
Thermal Pollution: A Silent Menace to Punjab's Economy and Environment



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Thermal pollution is emerging as a serious environmental challenge in Pakistan, with wide-reaching impacts on the economy, public health, and ecosystems. The summer of 2024 saw record-breaking temperatures exceeding 45°C in many regions, intensifying heatwaves and

worsening conditions for millions of people. Local factors such as rapid industrial growth, urbanization, and deforestation have further aggravated this problem. Industrial activities, especially in the energy sector reliant on fossil fuels, contribute significantly to thermal pollution by releasing vast amounts of waste heat into the air and water bodies. This not only raises ambient temperatures but also disrupts aquatic ecosystems, compounding global warming effects.

Urbanization adds to the problem, with Pakistan's urban population increasing steadily, particularly in cities along the Indus River such as Karachi. The expanding cities create urban heat islands, further elevating temperatures and straining infrastructure.

Agriculture also plays a role, as extensive irrigation and water use near thermal power plants cause rivers and canals to overheat. This impacts crop yields, threatens food security, and adds to economic losses in a sector vital to Pakistan's GDP.

Thermal pollution also affects water supplies by heating water bodies, reducing their suitability for irrigation and industrial cooling, increasing costs and energy consumption. The resulting heat and poor air quality lead to serious health issues like heatstroke and respiratory problems, especially among vulnerable populations.

Ecologically, rising temperatures disrupt biodiversity and weaken ecosystems' resilience,

threatening essential services like clean water and air purification.

Addressing thermal pollution requires a multi-faceted approach. This includes adopting green technologies in industry, improving urban planning with more green spaces, enhancing water management, and shifting toward renewable energy sources. Public awareness campaigns are crucial to promote sustainable practices.

By acting now, Pakistan can reduce thermal pollution's harmful effects and secure a healthier, more sustainable future for its people and environment.