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VEHICLES AND ITS IMPACT ON AIR QUALITY

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ABSTRACT:

Air pollution has been aggravated by developments that typically occur as nations become industrialized: growing cities, increasing traffic, rapid economic development and industrialization and higher level of energy consumption. In the total air pollution vehicles contribute a large number. Currently in India, air pollution is widespread in urban areas where the vehicles are the major contributors and in a few other areas with a high concentration of industries and thermal power plants. Vehicular emission are of particular concern since these are ground level sources and thus have the maximum impact on ambient air quality and resulted air pollution. Also vehicles contribute significantly to the total air pollution load in many urban areas. In this research project I as a researcher through the survey try to explore the vehicles movement at Debinagar, kalibari, Raiganj, U/D, and also understand its impact on ambient air quality and also its consequences.

Key words: ***air quality, air pollution.***

INTRODUCTION

According the National Ambient Air quality Monitoring (NAAQM) network, three criteria namely 01.spm, 02 s02 03. No 2 have been identified for regular monitoring at all the 290 stations spread across the country. Central pollution control board (CPCB-2000c) analyses the state and trends of air quality at various cities in India for the period 1990-98. Figures show the minimum, maximum and annual average of SPM, SO2 and NO2 in 16 cities in the country between 1990 and 1998. The most prevalent from of air pollution appears to be SPM although there are many stations at which SO2 and NO2 leaves exceed permissible limits. The high influx of population to urban areas increase in consumption patterns, unplanned urban and industrial development and poor enforcement mechanism has led to the problem of air pollution. The government has taken a number of measures such as legislation, emission standard for industries, guidelines for sitting of industries, environmental audit EIA,

Vehicular pollution control measures, pollution prevention technologies action plane for problem areas, development of environmental standards, and promotion of environmental awareness. However despite all these measures, air pollution still remains one of the major environmental problems. At the same time, there have been success stories as well as the reduction of ambient lead levels and comparatively lower SO2 levels. The number of motor vehicles has increased from 0.3 million in 1951 to 1997, according to ministry of surface transport 2000. Out of these, 32% are concentrated in 23 metropolitan cities. Delhi itself account for about 8% of the total registered vehicles and has more registered vehicles then those in the other three metros taken together. Figure shows the steep growth in the number of vehicles in India. According to the report of ministry of surface transport 2000 At the all India level, the percentage of two wheeled vehicles in the total number of motor vehicles increased from 9% in 1951 to 69% in 1997, and the share of buses declined from 11% to 1.3%during the same period. It may cleared said that there was a tremendous increase in share of personal transport vehicles. In 1997 personal transport vehicles i.e., two wheeled vehicles and car only constituted 78.5% of the total number of registered vehicles. At the surveyed area found varieties of vehicles such as a bus, mini bus, tracker, fighter, auto, verities of private car, motor cycle, scoter, toto, etc. in the total no of vehicles bus & variant of tracer occupied a large number. Vehicles movement impact its influence on its passing vicinity air environment. In the India, millions of people breathe air with high concentration of dreaded pollutants. The air is highly polluted in terms of suspended particulate matter in most cities. This has led to a greater incidence of associated health effect on the population manifested in the form of sub-clinical effect & so on. Its effect also on impaired function, use of medication, reduced physical performances, frequent medical concentrations and hospital admission with complicated morbidity and even death in the exposed population. As per a world bank study 1993 respiratory infection contribute to 10.9% of the total burden of diseases, which may be both due to presence of communicable diseases as well as high air pollution levels, while cerebra vascular disease 2.1% ischemic heart disease 2.8% and pulmonary obstructions 0.6% are much lower. According to CPCB 2000 the prevalence of cancer is about 4.1% amongst all the diseases indicating that the effects of air pollution are visualized on the urban population.

STATEMENT OF THE PROBLEM

Debinagar kalibari four lane crossing area where I survey my research project topic I have noticed & also I have some faced some problems there are as follows:

- Roads are not too spread, there is a common road, not one up & one down that is two way road.

