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To Analyze the Various parameters of Air Quality in Jaipur City at Critical Places

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To Analyze the Various parameters of Quality of Air in Jaipur City at Critical Places

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Abstract:

The Air Quality Index of Jaipur city, Rajasthan is observed & compared results. Those data of air pollutants are collected from critical sites like V.K.I., Police Commissonerate, and Adarsh Nagar & Shastri Nagar in various areas of the city. This survey was conducted to collect data of Respirable Suspended Particulate Matter, Suspended Particulate Matter (PM_{10}), Nitrogen Oxides and sulphur dioxide. The SO_2 and NO_x levels in these areas are remains under prescribed limits of CPCB (Central Pollution Control Board). This is increasing impact on the environment. Random utilization of natural resources has directed to environmental pollution.

Keywords:

AQI, SO_2, NO_X, SPM, RSPM, JAIPUR.

Introduction:

Air Quality Index in many city of India is higher than standard guidelines. In major cities of India the pollution have been generally increases due to lack of awareness. The various studies show that pollution of Jaipur city in industrial and urban area is very high. The main reason of pollution is the air pollutants in Jaipur city are due to various activities like transportation and industrial units. In Jaipur city the average level of SO_2, NO_X, PM_{10} (RSPM) and suspended particulate matter (SPM) generally exceeded the Indian air quality guideline. The health is directly impacted by air borne particles of people as well as wildlife. The respiratory problems such as allergies, asthma etc. is caused by suspended air particulates. In the Indian cities the Air quality scenario is most of the presents a grim picture of the national monitoring stations exceeding the standard WHO recommended guidelines of the recorded particulate concentrations. Rapidly growing and unsystematically industrial development has become a major environmental issue for the country. Cause effects on the human health were observed due to polluted air.

Literature Review:

Ankita P. Dadhich et.al. [1] evaluated the air quality of different spots of Jaipur city. Some special technologies were used to evaluate the seasonal and temporal variations up to 2015 of the last 10 years. Data of some monitoring stations located in Jaipur were collected from Central-Pollution Control Board (C-PCB) and Rajasthan-Pollution Control Board (R-PCB) and the relationship between the various parameters and the quality of air was also analyzed for the Jaipur city. It was found that the SPM and PM_{10} has the major contribution in the deterioration of the air quality of the Jaipur city, when nitrogen

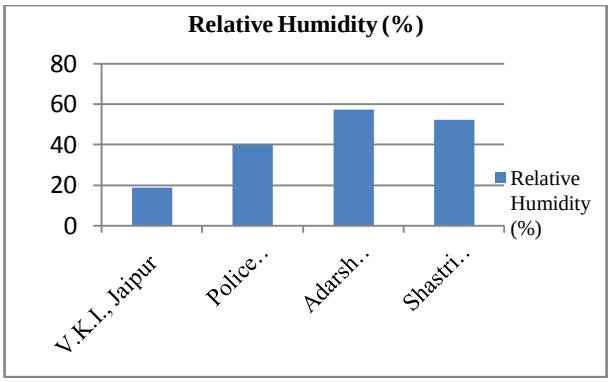
oxides and Sulphur di oxides concentrations was below the C-PCB standards. In the city results shows that the seasonal significance affects the concentration of pollutants. Distribution of the pollutants of air noticed that the most polluted seasons by SPM and PM_{10} are winter and summer, while in monsoon period was having the better quality of air. The spatial distribution of AQI shows in the various areas in Jaipur city is under the severely major polluted areas.

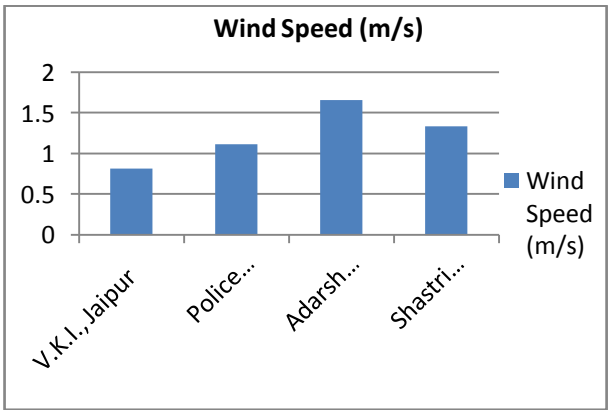
Jayshri Kala et. Al. [2] the air quality on the major arterial roads of Jaipur city, Rajasthan in the form of Air Quality Index (AQI) was investigated. Monitoring some of the stations was set up at some locations on all roads of the study area after analyzing about their traffic movement, traffic type and their characteristics, it analyzed that the air samples from various monitoring stations, the comparison of results were done on the basis of standard results. The results observed that air pollutants such as NOx and SO_2 are within the permissible limits but for particulate matter it is the predominant causes of the air pollution.

