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Introduction

(ii)

Climate change

(a)

Climate change & the world

(b)

A decade of disaster

(iii)

Pakistan Climate vulnerability

(a)

Heatwaves

(b)

heavy & spontaneous rainfalls

(c)

Flood & water drought

(d)

Coastal regions

(e)

Environmental & health

(f)

Economic & Agriculture

(iv)

Mitigation of Climate change

(a)

Renewable Energy

(b)

Tree plantation

(c)

Improve transport system

(d)

Control industrial pollutions

(e)

Climate-smart Agriculture

(f)

Water Management

(g)

Sustainable Urban planning

(h)

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(i)

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Conclusion

Climate Change is one of the major concerns the world is facing, including Pakistan. Climatic disasters are predictably producing catastrophic damage to multiple countries around the globe, especially the developing countries. With the natural might of climate change these patterns are getting worse in the third world countries, where the ability of preparedness and sustainabilities are nearly absent from the picture. This, lack of mismanagement and scarcity of resources, causes lakness to tackle these climatic disasters.

Along with the concept of preparedness Pakistan has remain a subject to natural disasters since the past half decade. This caused Pakistan's infrastructure displacement, lost of ~~lives~~ lives, and economical decline. As the growing concern over climate Pakistan has started it initiatives to counter the climatic disasters and strengthening its disaster and management ~~capabil~~ Capabilities; by funding ~~the~~, initiating conferences and taking awareness ~~initia~~ steps to enlighten the people of Pakistan, which can work as "Métirão" "Communal action" against Climate Change, ~~is~~ taken as an example from the UNFCCC (COP 30).

Over the centuries Climate Change has become the main reason for climatic disasters. The disasters, which once ~~came~~ took 50-60 years are now spontaneous and rapid; ~~are~~ <sup>inculminating</sup> in heavy rains, heatwaves, Glacial melts, and cloud burst, all affecting the infrastructure, <sup>an</sup> economy and the lifestyle of people.

In this ~~to~~ essay we will discuss about the climate change and its impacts on Pakistan and its mitigational steps, which could benefit Pakistan sustain itself under rapid and ~~q~~ <sup>q</sup> briskly erupted climate disasters:

“Climate change is the long-term change in the patterns of winds, temperature and weather, largely driven by human activities.”

Climate change has been in co-relation with human activities since the dawn of human beings. However, due to the philosophical adaption of nature, it was preserved rather than modify. None-the-less, after the Industrial revolution in the 1800s, nature was largely modified rather than adapted. This eventually caused disbalance in the natural and cosmic order of the ~~on~~ Earth.

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As the world reaching to a globalized system of network, it is safe to assume that the climate behaviour has also have been globalised. The world is a connected globe which causing the impact spreading worldly, instead of effecting a certain region. Nearly, every country in the world is contributing it fair share of pollution, greenhouse gases, and carbon emission, which the earth's winds transfer to other states and countries causing & unexpected disasters.

The climate changes are effecting severely, and its been a decade of disasters which could be seen as the enlightened era of people knowing about climate change. UNFCCC has been an important source for fighting and recording data of climate changes. As Corporation of parties (COP) has finally approached to its implementation phase with Cop 30. These to ten years has been ~~so~~ tremendously disasterous to the world with floods, tsunamis, earthquakes, droughts, and all there effecting the economic stability of different countries, es primarily the developing countries.

"Pakistan's climate story embodies a cruel paradox, its emissions are less than one percent, yet still it is

one of the most climate-affected countries with floods, glacial melt-downs, heatwaves, and droughts."

Indeed Pakistan inclusion in the carbon emission is one percent however, its climate disasters are definitely above one percent. There is no doubt that the growing pollution and smog is caused by burning the crop residues, trash, industrial dumping, and deforestation might put major chain reaction triggering climate change for its region. With Northern Pakistan facing major cloud bursts and glacial melt-downs causing floods in the recent events of 2025.

Within the wide spectrum of factors causing climate disasters Pakistan facing majority of them, which are directly or indirectly affecting Pakistan stretched territory: From Northern Mountains to Eastern plains through western droughtiness to Southern Coastal water raising.

Starting with 2025 major problems of heat waves & rising temperature causing in heatwaves, which are increasing year by year due to large number of fossil fuel burning releasing carbon dioxide (CO<sub>2</sub>) in to the atmosphere making

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the summer unbearable. One of the main reason is the trapped water vapours, greenhouse gases, CO<sub>2</sub> emission and methane gases. Causing deaths, in the dry and hot regions.

Rains have recently been unpredictable by delaying or rapid and spontaneous heavy raining, such as; cloud bursts in the northern regions of Pakistan, cloud burst and caused Duner (Ksp) city flooded.

These rains pattern are forming a new pattern leaving the typical monsoon rains delaying into the start of winter is a definite sign of major climate change, which needs to be studied and analysed for future predictiveness.

