

## Optimization of Monitoring Networks for Air Quality Management in Urban Hotspots

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**Abstract :** Air quality management in urban areas is a serious concern in both developed and developing countries. In this regard, more number of air quality monitoring stations are planned to mitigate air pollution in urban areas. In India, Central Pollution Control Board has set up 574 air quality monitoring stations across the country and proposed to set up another 500 stations in the next few years. The number of monitoring stations for each city has been decided based on population data. The setting up of ambient air quality monitoring stations and their operation and maintenance are highly expensive. Therefore, there is a need to optimize monitoring networks for air quality management. The present paper discusses the various methods such as Indian Standards (IS) method, US EPA method and European Union (EU) method to arrive at the minimum number of air quality monitoring stations. In addition, optimization of rain-gauge method and Inverse Distance Weighted (IDW) method using Geographical Information System (GIS) are also explored in the present work for the design of air quality network in Chennai city. In summary, additionally 18 stations are required for Chennai city, and the potential monitoring locations with their corresponding land use patterns are ranked and identified from the 1km x 1km sized grids.

**Keywords :** air quality monitoring network, inverse distance weighted method, population based method, spatial variation

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