- This single PWD road which is the onlu one main connecting road of NH-34 between Siliguri more and kasba Vivekananda more of raiganj, that's why every vehicles towards kasba from heart of the Raiganj main town & vice-versa passes through this road areas as well as four lane crossing more. Hence it creates jam.
- Various shop keepers are approaching from their side towards road side, through near about half of the shop keepers and occupied PWD land for built up their shop in this survey area.
- There are much more use of fuel combustion engine used by motor vehicles then other means, which adversely affect on ambient air quality of this area.
- Except few E-Riksha that is locally renowned by Toto, there is no E-vehicles were running on this road, this has also laid the air pollution.
- Few numbers of school buses were about 22 to 23 years old. As well as they emitted heavy black polluted smoke in the air which causes faster & furious air pollution.
- Very few no. of motors vehicles were Bharat stage 3&4 except these all other maximum vehicles were have no under pollution standard.
- Approx two to three vehicles driver honestly said that they have no pollution control certificate, they actually emphasized that have no need of this at all these also adversely affect on ambient air quality.

SIGNIFICANCE OF THE PROBLEMS

My research project topic is vehicular movement & its impact on ambient air quality in a particular place Debinagar Kalibari, Raiganj, U/D West Bengal. There are various problems which I faced to completing this project work. If we dint solve these problems situation will be vulnerable day by day. Through my survey area are not facing to much air pollution situation at a alarming level but this area face a heavy traffic due to various fossil fuel combustion engine run by various motors vehicles. If we ignore now these kind of problems them coming times will be more dangerous for not only human beings but also other living elements.

ASSUMPTIONS AND DELIMITATIONS

Through it is known to all through our modern technologies that the excessive vehicular movement & its adverse effect on its ambient air quality is getting high to higher day to day. My survey report shows in smallest area. Due to storage of time I have found my survey within 16 family & few shop keepers & near about 200 vehicles about 4 hours period times. This type of sample survey does not express or show actual figures, increase of a wider periphery report, such error would be minimised. I have also experience with some people suppressed their actual report.

RELATED LITERATURE REVIEW

The vehicular movement & its impact on ambient are reviewed by some related literature survey, such as – The air quality status of different sites of lucknow city were done by pandey v (1999) and it has witnessed a tremendous increase in two wheeler & three wheeler which laid down the air pollution. Sreenivasa Rao, A Rama Mohan Roy (2000) measure the SPM, NO2,SO2 to access the ambient air quality at kolleru Lake. At Delhi kulshrestha Monica detect the problem related to ambient air quality. Shrivastava K.L & Ojha shrikant (2003) were surveyed the different sites of jodhpur city in Rajasthan & gave the result of the concentration of high level of SPM, SO2, NO2 in the air. Mahendra SP krishnamurty (2004) gave the report of carbon mono oxide concentration in the ambient air at crossing junction of Bangalore city due to heavy traffic flow.SPM, SO2,NOx is analysed by ready MK (2004) of vishakhapattanam city which is exceed the normal range. Karar kakoli(2005) monitoring the report of heavy concentration of gaseous pollutant SO2, NO2, NH3, of polluted urban region of Kolkata. There are other scholar were also gave their view in this respect.All above related research are helpful for understanding & doing my project work in this regard.

PURPOSE OF STUDY

Today is open secret matter that the environment is degrading from day by day. It has been observed that after the Second World War, population explosions have taken a colossal turn. To meet the growing demands of peoples and in the name of development natural resources are squeezing from the nature so rapidly which affects the total environment. Air is one of the natural resources. This important natural resource are very much affected by different population matter. Vehicles are one of the most important responsible for air pollution. Vehicular movements laid down its impact on ambient air quality of a particular place. Hence to search about the view off vehicular movements & its impact on ambient air quality of Debinagar Kalibari, Raiganj, Uttar Dinajpur, and west Bengal, India and I have tried my best in this project.

