

Review Paper on Air Pollution In India

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Abstract- Air pollution is a world-wide issue. In India air pollution is due to mainly heavy transportation, heavy industries. Generally, air pollution is due to two types of pollutants called primary and secondary pollutants. CO, NO₂, PM (particulate matters), SO₂ called primary pollutants are main reason for pollution because they are emitted directly from vehicles, industries, domestic fires and from other sources. Secondary pollutants like ozone and smog (smoke + fog) are also reason for air pollution. Air pollution affects human and animal life in a very bad manner. According to a study data collected by CPCB (Central Pollution Control Board) and SPCB (State Pollution Control Board) the air quality of urban area is more polluted in comparison with the air quality of the village/rural area.

Keywords- Air Pollution, Air Pollutants, India, Covid-19, Urban Pollution, Transportation.

I. INTRODUCTION

Air pollution is one of the most serious types of pollution in urban cities of Asia, hence the population living in urban areas is most affected by poor air quality. Air pollution is harmful for health, and it harms the health and causes many health problems and issues. These health problems are related to respiratory system diseases, cancer, heart related problems etc. Since now-a-days most of the people are moving towards the cities. Hence population in the cities of India is continuously increasing with increase in number of populations, demand for vehicles is also increasing in city areas.

So, increase in population of cities leading to high demand of vehicles and high demand of vehicles is leading the higher no. of automobile industries. Industries are also reason for air pollution as they emit huge amount of CO, hydrocarbons, and other harmful chemicals directly into the air. Table No.1 is showing the sale of automobiles (like two wheelers, passenger vehicles, commercial vehicle from 2011 to 2021 in million units).

Table 1: Sales of automobiles in India from 2011 to 2021.

According to a data approximate 2,55,397 automobiles were sold in India in June 2021. In India there are more than 14,000 automobile companies are running. So, from

these data we can say that vehicles and industries are main reason for air pollution.

There are some other sources of pollutants which are polluting the air and they are as follows:

1. In rural areas of India woods and coals are used in cooking. Due to incomplete combustion of these fuel emission of CO takes place.
2. After harvesting of rice and wheat their residues are burnt due to which high quantity of carbon is emitted. This is also a reason for air pollution in Delhi because in Haryana side this type of burning takes place then due to air blown in the direction of Delhi side most of the pollutants enters the environment of Delhi.

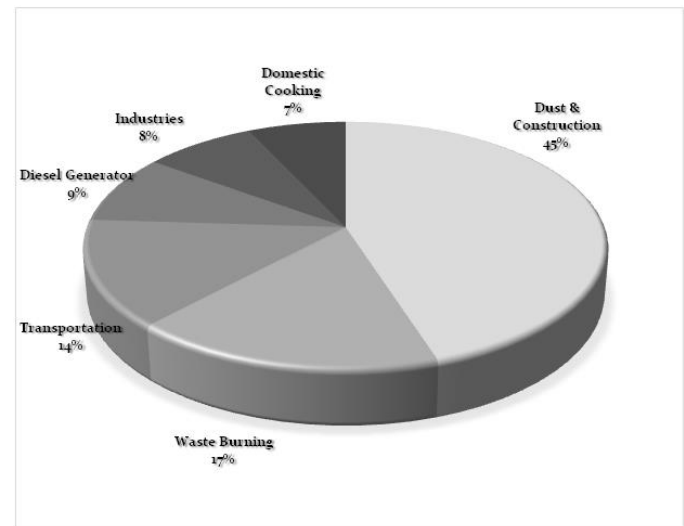


Fig. 1: Different sources of air pollution in India.

In fig 1 we can clearly see that the contribution of different sources in air pollution. Dust and construction are contributing about 45% according to fig.1 which is maximum and domestic cooking is contributing to air pollution about 7% which is minimum. Transportation is contributing to polluting the air about 14% and industries about 8%.

