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Climate Change and its Impacts on Pakistan

1. Introduction

a. ~~Historical overlook of climate change~~

b. ~~Decoding the concept of climate change.~~

2. Causes of climate change and its destructive forms.

a. Large amount of green house gases emission.

b. Using pesticides and insecticides for more agricultural growth

c. The more production of solid waste and its mismanagement

d. Use of agricultural land for urban centres

e. Using oil and coal in industrial production

f. The increasing process of deforestation

g. The large number of transport vehicles using non-renewable energy

h. The amount of carbon emission is more than absorption

3. Impacts of climate change on Pakistan.

- a. Vulnerability of human health due to rising temperature
- b. Floods due to massive rainfall resulted into destruction and displacement
- c. Declination in agriculture production and food security
- d. Infrastructural losses due to extreme weather conditions
- e. Increased number of water borne and infectious diseases
- f. Decrease in snow covers and melting glaciers.
- g. Changing in weather pattern leads to economic losses
- h. Climate change causes extreme bad air conditions for breathing

4. Way forward for adaptation and mitigation of climate change.

- a. Reducing carbon emission by maintaining net carbon zero
- b. Decarbonization by using

renewable energy resources in
industrial manufacturing

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of loss and damage process

d- Adopting ~~Nationally~~ determined
contribution and new collective
quantified goal

5. Conclusion

The new era of industrialization has laid the foundation of capitalistic society. With the emergence of industrialization, the thirst for more and more production resulted into climate changing conditions. Climate change is a extreme weather conditions, creating vulnerabilities to human health and economic loss. Climate change has many leading factors that results into destruction of human lives and resources. The carbon emission by different sources like automobile industry, industrial manufacturing, transport vehicles, and burning of fossil fuels, has increased the amount of carbon in atmosphere. Also, the emission of chlorofluorocarbons from refrigerators, air conditioners, and vehicles become cause of rise in temperature. There are other factors like pesticides, insecticides,

non-renewable energy resources, and solid waste mis-management making atmosphere miserable for human lives. Pakistan is the victim of climate change among other developing nations. Climate change is a major threat to Pakistan's sovereignty due to its unprecedented impacts. To cut the long story short, climate change has long lasting impacts on Pakistan's socio-economic and political structure. Climate change is not a sudden phenomena rather it has long routes to industrial revolution of 18th century. The discovery of coal and steam engine led the foundation of climate change. From 1st industrial revolution to present capitalist society, the different means of production contributed to changing weather conditions.

The rise of 1.5°C of global temperature is a result of industrial productions. The tremendous increase in temperature has everlasting destructive effects on health of developing nations.

The concept of climate change has been evolving from mid 20th century. The different forms of climate change like changing weather pattern, massive rainfalls, scorching heat, melting of glaciers, and floods predicted the new global threat. The new global order is the order of globalisation.

So, climate change is not only for one specific region rather it makes every nation vulnerable to its impacts. The number of causes of climate change are all man-made and man-driven.

The large amount of green house gases emitted by different activities of human beings are key factor in climate change.

The developed nations like USA, Canada and Europe are major emitters of chlorofluorocarbons and carbon emissions. China emits 35%, USA emits 15%, India and Canada emits 09% each to world total carbon emissions. But, Pakistan contributes only 01% to total global carbon emission. Pakistan is the 5th most effected country due to climate change.

The usage of pesticides and insecticides has a contributive share to climate change. With the rise of population, the food security concerns also increased. More population required more food and this deficiency is completed by increasing food production. Therefore, more food production is directly proportional to more agricultural production. For this purpose, pesticides and insecticides are applied to food crops and other yields which ultimately, become

cause of carbon emission into atmosphere. Along pesticides and insecticides, the artificial growth of yields is increased by different types of fertilizers. The whole process results into effective climate change.

The production of solid waste and its improper management is a prominent reason behind climate change. Population is the mother of all problems. Overpopulation has contribute to large amount of solid waste production. Then, the failure of institutions to dispose solid waste properly lead to emission of different gases from dumps and heaps. The environmental degradation is due to mis-management of solid waste. Pakistan is facing the problem of solid waste management of metropolitan cities like Lahore, Karachi, Faisalabad, so on. A large amount of finance is granted to management companies

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which ultimately results into debt crisis.

The increasing number of population required more space for commercial, residential and urban centres. The agricultural land is converted into residential societies. The grabbing of agricultural land for developing projects destroyed the natural habitats of different species. This type of land degradation has impacts on climate natural patterns. The construction of new building and cutting down the natural capacity of environment creates harsh conditions for human beings.

The use of oil and coal as energy source to run heavy machinery in industrial manufacturing is another cause of climate change. The reduction process of oil and coal releases large amount carbon along energy. This carbon

along other gaseous elements make air more acidic. The acidification of air causes severe health issue like asthma, inflammatory disorders etc.

