**Climate Change and Smog Issues**

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Pakistan faces major challenges from climate change and air pollution, especially smog, which significantly affects public health, the environment, and the economy. Due to its geographical location and socio-economic factors, Pakistan is highly vulnerable to the effects of climate change.

Some key issues include:

Extreme Heat: Pakistan experiences frequent heatwaves, with summer temperatures exceeding 500C, particularly in Sindh and Punjab. Urban areas like Karachi and Lahore are especially susceptible to urban heat, further worsening the situation.

Melting Glaciers: The rapid melting of glaciers in the northern regions, such as the Karakoram and Himalayan ranges, poses a significant threat to water resources, impacting agriculture and hydroelectric power generation.

Water Scarcity: Water scarcity is an increasing concern due to erratic monsoon patterns and reduced river flows.

Natural Disasters: Pakistan has seen a rise in floods, droughts, and cyclones. The catastrophic floods of 2022 displaced millions and resulted in substantial economic losses.

Coastal Vulnerability: Coastal areas, including Karachi, are at risk from rising sea levels and storm surges.

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Agricultural Impact: Climate change poses a significant threat to Pakistan’s agriculture, which is a vital part of its economy. Changes in rainfall patterns, water availability, and heat stress adversely affect essential crops like wheat, rice, and cotton.

These factors illustrate the urgent need for adaptation and mitigation strategies to address the challenges posed by climate change in Pakistan.

Smog, a combination of smoke and fog, has become a severe problem, particularly in urban areas during the winter months. Smog, a toxic mixture of smoke, fog, and pollutants, has become a recurring and severe issue in Pakistan, especially in major urban centres like Lahore, Karachi, and Faisalabad. It poses significant health, environmental, and economic challenges, particularly during the winter months (October to February).

Rapid urbanization has led to increased vehicle use, contributing significantly to air pollution. Factories, particularly in Lahore, Faisalabad, and Karachi, release pollutants, such as sulfur dioxide and nitrogen oxides. Farmers in Punjab and Sindh often burn crop stubble, releasing large amounts of particulate matter. Coal and other fossil fuels used in power generation contribute to air pollution.

Unregulated construction activities add to particulate matter in the air. Smog exacerbates respiratory diseases like asthma and bronchitis. It leads to increased hospital admissions for cardiovascular and pulmonary conditions. Prolonged exposure increases the risk of lung cancer and reduces life expectancy.

Smog hampers visibility, causing accidents and disrupting transportation. It negatively impacts tourism and local businesses. Loss of productivity due to health issues imposes a significant economic cost. Smog in Pakistan is a complex issue that requires coordinated efforts at local, national, and regional levels. Addressing it effectively demands stringent enforcement of environmental regulations, investment in cleaner technologies, and public engagement. Without immediate and sustained action, smog will continue to pose a serious threat to the health, economy, and environment of Pakistan.

Pakistan is one of the most vulnerable countries to the impacts of climate change, despite contributing less than 1 percent to global greenhouse gas emissions. The country faces significant challenges from rising temperatures, changing weather patterns, and increasing natural disasters, which threaten its economy, environment, and population.

Climate change poses an existential threat to Pakistan, affecting its people, economy, and environment. Addressing this challenge requires a multi-pronged approach involving government action, international support, and active participation from civil society. Without immediate and sustained efforts, the adverse impacts of climate change will continue to intensify, undermining Pakistan’s development and future stability.

The Pakistani government has taken steps to address climate change issues, but challenges still remain. The National Climate Change Policy (NCCP) aims to adapt to and mitigate the impacts of climate change. The Clean Green Pakistan Initiative encourages afforestation, effective waste management, and the use of clean energy.

Meanwhile, the Punjab Clean Air Action Plan focuses on reducing emissions from vehicles and industries. However, several challenges persist, including a lack of enforcement and regulatory mechanisms, limited financial resources, and inadequate technological capacity. Additionally, there is insufficient public awareness and participation in environmental initiatives. To combat these challenges, it is essential to increase investment in solar, wind, and hydropower to reduce reliance on fossil fuels. Developing efficient public transport systems can also help lower vehicular emissions. Providing alternatives to crop burning, such as mechanical shredders, is another important step to strengthen enforcement of air quality standards and environmental regulations. Educating the public about the dangers of smog and climate change, as well as promoting sustainable practices, will also play a vital role in addressing these issues.

Addressing climate change and smog in Pakistan requires a multi-faceted approach involving government action, community engagement, and international cooperation. Long-term commitment to sustainable development is crucial to mitigate these pressing challenges.

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