

## Air Quality Index and Pollution Control Measures

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### Abstract

The Air Quality Index (AQI) is an important tool used to communicate air pollution levels and associated health risks to the public. Increasing urbanization, industrial emissions, vehicular pollution, and biomass burning have significantly deteriorated air quality in many regions worldwide. Poor air quality poses serious threats to human health and environmental sustainability. This article examines the concept of the Air Quality Index, major air pollutants influencing AQI values, and the effectiveness of pollution control measures in improving air quality.

*Keywords: Air Quality Index, air pollution, pollution control measures, public health, environmental management*

### Introduction

Air pollution has emerged as a major environmental and public health challenge due to rapid industrialization, urban growth, and increased energy consumption. The Air Quality Index is widely used as an indicator to assess and communicate the level of air pollution and its potential health impacts [1]. Over the years, India has enacted several environmental laws and policies aimed at regulating pollution, conserving natural resources, and promoting sustainable development. Key legislative instruments such as environmental protection acts, pollution control laws, and biodiversity regulations form the backbone of India's environmental governance system [2]. These laws are implemented through central and state-level institutions responsible for monitoring, regulation, and enforcement. However, rapid industrialization and urbanization have placed immense pressure on

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regulatory agencies, often exceeding their administrative and technical capacity [3]. Environmental governance in India is further shaped by the role of the judiciary, which has actively intervened in environmental matters through public interest litigation [4]. Judicial decisions have strengthened environmental protection by enforcing the precautionary principle, polluter pays principle, and sustainable development. While judicial activism has enhanced accountability, it has also raised concerns about overlaps between judicial and executive functions. Challenges such as poor coordination among institutions, inadequate public participation, and limited access to environmental information continue to hinder effective governance [5]. Addressing complex environmental issues requires transparent decision-making, stakeholder engagement, and integration of environmental considerations into development planning. Strengthening environmental governance is essential for balancing economic growth with ecological sustainability.

### **Conclusion**

The Air Quality Index serves as a valuable tool for assessing air pollution levels and informing the public about associated health risks. Persistent air pollution requires sustained implementation of pollution control measures and strict regulatory enforcement. Improving air quality depends on coordinated efforts involving government agencies, industries, and citizens. Effective use of AQI data can support evidence-based decision-making and contribute to healthier and more sustainable environments.

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