GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

RAJYA SABHA
UNSTARRED QUESTION NO. 1648
TO BE ANSWERED ON 13.03.2025

System of Air Quality Forecasting and Research

1648. SHRI KUNWAR RATANJEET PRATAP NARAYAN SINGH:

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

(a) the manner in which the System of Air Quality Forecasting and Research (SAFAR) initiative monitor and forecast air quality in major cities across the country;
(b) the details of the real-time Air Quality Index (AQI) data provided by SAFAR and its impact on public health awareness;
(c) the manner in which the integration of weather parameters like temperature, humidity, wind speed and UV radiation enhances air quality forecasting; and
(d) the measures being taken to expand SAFAR's coverage to more cities and improve its effectiveness in air pollution management?

ANSWER

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

(a) to (d):
System of Air Quality and Weather Forecasting and Research, known as "SAFAR" implemented by Ministry of Earth Science for metropolitan cities of India, is used to provide location specific information of air quality in near real time and its forecast 1-3 days in advance for the first time in India. SAFAR initiative monitors and forecasts air quality in major cities through a dense network of standard air quality monitoring systems (AQMS) approved by the CPCB. It utilizes the advanced WRF-Chem (Weather Research Forecasting coupled with Chemistry) air quality model to provide accurate forecasts. SAFAR operates in major metro cities, including Delhi, Pune, Ahmedabad, and Mumbai, offering real-time air quality data and three-day advance forecasts to support informed decision-making.

SAFAR displays real-time Air Quality Index (AQI) data on its official website and through the SAFAR mobile app. As per international guidelines, different microenvironments are considered to know one index for a city air quality. The SAFAR observational network of AQMS and Automatic Weather Stations (AWS) established within city limits represents selected microenvironments of the city including industrial, residential, background/ cleaner, urban complex, agricultural zones etc. as per international guidelines which ensures the true representation of city environment.

The real-time AQI data provided by SAFAR helps raise public health awareness by informing citizens about air quality levels. Moreover, technology can lead to predicting the level of

pollutants in different parts of the city well in advance based on which preventive action can be taken to protect human health. The integration of weather parameters such as temperature, humidity, wind speed into the air quality model significantly enhances forecasting accuracy. SAFAR forecast is actively working on expanding its coverage to more cities by developing a Decision Support System (DSS) for selected locations, with plans for further expansion.

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