GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

RAJYA SABHA
UNSTARRED QUESTION No. 2771
TO BE ANSWERED ON 19.12.2024

Layer of smoke in winter season

2771. SHRI SANT BALBIR SINGH:

Will the Minister of ENVIRONMENT, FOREST AND CLIMATE CHANGE be pleased to state:

(a) the reasons for smog during winters in North India;
(b) the reasons for the increase in the AQI levels of the country's cities during winter itself ;
(c) to what extent does the smoke emitted from thermal plants or other chimneys, including stubble, pollute the environment;
(d) whether Government has conducted any survey regarding this; and
(e) if so, the details thereof, and if not, the reasons therefor?

ANSWER

MINISTER OF STATE IN THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
(SHRI KIRTI VARDHAN SINGH)

(a) to **(e):**
Air pollution during winters in North India is a collective outcome of multiple factors including high level of anthropogenic activities in the densely populated areas in the region. The reasons for smog during the onset of winter, predominantly with respect to $PM_{2.5}$, can be attributed to air pollution arising from various sectors viz. Vehicular Pollution, Industrial Pollution, Dust from Construction and Demolition Project activities, Road and Open Areas Dust, Biomass Burning, Municipal Solid Waste burning, Fires in Landfills, air pollution from dispersed sources, etc. During winter months, lower temperature, lower mixing heights, inversion conditions and stagnant winds lead to trapping of the pollutants resulting in high pollution in the region. This is further aggravated due to the emissions from episodic events like stubble burning, firecrackers, etc.

As per a recent study of IIT Kanpur published in September 2023, the major contributors of the PM2.5 during winter season are Secondary Inorganic Aerosols (32 %), Vehicular pollution (17 %) and Biomass burning (24 %). The other significant factors include Coal and Fly Ash (7 %), Domestic sources (3%), Municipal Solid Waste burning (3%), Soil and Road dust (2%).

Further, Decision Support System of IITM-Pune, Ministry of Earth Sciences has reported an average contribution of stubble burning towards PM2.5 in Delhi is 10.6 % with a maximum contribution of 35% during the period of 8th October – 7th December 2024.

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