Rains have a plus point in climate disaster, eventually heavy and unpredicted rains causes floods to erupt, which is one of the major weakens of Pakistan disaster management. From 2022 to 2025 more than two thousand five hundred deaths have been reported and more than three million people displaced (according to multiple news sources). These casualties might increase if conservative step towards managing flood disaster was ignored in the future years.

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Recent floods has impacted the Pakistan in multiple ways. Especially in increasing of water borne diseases and addition of water level rising in the Coastal region. Fortunately, Coastal region has not been as an impact. However, the water level raising has brought sea flood into the neighbouring cities of Coastal region primarily Gwadar, which is recently in development and will eventually be one of the major center for trade.

There are multiple areas where the climate change has impacted Pakistan. But, there are four major areas, which were badly influenced by the recent climate disasters; Environmental sustainability has been directly influenced which brought forth diseases and impacted on people health, majorly with the rural region, where health is always in the line of compromise. In 2025 more than 20,000 people were reported to suffer from dengue after the floods and 5,500,000 people annually suffer from malaria.

Environmental and health, both leads the chain causing to influence economy and Agriculture of Pakistan.

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Agriculture, known to be the backbone of the Pakistan economy are impacted simultaneously in proportional degree. The impact on agricultural will directly effect the economy of Pakistan. According to multiple media platform Pakistan has lost 1.4 billion dollars in the recent climate disaster of 2025, and 1.3 million acres of farming land flooding flooded.

As climate change causing tremendous amount of damage due to human activities. Humans are the only one that can change the current scenario by reversing or trying to reduce the activities that causing climate change. The process that involves reduction of greenhouse gas is called mitigation, could be utilized to reduce the climate disaster. primarily by cutting down sources like ~~gas~~ using fossil fuels, cutting cutting trees, and multiple initiative that can save Pakistan climate sustainability.

To abandon burning of fossil fuels is a hard and complicated process, which was carried out from the beginning of the industrial revolution. However, due to the technological advancement renewable energy sources are seldomly replacing the primitive energy sources. Because of the economical inflation and high rates

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Citizens are also finding a way to install renewable energy sources such as: Solar, wind, and water, to sustain their family.

Burn of the fossil fuels are harmful and exhaustive labor is required to acquire these ~~renew~~ fuels. However, multiple alternative have innovated through technological advancement, which made transport modified into electric sources using ~~vehit~~ vehicles. Along with electric ~~ev~~ vehicles, public transport should be one of the primary initiative by Pakistan, which will eventually help in reduction of Carbon dioxide (CO<sub>2</sub>) emission from cars.

On the other hand, deforestation has been a major concern of Pakistan. Rural region ~~has~~ lack the capacity of electricity and gases, so, their primary source of lively-hood is through cutting down trees. In the Diamer district the unavailability of electricity causing massive ~~try~~ cutting practices. Especially in winters, Rural regions must be provided with basic necessities, which will make them reduce using wood. Some ~~will~~ ~~necessity~~ like this Aforestation should be ~~made~~ <sup>started</sup> and forest policy must be created to sustain Forest life.

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One of the major cause of air pollution and have fossil fuel burning are carried out by industries. State should control industrial pollution by imposing sanctions and curate industry based policies, which clearly mentions the industrial pollution as criminal act against environmental disturbance. This will eventual help to sustain the environmental condition in the long-term developmental plan.

Just like the policy making of the industrial pollution, Agricultural policies should be studied and amended according to the needs of environmental well-being and incorporated into the backbone of Pakistan's economy. A new and climate-smart and agricultural practices should be implemented through out Pakistan, while educating the farmers about the advance way of farming, which benefits the environment. It is time to change the agricultural system of Pakistan.

With the amending of agricultural policies in Pakistan. The water management should be under consideration rather than using the primitive ~~use~~ usable of water for the crops a calculated amount

of water: by using new innovations should be implemented in the farming industry of Pakistan. This will help in using water sensibly. Along with these implementations, Dams and water reservoirs should be established to tackle water drought.

The progressive way of tackling these problems and mitigating Climate Change, is the awareness of public regarding their environment.

Environmental Studies should be taught in every school and multiple adult teaching campaigns physical and online should be initiated. In the era of smart phones it should be easy to propagate the voice of right in order to sustain their environment and care about their environment Cleanliness.

One of the already established organization that works concerning Climate change internationally is UNFCCC also known as COP (Conferences of Parties). An international organization to tackle Climate Change, Pakistan should actively participate and allow for its innovations to be implemented through these international organizational funds, which could help in financing these changes.

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Climate Change is a reality of the human activities influencing climate, which concludes in climate disasters, Pakistan is one of the most vulnerable ~~for~~ developing country that is suffering from climate disaster, caused by floods, Glacial melt down and is ~~down~~ trying to mitigate climate change. However, failing due to its weak economical capacity. None the less, this ~~is~~ must not be the reason to ignore the reality of climate change. International Corporation can fund the affect countries, which would ~~have~~ help resolve the climate change issue.