



Mini Review

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Cross-Border Collaboration for Emerging Air Pollution in South Asia

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Abstract

Clean air is one of the basic human needs which is being polluted with human population rise and industrialization. Polluted air causes severe public health complications. Developed countries have set tight air quality regulations while the issue requires attention in developing countries. This short letter reviews and suggests a way forward for air quality improvement and related public health issues in South Asia. Air pollution is emerging as a major public health issue in South Asia affects public health. Air quality monitoring and pollutant emissions reduction collaboration between Pakistan and India can make the air cleaner in the region and fit for public health.

Introduction

Increasing air pollution is depriving humanity of one of the basic needs of clean air for a healthy life. Increasing air pollution puts public health at risk of several complex diseases i.e. asthma, lung cancer, Chronic Obstructive Pulmonary Disease (COPD), stroke and ischemic heart disease [1-3]. Robust human population growth and unsustainable industrialization to meet human needs degraded ecological footprint and air quality [4]. The air quality improvement is one of the top priorities of developed countries. In the United States of America (USA) Particulate Matter (PM) 2.5 levels are set at 10 $\mu\text{g}/\text{m}^3$ [5]. Air pollution regulation shows a decreasing trend in premature deaths [6]. The European Union is working to reduce PM 2.5 further to the USA standards. Over the past several years, China has introduced green energy resources to meet its energy needs and comprehensively monitored air quality to reduce PM 2.5 high concentrations from 61.6 $\mu\text{g m}^{-3}$ in 2010 to 26.4 $\mu\text{g m}^{-3}$ in 2030 [7].

However, in South Asia air quality is not a priority. South Asia is at a high risk of air pollution which causes health problems, and can be controlled through air quality monitoring and Clean Air Diplomacy. According to the World Meteorological Organization research reports, South Asia seas are warming, the earth's surface temperature is increasing and air quality is worsening [8]. These climate changes affect aquatic and land biodiversity and human health in many ways. Air pollution a manifestation of climate change affects human health in terms of chest infections, allergies, cancers, cardiovascular diseases, and neurological disorders. These diseases reduce the quality of life and add more to the health budget. In the past few years, smog formation as a manifestation of air pollution has become a critical issue between Pakistan and India [9]. The problem needs the dire attention of the two neighbors to find a solution to improve the air quality and millions of people's human health.

Smog formation occurs when the air temperature decreases in the upper atmosphere where PM 2.5 and other air pollutants condense with water vapors [10]. Smog in the air over a large area and for a longer period is injurious to health and facilitates viral and bacterial transmission. Smog between Pakistan and India from October to December causes an emergency. The air quality remains polluted in the remaining months of the year but is not evident due to high air temperature which prevents smog formation. The issue is consistently increasing over the past few years but progress toward a common solution is lacking. The problem can be resolved by clean air diplomacy and research between the two countries to reduce PM 2.5 emissions and use green energy resources. Clean Air Diplomacy should be Pakistan's and India's priority to tackle the smog and improve human health. Regular air quality monitoring through air quality monitoring systems and satellite data can identify pollutant emission trends. Based on the pollutant emission data, all pollutant emitting units can be dealt with relative solutions like green energy. A joint working group of both countries under the Ministry of Environment can enhance academic research and technology sharing on smog. Furthermore, smog research conferences and seminars can pave the way for awareness and technology sharing between Pakistan and India.

Conclusion

In conclusion, South Asia is a densely populated region and is highly affected by climate change. The region's air quality has become polluted due to high PM2.5 and pollutants emissions throughout the year. Smog is an emerging issue between Pakistan and India and affects human health every year from October to December. Joint research and technology sharing under Clean Air Diplomacy can improve air quality and control smog.

Acknowledgment

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Conflict of Interest

No conflict of interest.

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