SOURCES OF DATA

My research project topic vehicular movement & its impact on ambient air quality in particular place. Hence I choice my residential ward no 23 of Debinagar kalibari four lane crossing area for survey. As we know there are almost in every research work two types of data were used. I also use two types of data namely 01. Primary data – which is collect by surveying 02. Secondary data – which is collect by other than primary sources. First of all I am conducting the ground; level survey by questioning different kinds of motors owners from cum driver as well as walker and shopkeepers of my survey area and collect the primary data. I also observe the vehicles movement

for a sum period of my survey area and collect the data is my main sources of data for doing this project work.Secondly I also collect secondary data from RTO at kajora, Uttar Dinajpur.I am also great full for using secondary data from different journal which is quoted in the references of this project.

Plate 1: Surveyor Surveying Vehicles Survey On Profile

Plate 2:Surveyor Surveying Vehicles

Plate 3:Surveyor Surveying Vehicles

DATA COLLECTING TOOLS

Data (primary) collection from person to person with vehicles is made by me mainly by cycle and on foot. The secondary data collection is done by me mainly by motorcycle & on foot. When I collect primary data Mr. Animesh Biswas (A/T) my beloved friend helped me a lot in this regard. Ex. Councilor of our 23 no ward Mr. Ashim Adhikari also helped me during data collection RTO office also help me in this regard.

METHODS OF DATA COLLECTION

Main method of data collection is taking mainly by an open interview. The interview was not limited only to vehicles to vehicles but also from shop keeper. When direct question failed optional questions also helped me to get the actual picture of our research project topic i.e. vehicular movements and its impact on ambient air quality.

Plate 4: Surveyor Surveying Vehicles.

ANALYSIS AND PRESENTATION OF DATA

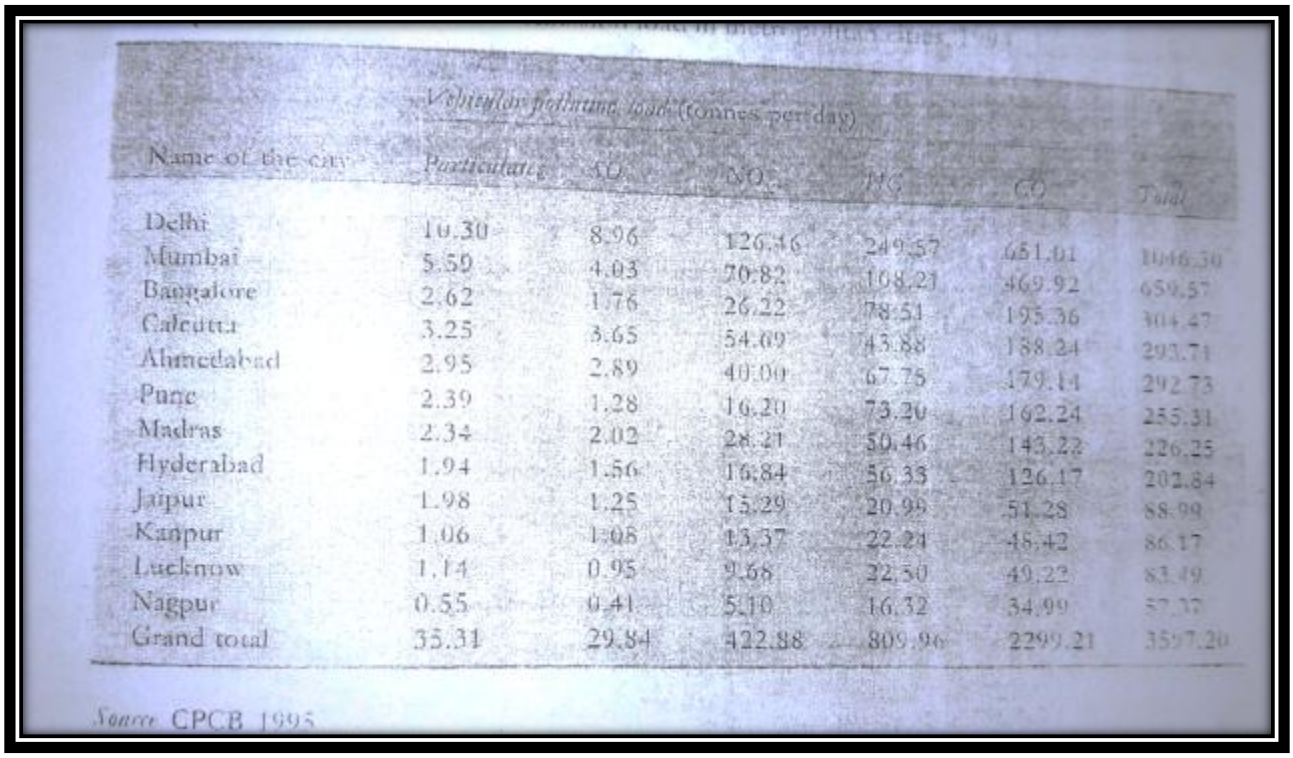
From the data analysis & presentation I can say that the surveyed areas were experienced with the more or less heavy traffic area. Approx. 16 households have the 28 motor vehicles, out of these more or less all type of vehicles are there (Fig -).Table show the estimated vehicular emission load (tonners per day) in metropolitan cities in 1994.From the fig SPM is lowest at Chennai & Kolkata – Howrah score high in 2006 according to CPCB. Not only SPM but in SO2 Nagpur indicate lowest & as same Kolkata – Howrah. From the diagram we can easily assess the magnitude of vehicular growth from 1985 to 1997 in between 12 years. In two wheelers case it increase about 400% for the said 12 years of time. Diagram – show the surveyed area experience the (45%) of tracer, 18% bus – mini bus, 22% motorcycle, 10% auto type & 5% toto through passes this area. From the pie –