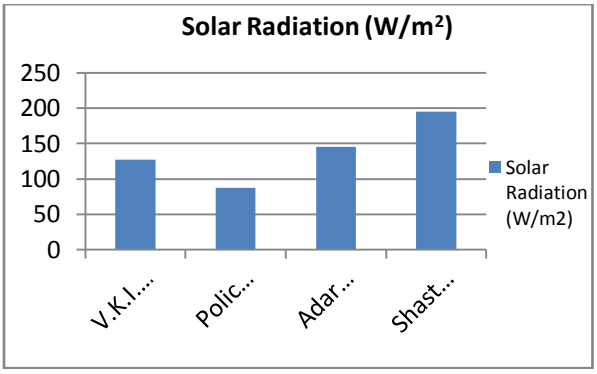
Gowtham sarella & Mrs. Dr. Anjali K. Khambete [3] analyzed that the ambient air in city were employed the air quality index (AQI). It is proposed for the Cities in India. It is helpful for simplification of the public data interpretation and information. The average concentration of the some major criteria pollutants, viz. Particulate matter Sulphur Dioxide, $PM_{2.5}$, PM_{10}, and Nitrogen Dioxide for the year 2013 to 2014 of four different areas were selected which are GPCB office, Vapi Nagar Palika, , GEB building and GIDC Estate. The Air Quality Index was calculated by using the IND-AQI procedure. This study was observed that the minimum and maximum concentrations of NO_2, SO_2, PM_{10}, $PM_{2.5}$ and A.Q.I. values at GIDC, GPCB, GEB, Nagar Palika locations.

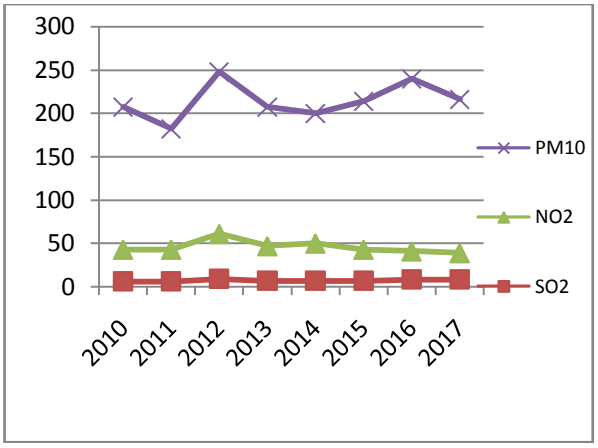
Observations & Results:-

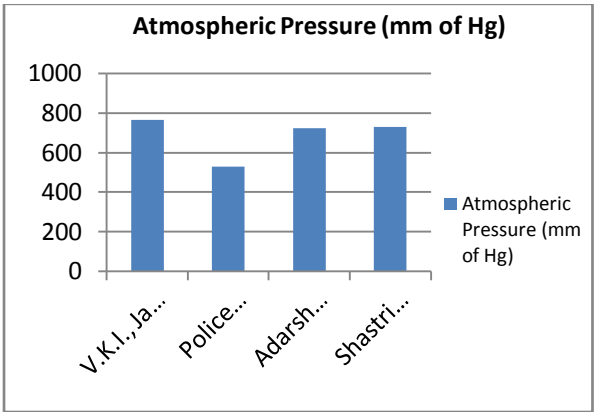
Place → / Parameters ↓	V.K.I., Jaipur	Police Commissionerate, Jaipur	Adarsh Nagar, Jaipur	Shastri Nagar, Jaipur
Relative Humidity **(%)**	19.11	40.10	57.43	52.44
Wind Speed **(m/s)**	0.82	1.12	1.66	1.34
Solar Radiation **(W/m^2)**	127.3	87.24	145.75	195.32
Atmospheric Pressure **(mm of Hg)**	767.4	530.59	724.41	730.63



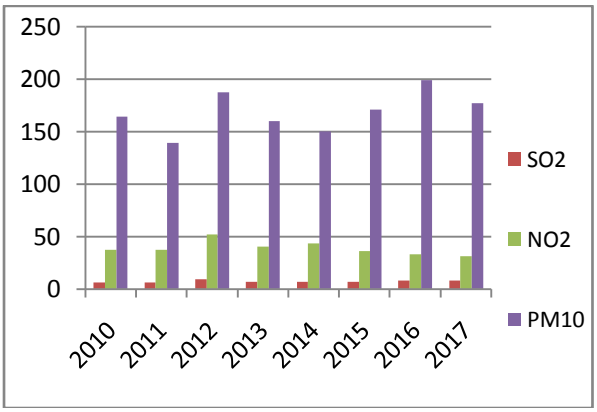








State -Rajasthan		City -Jaipur	
Number of Operating stations = 6			
Year	**SO_2**	**NO_2**	**PM_{10}**
2017	8	31	177
2016	8	33	199
2015	7	36	171
2014	7	43	150
2013	7	40	160
2012	9	52	187
2011	6	37	139
2010	6	37	164



Conclusion:-

- As per the data observed that in jaipur city Relative humidity & wind speed is maximum at Adarsh Nagar area & minimum at V.K.I. area, Solar radiation is maximum at Shatri Nagar & minimum at Police commissionerate and atmospheric pressure is maximum at V.K.I. & minimum at Police commissionerate.
- From the past data as per central pollution control board SO_2 is continuously increasing, NO_x was maximum in 2012 but now in controlled & PM_{10} was minimum in 2011 & maximum in 2016 but after that it is sometimes controlled in 2017.

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