidity factor and how it will be felt by human body.

Heat wave temperature is different across different countries. In England, if temperature remains at 25°C - 28°C for three consecutive days it is

considered heat-wave. Similarly, the temperature to be considered a heat-wave in South America is 35°C and in South Asia it is 45°C for consecutive three days.

According to The Economist, in April 2022, thousands of people lost their lives due to heat-wave in India.

Glacial melt is another threat of global warming. According to NASA, 150 cubic kilometre ice sheet has reduced in Greenland between 2002-2006. Similarly, in Antarctica about 152 cubic kilometre ice sheet is reduced due to glaciers melting.

Similar pattern is witnessed through satellite image of Alps, Andes, Rockies, Alaska and Africa glaciers.

Pakistan has some of the greatest glaciers outside the northern pole. These glaciers in the northern mountainous range of Khyber Pakhtunkhwa were once considered a blessing, but unfortunately this blessing has been turned into a curse due to the global warming.

Indus river flows across the country starting from northern area to Karachi. The glacial melt makes the glacial lakes outburst. This outburst floods thousands of kilometres of areas near the river banks.

Pakistan has seen two deadliest floods in last ~~17~~ seventeen years. Around 42% of Pakistan's total population live near rivers banks and depends upon them for agricultural. The floods of 2010 and 2022 have caused dangerous effect on 30 million people across the country. In 2010, floods 150 people lost their lives, 1000 were infected with cholera and approximately 60,000 people were diagnosed with dengue fever. These floods leave long lasting effects on the people and their lands.

Another reason for flooding is disturbed rain patterns. Global warming has greatly affected the rain patterns across the globe. In Pakistan, floods of 2022 were fueled by the excessive

and extended monsoon season. This created havoc across the country. Southern provinces of Sindh and Balochistan were badly affected by this.

Additionally, the recent excessive monsoon rain in Dubai and Oman ~~are~~ is another example of disturbed rain pattern caused by global warming. Dubai received record breaking rain earlier this year. People were stuck in their homes and even companies announced work from home for over a week. Dubai's infrastructure is not built to tackle such catastrophe. It is said to be record breaking in past 60 years. Infrastructure was halted, electricity outage made people to go by stairs to upper floors of skyscrapers due to inactivity of elevators. 10 children lost their lives while on their way to home by school bus.

According to Sonia Siravitre, a professor at Atmospheric and Climatic Science Institute, Zurich, Dubai and Oman rains have shown that even dry areas can receive excessive rain and it is due the climate change as a result of increasing global warming by burning of fossil fuel and greenhouse gas emission.

Furthermore, global warming has resulted in expansion of sea water and rising of sea level. According to World Meteorological Organization, 8-inch expansion is recorded in sea level since the formal recording keeping of sea level has began in 1880. It is predicted that it will increase 3-inch more by the end of this century. This rise in sea-level will cover many islands and will also contribute to urban flooding. It is going to effect the lands near sea shores. It will
In context of Pakistan, It will wash away the Indus delta. It is reported

that Indus delta is losing 1-inch of sedimentation each year since past decades. This will result in habitat loss near the delta. Sea life will be greatly affected on which livelihood of many local people in the nearby settlements is depended. Rising sea level is also a factor in increasing salt level in nearby land making it unfavourable for crops and cause low-yield agricultural produce.

To prevent threats of rising sea level, Indonesia is shifting her capital from Jakarta to Borneo Island. This decision is said to have been taken due to the probability of Jakarta sinking with rising sea level. Although, the officials have said that Jakarta will remain an epicentre of economic activities but it is prone to global warming effects which make it unfit for capital. The new city for capital of the country is under construction with an estimated cost of \$32 billion.

Oceans play their part in ecological balance by absorbing carbon dioxide gas from the atmosphere. Sadly, due to the abundance of carbon dioxide emission in our atmosphere, oceans are absorbing large amount of carbon-dioxide which is making the surface of the ocean acidic. This acidification of ocean surface is harmful for marine life beneath the layers of ocean. This acidification has resulted in the death of coral reef under water which are great source of oxygen in our atmosphere. Almost 70 per cent of oxygen in our atmosphere comes from oceans.

Rapid increase in global warming has made barren with prolong periods of droughts. This greatly effects the agricultural production as well as live stock. Pakistan is facing water scarcity. Water per capita has drastically reduced from 1500 per capita in 2009 to 859 per capita in 2015.

Long periods of drought increase the dependency on ground water in rural areas. This causes ground water depletion and is another factor contributing to global ecological disbalance.

