

A Theoretical Study on Impact of Automobiles on Environment

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ABSTRACT

Automobiles are one of the best inventions but as long as technology is increasing, it also leaving some ill effects on environment. This paper is presented based on theoretical study done over impact of traffic on environment. It will help us to understand the impact of vehicles on environment. This will help to understand the range of pollution done by vehicles and their ill effects on human and animal. A reduction in pollution by vehicles and safety against pollution is presented in this paper. In this paper we are trying to examine the various problems related to burning of fuels by vehicles. In this paper environmental pollution is given importance. Noise and air pollution are presented in this paper.

Keywords:-*Vibrations, particulate matters, GHG's, air quality.*

INTRODUCTION

Automobiles industry is growing very rapidly as peoples demanding more and more safe, convenient, easy, and rapid mobility. In today's life we cannot even imagine over life without automobile. But it has some good and bad effects as well. In other words, we can consider automobiles which have positive impact. But it cannot be ignored it also have some negative impact as well. Burning of fuels in automobiles producing serious environment pollution. Which causes serious problems for environment, human environment are as air pollution, visual intrusion, vibrations, noise etc [1]. Various news in news papers are published on this serious problem.

According to the report published in economic times most number of deaths in India takes place by diesel vehicles. Emission from vehicles causes 361000 premature deaths by PM2.5 and ozone 1n 2010. In 2015 numbers increases 385000[6].

For the reduction of this India is taking

some good steps. We are shifting on other vehicles like electric vehicles. In Delhi, CM Arvind Kejriwal has taken some good steps to overcome pollution. ODD EVEN formula was one of the good steps taken. Indian government also instructed to automobiles on BS-VI Automobile Engines.

Recently Prakash Javedekar said from April 1, 2020 BS-VI will be available at some big cities of country. This will help in reduction of vehicular emission [6].

IMPACT OF TRAFFIC ON ENVIRONMENT

Various impacts of fuels burning, and Automobiles are studied which are as:

Noise is one of the serious pollution vehicles is generated in three ways which are considered of prime importance. Noise by parts of vehicles such Engine, Body. Due to interaction such as Horns, Cyren. Noise by Acceleration and Deceleration of vehicles. From the studies it was found that a new vehicle produces less amount of noise as compared to old vehicles [2]. A hike in pollution takes place due to the increase in traffic. Heavy vehicles produce

more amount of noise. Noise is measured in decibel. A noise level more than 90dB is considered noisy. Generally 60dB is not considered noisy [1]. It breaks the silence of environment. For humans it causes of annoyance, headache, High Blood Pressure, high noise for long terms may produce deafness. It causes disturbance in public life such as study, meetings etc [4].

Air pollution is the most serious problem for consideration. It also has more serious effects than noise. This makes the environment unpleasant and unhealthy for human and animals. Pollution from automobiles is of two types. Primary and Secondary. If pollutants are directly released by vehicles this is taken as primary and if this is due to the reactions of primary this will cause secondary. Major pollutants of air are as: Particulate matters, nitrogen oxide, carbon dioxide, sulfur dioxide, carbon monoxide, lead

compounds etc. carbon dioxide continuously changing the climate. Large amount of carbon monoxide in blood produces toxins. Fog causes irritation in eyes and also responsible for poor visibility.

Visual intrusion [1] is nothing but everything which we can see surroundings. Surroundings such are like that it breaks the monotony and produce no serious ill effects.

Vibrations produced by moving vehicles in air generally do not produce damages for the buildings and humans but it causes of annoyance [1]. A brief study of noise and air pollution is presented in this manuscript.

PERMISSIBLE NOISE LEVEL IN INDIA

Central Pollution Control Board has made some recommendations in India about the permissible limit which are as:

Table 1:-Recommended values of noise in different areas [7]

AREA	RECOMMENDED NOISE IN DAY	RECOMMENDED NOISE IN NIGHT	MEASURING UNIT
Residential Area	55	45	dB
Commercial Area	65	55	dB
Industrial Area	75	70	dB
Silent Area	50	40	DB

EFFECTS OF NOISE

We considered the effects of noise in two categories 1) Auditory 2) non-Auditory. Auditory effects are like deafness. Non auditory effects like annoyance, physical disorder, bad illumination etc [1].