diagram surveyed area had experienced the maximum air pollution (58057%) due to traker type motor vehicles & the minimum (8058%) due to the Auto type three wheelers vehicles.

Vehicular Pollution Load

Debinagar kalibari survey area is not create a big problem in terms of pollutant emission by vehicles & resultant air pollution. But we must take immediately some preventive measures for limiting the escalation of the said problems. When we comparison air pollutant in different Indian major cities, then it is very clear that different air pollutant like SPM, SO2, NOx, HC, CO etc. were in alarming level that level much above the normal permissible level.

Table: Following Actual picture reveal the real dangerous situation.



Vehicular pollution load (tonnes per day)

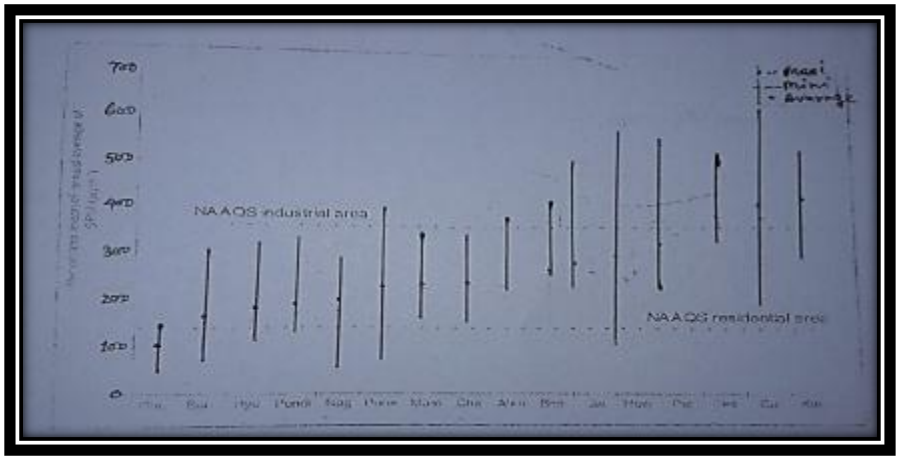
Name of the city	Particulates	SO2	NOx	HC	CO	Total
Delhi	10.30	8.96	126.46	249.57	661.01	1046.30
Mumbai	5.59	4.03	70.82	108.21	469.92	659.57
Bangalore	2.62	1.76	26.22	78.51	195.36	304.47
Calcutta	3.25	3.65	54.09	143.88	188.24	293.71
Ahmedabad	2.95	2.89	40.00	67.75	179.14	292.73
Pune	2.39	1.28	16.20	73.20	162.24	255.31
Madras	2.34	2.02	28.21	50.46	143.22	226.25
Hyderabad	1.94	1.56	16.84	56.33	126.17	202.84
Jaipur	1.98	1.25	15.29	20.99	51.28	88.99
Kanpur	1.06	1.08	13.37	22.24	48.42	86.17
Lucknow	1.14	0.95	9.68	22.50	49.22	83.49
Nagpur	0.55	0.41	5.10	16.32	34.99	57.37
Grand total	35.31	29.84	422.88	809.96	2299.21	3597.20