In India Delhi is on top in the list of polluted cities in INDIA and is 2nd most polluted city in the world. According to a data of CPCB air pollution is very harmful for Delhi's children. The main affecting pollutant is PM_{2.5} because its particles are inhalable as its diameter is smaller than 2.5

micrometers. Table No.2 is showing top cities of India which contain high level of PM_{2.5}

Table 2: Concentration of PM_{2.5} in cities of India.

Cities Name	Level Of PM _{2.5}
Delhi	153
Patna	149
Gwalior	144
Raipur	134
Ahmedabad	100
Lucknow	96
Faridabad	96
Kanpur	93
Amritsar	92
Ludhiana	91
Allahabad	88
Agra	88
Khanna	88

Due to air pollution the health risk is very high for elder people and children. Air pollutants can damage the respiratory system of children for permanent or for temporary. The following symptoms can be seen in the humans, if they have affected by air pollution: -

1. Upper Respiratory Symptoms: - Upper Respiratory Symptoms includes these following symptoms like running nose, sore throat, cold head, fever, sinusitis etc.
2. Lower Respiratory Symptoms: - Lower Respiratory Symptoms includes wet cough, dry cough, phlegm, shortness of breath etc.

Table 3: Effects of different air pollutants on human health.

Pollutants	Effect on human health
CO [Carbon Monoxide]	CO can damage cardiovascular system, nervous system. It also affects the vision and causes headache, reduces the productivity.
NO _x [Nitrogen Oxide]	It damages lungs eyes, nose causes throat irritations and pulmonary diseases.
SO ₂ [Sulphur Dioxide]	Sulphur dioxide interferes in the proper functioning of lungs.
SPM and RPM	SPM means suspended particulate matter and RPM means respirable particulate matter are the fine particles which can be toxic or can carry some toxic substances. These fine particles are inhalable and can enter the lungs and damage them. If they can also cause long term disorders.
HC [hydrocarbons]	Hydrocarbons effects human health badly and causes cancer.

II. CONCLUSION

Air pollution is a serious problem not in India but in all over the world. In India there is huge population due to which demand of vehicles is very high and this is leading to heavy traffic and increase in the number of automobile industries which leads to air pollution. Due to the air pollution atmospheric temperature is increasing due to which the global warming is taking place, and this is a world- wide problem. Due to air pollution humans and animals' life is getting affected badly. It is causing lung problems or problems in respiratory system, cancer, diseases related to heart, eyes, and nervous system etc. in humans.

According to a study of Harvard university China and India have highest deaths rate due to bad quality of air, which is due to burning of fuels, industries, fossil fuels etc. In India approximate 30.7% deaths is due to air pollution. The main sources of air pollution in India are transportation and industries, which are responsible for the generation of SO₂, NO_x, CO & hydrocarbons etc. Due to these primary pollutants secondary pollutants like ozone and smog are formed which also cause visibility problems, cancer, and respiratory system problem etc.

The countries with huge population like India weekly lockdown will be helpful in reducing the air pollution. In December 2019 the global pandemic Novel Corona Virus [covid-19] occurred there was only way to break the chain of mutation of covid-19 was complete lockdown, which was adopted by almost all the Countries affected by Covid-19. In India the first lockdown was adopted for 21 days from 24 March 2020 to 14 April 2020. Due to this lockdown the moment of people & transportation was almost null. Thus, it helped in making the air quality good by reducing the quantity of air pollutants.

In Delhi AQI (Air Quality Index) was very poor before lockdown but after lockdown the AQI was good. Daily lockdown is not possible due to economy problems, but weakly lockdown can be a better option for this problem. Proper maintenance of vehicles by their owners should be done to reduce air pollution. Public transportation, carpooling should be adopted to reduce the air pollution. The quality of fuels which are used in vehicles should be of good quality and free from leads as it affects the quality of air. At red, light vehicles engine should be off due to which combustion of fuels and emission of pollutants can be stopped for a little bit of time. Hence these steps can be adopted to control the air pollution.

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