Another alarming threat of global warming is the loss of biodiversity. Extreme weather has contributed to the devastating catastrophe like wildfires. Wildfires are not directly caused by global warming, instead they occur as a result of natural hazard like lightning in thick forest. Global warming can increase the impact of wildfires. In 2021, Australia saw the worst wildfires in its history. Uncontrollable fire destroyed the habitat of animals and reduced many plant species to ashes.

Beside climatic threats, global warming has severe effects on social and economic conditions. As an aftermath of climatic threats boosted by global warming, many people are

displaced and are forced to live in deplorable conditions. Many are forced to live in Katchi abadis in the suburbs of main cities increasing urbanization sprawl of cities. These displaced people are dependent on city's infrastructure exerting extra pressure on the city. Loss of agricultural land also leads to poor economic conditions of affectedes. It takes years for them to recover from their loss.

Increased temperature due to global warming also decreases the efficiency of blue collar workers and made them easy target of heat strokes. This also cause economic problems for their dependents.

According to a reports, women displaced due to 2022 floods are still facing disturbed menstrual cycle. These ~~threats~~ catastrophic events left behind life-long health and mental health issues.

While the threats of global warming are significant and far-reaching, there are several effective strategies that can be implemented to counteract its impact.

First and foremost steps towards countering global warming is to reduce dependency on fossil fuel.

Burning of fossil fuel is the major cause of global warming. It is responsible for 1°C rise in global average temperature since industrial revolution in 1890. Global emitters of carbon-dioxide produced by fossil-fuel burning should realize their responsibility towards global warming and promote alternate sources of energy.

United states is the major source of global greenhouse gas emission. It has emitted 422 billion metric ton of CO_2 since the industrial revolution. It is responsible for 50 per cent of global greenhouse gas emission which has caused 1°C rise in average global temperature.

Another very impactful way of countering global warming is to reforestation. Forests are considered as the lungs of the earth. Almost 30 percent of oxygen comes from forest. It is high time to promote healthy practice of planting trees in our community as it will benefit our generation to come. Reforestation and protection of existing forest will not only help in fighting consequences of global warming but will also restore the damages caused by global warming to biodiversity.

Urban forest will help in reducing the heat island effect and will provide a shield against scorching heatwaves.

Additionally, it is equally important to promote sustainable and renewable energy sources. Developed countries must shift their fossil fuel dependency towards renewable energy sources. It not only provide clean energy but also help in reducing carbon dioxide emissions.

Moreover, public transport should be upgraded to lower the dependency upon private vehicles. Pedestrian friendly urban infrastructure could also play a vital role in lower private vehicle dependency.

On an average a car emits 4.2 metric ton of carbon dioxide ~~annually~~ per year. Promotion and upgradation of public transport will greatly effect the emission of carbon dioxide from vehicles.

In addition to all these measures, awareness of masses is very crucial to counter global warming. According to You grow survey, it was found that 21 percent of Americans don't believe on global warming and they don't think that temperature has changed over the years. They believe that global warming is a made up phenomenon for economic purposes.

Last but not the least, joint efforts on global level are necessary to counter the global warming threats. Developed countries like United States and China should help the developing countries to tackle the aftermath of climatic threats posed by global warming.

In this regard, an international summit was organized in Japan in 1997, where Kyoto protocol was signed by the developed countries to limit their carbon emission. This was succeeded by Paris Accord in 2015 and Parties of Conference of Parties (COP21) agreed to limit the global average temperature below 2°C as before industrial revolution. According to United Nation Convention on Climate Change, 1.5°C below benchmark level is achieved since then. In recent COP28, 200 countries ~~pledge~~ pledged to shift their dependency from fossil fuel and towards adaptation of renewable energy sources. This strategy is based on three core components

i.e. adapt, mitigate and finance.

Furthermore, Loss and Damage (L&D) fund was also operationalized, under which developing countries will be financed to tackle global warming threats.

Although, Pakistan is a developing country and only contribute 0.82pc of global greenhouse emission into atmosphere but still is listed among top ten countries which are prone to global warming threats. It is mainly due to its geographical location.

Pakistan is taking measures to tackle these peril of global warming despite fighting with poor economic conditions.

Pakistan Climate Change Policy (PCCP) was drafted in 2012.

Numerous forestation campaigns have been initiated by government. Billion trees tsunami is one such initiative in which 160,000 hectare of land was restored as forest in 2013.

Pakistan government has also played a vital role in promotion of renewable energy sources by providing

facility of net metering. Government of Pakistan inaugurated 'Quaid-e-Azam Solar Park' in Lahore, which is the largest renewable energy source in the country.

In conclusion, global warming is a serious threat to our planet and the role of joint efforts towards common goal of maintaining ecological balance in our planet cannot be neglected. Combined actions are the way forward towards a sustainable planet.