Source CPCB 1995

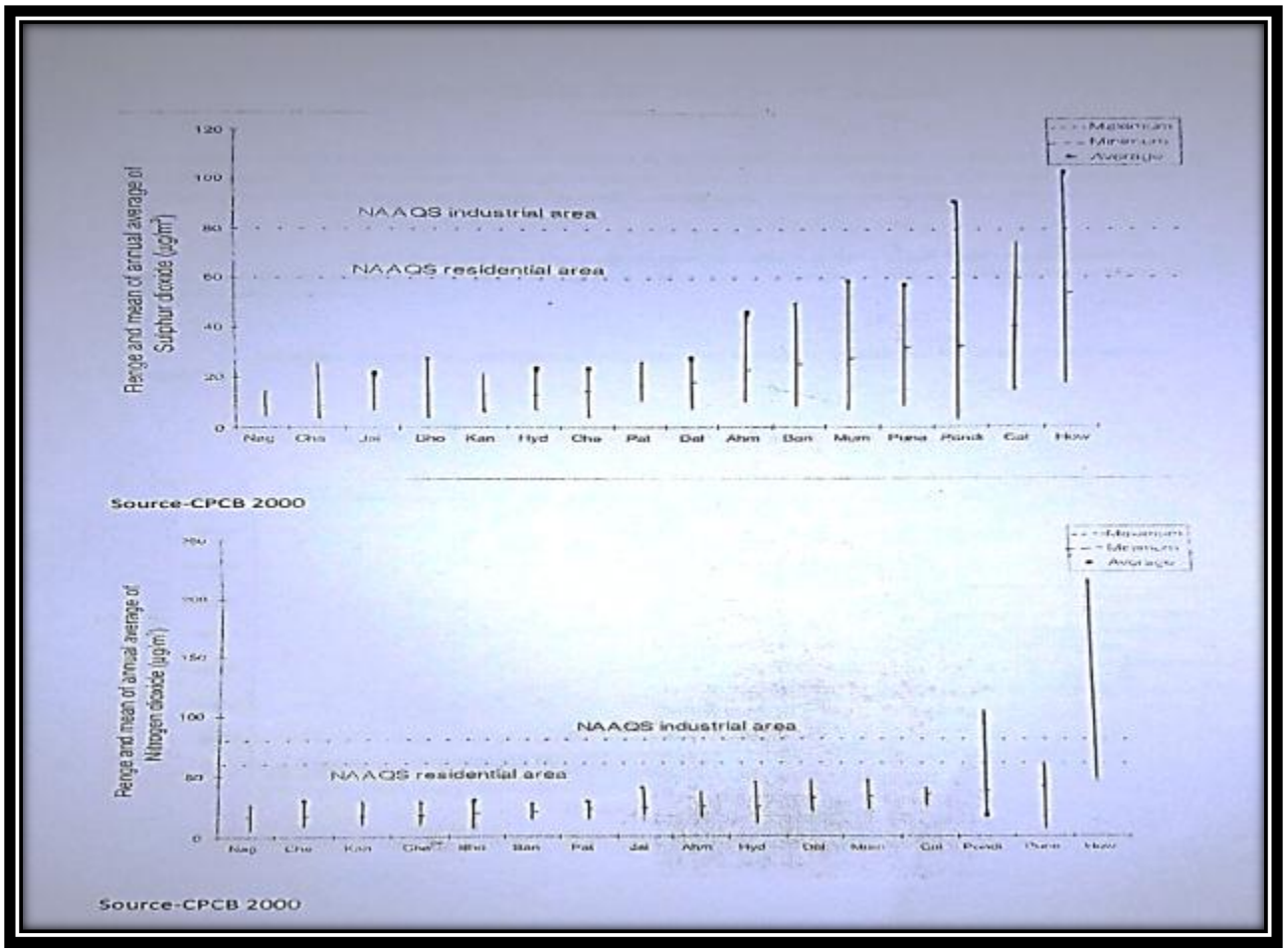
Vehicular Pollution In Urban Cities

Through my survey area has not the big problem in terms of our survey project topic, but when we look the actual pictures it is very clear that what time will come for us in near future, if we are not taking any positive preventive measures. Suspended particulate matter, sulphur dioxide and nitrogen dioxide, these are the most critical air

pollutants is most of the urban areas in the country and permissible standard are frequently violated several monitored locations. Its level have been consistently high in various cities. For the understanding of our survey areas air pollution matter it is necessary to depict the actual pictures of the country in this regard.