TECHNIQUES TO REDUCE NOISE

- By operating traffic in good manner.
- By public awareness program.
- Traffic management.
- Proper adopting proper geometry for roads.
- By avoiding congestion.
- Allow a good Tyre vehicle to drive.
- Prohibition of old noisy vehicles.
- By designing vehicles in a good manner.
- By planting on both side of road if proper land is available.
- To eliminate noise in a city, provide some bye passes etc.
- By proper surface design.
- By using good methodology in construction of road.
- By proper maintenance of vehicles.
- By limiting acceleration and deceleration.

- By reducing private transport.
- By using more no of electric vehicles.

MAJOR AIR POLLUTANTS AND THEIR EFFECTS

Due to burning of fuels one gases, fumes and smells are released by vehicles. Which proves hazardous. These hazardous gases are as:

Particulate Matter (PM) is most serious threat to human as it directly affects the

human health. This form is considered as a primary form of pollution. PM 2.5 is considered as a serious danger. It is generated from vehicles up to 35% in quantity. Pollution is considered as high if it ranges more than 100%, as moderate more than 50%, as low up to 50%. Its secondary form like nitrogen dioxide, Sulphur dioxide, carbon monoxide is major contributor to PM pollution.

Table 2:-Major pollutants and their effects

NAME OF POLLUTANT	FORMATION	EFFECT
Hydrocarbon	Generally, formation of ozone takes place at ground level. It is result of reaction with nitrogen.	It causes coughing, sneezing, irritation, and completely reduces the storage capacity of lungs.
Nitrogen oxides	-	Respiratory infections, irritation to breath.
Sulfur dioxide	This is formed by burning of diesel. It forms very fine particles in the air.	Respiratory diseases like Asthma
Carbon monoxide	This is formed due to burning of fossil fuels. This has is colorless and odorless.	causes chronic illness, may block heart and some other organs.
Carbon dioxide	It makes a global change; it is considered as one of the major green house gasses. It is released by vehicles as a result of fuel burning.	Increase in temperature globally.
Chemical compounds	These are produced by the burning up of fuel of vehicles and various other activities.	It causes of diseases like cancer.

STEPS TO REDUCE VEHICULAR AIR POLLUTION-

These are based on large practical studies of experienced engineers and scientists these steps are as:

- Sulfur reduction program.
- By adopting clean transportation fuel.
- By adopting smart inspection and maintenance program.
- By introducing some standard for fuel.
- By adopting new technology like electric vehicles, solar vehicles, CNG vehicles.
- Gasoline benzene reduction Program.

- PUC for in use vehicles with strict laws.
- By establishment of laboratories for checking of fuels.
- By making some changes in the design of engine and exhaust.

QUALITY OF AIR

It simply means the condition of air which is present around us. A Clean and

unpolluted air is considered good for health of human, environment, vegetation, and animals too. But from few decades it has gone worse. Government agencies adopt Air quality index to show how polluted air is. In India we use six categories each category has some different limits of different pollutants some of them are as.

Table 3:-Air quality [5]

<i>Air Quality</i>	<i>PM 10</i>	<i>PM 2.5</i>
Severe	More than 430	More than 250
Very Poor	351-430	121-250
Poor	251-350	91-120
Moderately Polluted	101-250	61-90
Satisfactory	51-100	31-60
Good	0-50	0-30

SITUATION IN INDIA

As India is a developing is country and traffic is increasing so we need to take care of automobile emission. In major cities is becomes a major problem line in Delhi, Gurugram, Kanpur, Jaipur, Faridabad etc.

CONCLUSION

Pollution is a critical issue globally. In this paper we tried to combine some ideas to aware peoples which will help in reduction of pollution by fuel burning and sound. It was found that by adopting the recommendation made we can easily make a reduction in pollution. We can reduce the pollution, but it founds critical because of less awareness. Using up of CNG and Electric vehicles naturally reduce the air pollution. Noise pollution can be reduced by awareness and proper sign installation.

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