**Burning of Kharif Crop Residue and Associated Smog Episodes in South Asian Countries**

Aleena Tahir1\*, Arooba Javed1\*, Faiqa Faryal1\*

1) *Institute of Environmental Sciences and Engineering (IESE), National University of Science and Technology (NUST), Islamabad, Pakistan.*

Agriculture is the backbone of most developing countries, providing employment and food to most of the population. Pakistan, India, Bangladesh, and Nepal depend on the agricultural sector for their economic prosperity. Rice, wheat, maize, and sugarcane are the main crops cultivated in south Asian countries and produce a huge amount of crop residue. Crop residue burning provides a quick and cost-efficient mode of clearing the field for the next cropping season. But the burning of these residues leads to the deterioration of air quality as it significantly increases the concentration of air pollutants such as CO2, CO, NH3, NOX, SOX, volatile organic compounds (VOCs), and Particulate Matter. The presence of particulate pollution in tandem with calmer winds and lower temperatures gives rise to the phenomenon of smog. The episodes of smog which have become recurring over the past few years, create a serious health hazard and have socioeconomic implications as well. Alternative measures have long been suggested by scientists and agriculturalists over the past decade to counter crop residue burning, but due to a lack of awareness and social consciousness among the farmers, these measures have not been fully implemented. This review highlights the major emissions from crop residue burning and their impacts and the implications of smog episodes in south-Asian countries. There is a need to monitor air pollutant concentrations during the winter season and investigate the extent to which the high episode during the season is caused by crop residue burning. This review also discusses some of the sustainable management practices to deal with the widespread problem of crop residue burning in the region.

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