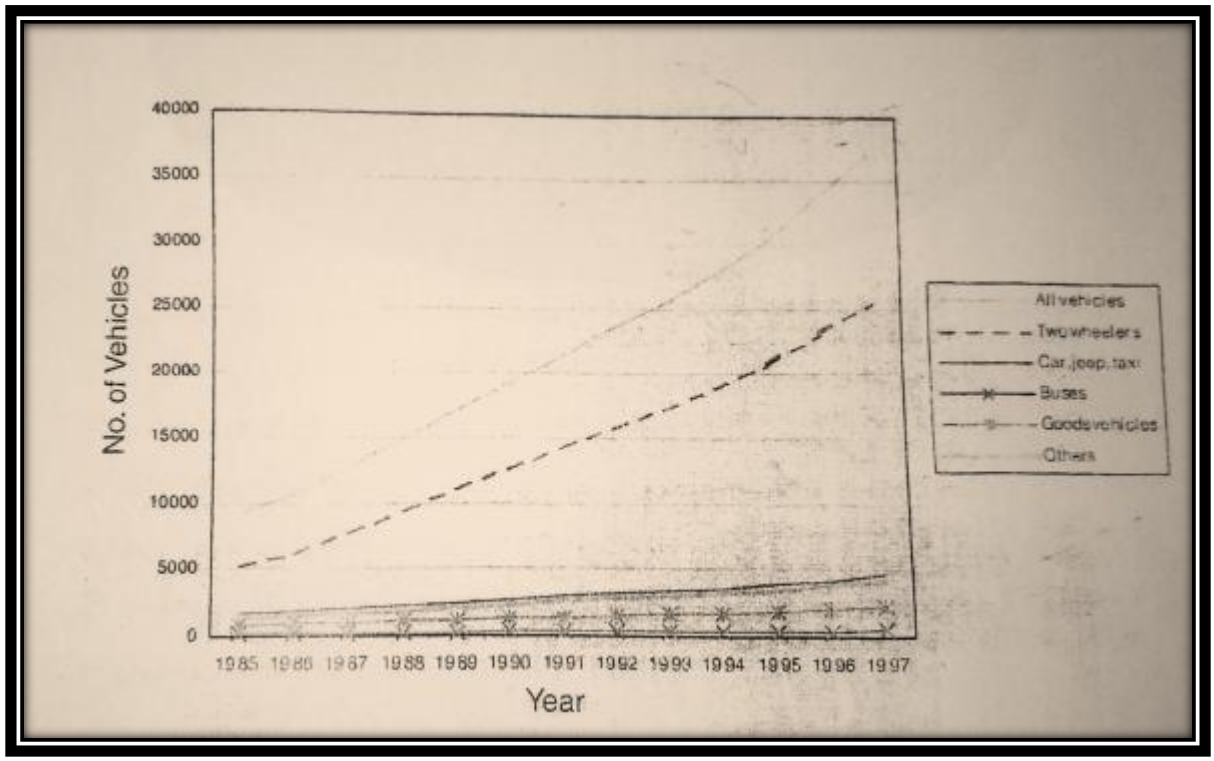
SOURCE – CPCB 2000



VEHICULAR GROWTH IN INDIA

My research project topic is vehicular movement & its impact on ambient air quality of Debinagar kalibari, Raiganj, U/D, W/B, India. Through we have no reason to worry our survey area about air pollution, but some head cable things for traffic congestion through vehicular movement.But when we see the major cities in India it is very clear that the ambient air are polluted due to mainly there vehicles 1985 to 1997 two wheeler vehicles increase from 5000 to 25000 for the 12 years.Where in case of all vehicles it increase near about 30 thousand for the said 12 years period.

Following diagram depict the actual picture in this regard.



DIFFERENT VEHICLES OF SURVEY AREA HABITAT PEOPLE

Out of 100%

1st Qtr – Represent 18 Motor cycles – 64.29% out of 100%

2nd Qtr - Represent 1 Truck (HMV) – 3.57%

3rd Qtr – Represent 3 Traker – 10.72%

4th Qtr – Represent 1 Power tailer – 3.57%

5th Qtr – Represent 2 Mini model truck Type – 7.14%

6th Qtr – Represent 1 Tata sumo – 3.57%

7th Qtr – Represent 2 Trucktar – 7.14%

Out of 100% of vehicles passes through this survey area, each types score as follows.

1st Qtr – Traker type motor vehicles – 45%

2nd Qtr – Bus & mini Bus – 18%

3rd Qtr – Motorcycle type vehicles – 22%

4th Qtr – Auto type all three wheelers vehicles – 10%

5th Qtr – E – Riksha (Toto) – 5%

Contribution To Air Pollution

Out of 100%--------- Clock wise distribution

1st Qtr – Represent --- Traker type motor vehicles contribute 58.57% out of 100 % air pollution.

2nd Qtr –Represent --- Bus & mini bus type vehicles contribute 22.85% out of 100% air pollution.

3rd Qtr -Represent --- two wheeler vehicles contribute 10% out of 100% air pollution

4th Qtr – Represent --- Auto type 3 wheeler vehicles contribute 8.58% out of 100% air pollution.

CONCLUSION:

