**Report**

**Air Quality Analysis for Indian States**

**Introduction**

Air quality is a crucial aspect of environmental health, directly impacting the well-being of individuals and ecosystems. Understanding air quality trends and variations across different regions is essential for effective policymaking and public awareness. This report presents an analysis of air quality indices (AQI) for various Indian states, focusing on pollutants like Sulphur Dioxide (SO2), Nitrogen Dioxide (NO2), Suspended Particulate Matter (SPM), and Respirable Suspended Particulate Matter (RSPM). The data used for analysis is sourced from PrepInsta and visualized using Tableau.

**Methodology**

* **Data Collection**: The data utilized in this analysis is sourced from PrepInsta, providing comprehensive air quality data for Indian states. The dataset includes parameters such as SO2, NO2, SPM, and RSPM levels measured across different states over a specific timeframe.
* **Data Preprocessing:** Prior to visualization, data preprocessing steps were undertaken, including data cleaning, filtering outliers, handling missing values, and ensuring data consistency. Additionally, normalization techniques may have been applied to ensure fair comparisons between different pollutants and states.
* **Visualization:** Tableau was employed for data visualization, offering dynamic and interactive visual representations of the air quality indices. Various charts, graphs, and maps were utilized to illustrate trends, patterns, and disparities in air quality across different states and pollutants.

**Analysis Findings**

**Overall Air Quality Index (AQI)**

The analysis reveals significant variations in AQI across different Indian states. Certain states exhibit consistently high AQI values, indicating poorer air quality, while others demonstrate comparatively better air quality levels.

**Pollutant Analysis**

1. **Sulphur Dioxide (SO2)**: The visualization of SO2 levels depicts variations across different states, with some regions experiencing elevated SO2 concentrations, potentially due to industrial activities or vehicular emissions.

2. **Nitrogen Dioxide (NO2)**: NO2 levels exhibit a similar pattern to SO2, with certain states showing higher concentrations. Urban areas and regions with heavy traffic often experience elevated NO2 levels.

3. **Suspended Particulate Matter (SPM)**: SPM levels vary significantly across states, influenced by factors such as industrial emissions, construction activities, and vehicular traffic. Certain industrialized regions may exhibit notably high SPM concentrations.

4. **Respirable Suspended Particulate Matter (RSPM):** RSPM levels are critical indicators of air quality, particularly concerning public health. Analysis reveals varying RSPM concentrations across states, with densely populated urban areas often experiencing higher levels due to vehicular emissions and construction dust.

**Regional Disparities**

The analysis highlights regional disparities in air quality, with metropolitan areas and industrial hubs often exhibiting poorer air quality compared to rural regions. Factors such as population density, industrial activities, vehicular emissions, and geographical features contribute to these disparities.

**Temporal Trends**

Temporal analysis of air quality indices may reveal seasonal variations, long-term trends, and the impact of interventions such as environmental regulations or emission control measures. Understanding temporal trends is crucial for policymakers to implement targeted interventions to improve air quality.

**Conclusion**

The analysis underscores the importance of monitoring and addressing air quality issues in Indian states. By leveraging data-driven insights, policymakers can formulate effective strategies to mitigate pollution levels, safeguard public health, and promote sustainable development. Continued monitoring, public awareness campaigns, and collaborative efforts between government, industry, and civil society are essential in the ongoing quest for cleaner air and a healthier environment.

**References**

- PrepInsta: [Data Soure](https://docs.google.com/spreadsheets/d/16cd-PvV8u8LCuTd5solclZvMhrABz_-v/edit?usp=drivesdk&ouid=104378897668772255863&rtpof=true&sd=true)

- Tableau: [Dashboard](https://public.tableau.com/views/TableauDashboard_17113412631310/Dashboard1?:language=en-US&:sid=&:display_count=n&:origin=viz_share_link)

**Report By:**

GAJANGI MAHESHWARI