The increasing demand of energy is meted out by cutting wood and increasing process of deforestation. The usage of wood for energy purposes and luxurious furniture both contributed to destruction of ecosystem and natural process of purification of air and massive generation of oxygen. The process of wildfire is also key factor behind deforestation. Several incidents of wildfire has been reported from 2020 to 2024 in forests of amazon and Panama. The burning of wood releases different harmful gases into atmosphere.

Climate change is the condition of more carbon emission than absorption which lead to different

Weather patterns. The use of non-renewable energy releases carbon monoxide, Sulphur dioxide and other agents of climate change. When the level of emission is more than level of absorption then, an imbalance is created between harmony of environment and climate.

The factor of climate change has many impacts on Pakistan. The vulnerability of human health due to rising temperature is painful.

According to White Ribbon research, "The intensity of heat in Sindh in 2023 was on peak that women were facing problems of maternity and pre-natal periods"

Women are more vulnerable to changing weather pattern. Due to

rise in temperature, Pakistan feels strong heat strokes in urban cities

and large number of death. The

human body immune system has low working in high intensity of environmental temperature.

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The change in weather patterns and massive rainfalls cause floods in Pakistan. The flood of 2022 impacted Pakistan's economy so hard. An estimation that flood of 2022 hits billions of dollars to Pakistan economy. The most effective area of Pakistan is Sindh rural. A large population is displaced due to their loss of houses, agricultural lands and crops. Some areas of Punjab, along banks of Chenab and Jhelum rivers are on hit list of floods.

Climate change is a leading factor in declination of agricultural production and increases the risk of food security. For instance, seasonal crops are low yielding due to rainfalls at harvesting period. Thousands of acres are washed away by heavy floods during monsoon period. The yearly production of agriculture

sector is decreased. The decrease in production makes Pakistan economically weak.

Due to negligency of global North, Pakistan is facing infra-structural losses due to extreme weather conditions. The situation of masses in Pakistan is very miserable due to inflation and poverty.

The average houses in rural areas are constructed of grey structure.

During flood of 2022, about 2.2 million Kacha houses are lossed.

Majority of them of rural areas have below \$1 dollar per day income. The escalated

changes in climate makes their lives more miserable.

Climate change paces the process of glaciers melting due to extensive heat and rising temperature of atmosphere. The melting glaciers is a existential threat to water bodies and water reservoirs. These water

reservoirs are very significant for period of water shortage. According to an estimation, Himalayas glaciers are melted out about $\frac{1}{3}$ during recent years. Pakistan will face water scarcity in near future.

Climate change causes extreme bad air conditions for breathing. 2020 onwards the air quality index is worse in Urban cities. Smog causes asthma, inflammatory disorders in children specially while aged persons are scumbled to death. The bad air quality index reaches 1500 points in 2021, the most defective range of breathing air. In addition, the

economic and educational losses are also indispensable due to lockdown.

Climate change is a non-traditional threat to Pakistan's economy.

COP 29 in Baku, Azerbaijan, this year proposed financial steps towards adaptation and mitigation of climate

change. Firstly, implementing the goal of net carbon zero is essential step towards mitigation. The amount of carbon emission must not exceed to the amount of absorption. For instance, developing carbon markets paves way to economical support and reduction in climate effects. For this purpose, china model, Japan model and canada model are profitable and achievable.

Secondly, the usage of coal and burning of fossil fuels must replace to renewable energy resources in industrial manufacturing.

A large amount is released by burning of coal and fossil fuels. So, renewable energy resources are life saver for developing nations.

The renewable energy sources like solar energy, wind energy, and nuclear energy.

On third number, increasing climate financing for mitigation of loss and

damage process. According to UNFCCC, about \$1.3 trillion is required for mitigation and adaptation of climate change by 2030. Climate finance or loss and damage fund plays a pivotal role in sustainable development programs.

Fourthly, by setting Nationally Determined Contribution and New Collective Quantified goal is very helpful for Pakistan. Pakistan's initiatives for green Pakistan and reforestation are positive step for climate adaptation. Along these steps, Pakistan is shifting energy sector from non-renewable to renewable sources.

In a nutshell, Pakistan is suffering from economic crisis and political instability due to impacts of climate change. Pakistan like other developing nation is fighting with non-traditional threat of climate change. Climate change has long lasting impacts and dents on Pakistan's socio-economic and political

texture. Climate change is totally a state of resentment of global south to global north because all major emitters and creators of climate change are developed nations who have no care about weak and vulnerable countries. The conference of parties is just showing number of participants in an annual summit but nothing more than that. The new initiatives of Nationally determined contribution, New collective quantified goal, and Loss and damage fund will provide a exit to a safer world. Conclusively, the measures of adaptation and mitigation required a collective approach of state institutions and masses in order to gain peaceful and pure environment for life.