After data analysis & presentation of my survey report I have come to the following conclusion: Due to lack of consciousness surveyed area people area too much commercial. Single PWD narrow road is responsible for creating traffic jam. Since habitant people of this surveyed area are not educationally superior (except 2 household) they dint's give any space for the jam period, though they built up their commercial shop on PWD road side land. They are maximum businessman, so they are very much self-interest finder. They are not aware about their physical hygiene due to air pollution due to the vehicular movement & its impact on ambient air quality. Some motor vehicles owner cum driver have no pollution control according to them. These vehicles are dangerous for us. Few too much old above 20 to 25 years old vehicles emitted deep dark fume / smoke, create heavy air pollution & its effect on our human body directly. Therefore I can suggest some remedial measures to come out from these problems: Socio-economic condition of this area should be developed. Local authorities may took different policies &law in this respect. Emphasis should be given to educate the socially needy & unconscious peoples. Single PWD narrow road should be two way that is one up & one down, for removing the traffic jam due to heavy vehicular movement. Local authority like municipality & local police station should take

necessary steps to eradicate their part of shop which are already on the PWD road. Local habitant should be aware by different awareness campaign programme run by different authorities. Every vehicles should be checked routine wise to avoid the less pollution certificate which create problems. Old vehicles which emitted excessive air pollutant should be removed from the road by implementing the govt. laws.

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