

Chapter - 8

VEHICLES ON INDIAN ROADS

[I] Unusual growth of motorized vehicles:

The number of motorized vehicles is increasing in India at a phenomenal rate. Up to March 2009 there were about 12 crore motorized vehicles [11,76, 57,943] on Indian roads. Every year approximately 1 crore vehicles are coming on roads. The present number of vehicles is about 335 TIMES more than it was in 1950 [3.5 lakhs only]. It is also important to note that out of the total vehicles sold during the last sixty years, 50% had come on the road during the last seven years. There is a very high tendency for indulgence in the personal mobility as personalized vehicle population has been found to be more than 90%. The causes for this exponential growth and tendency for personal mobility are multifactorial. Increased prosperity, change in lifestyle and deteriorating public transportations are some of the causes. Everyday on an average 4251 cars [including SUVs and MPVs] and 20,377 two wheelers are sold in India [2008-09]. The available reports say if no concrete measures are taken today, within the next five years [i.e. by 2014] the total sales of passenger vehicles are expected to nearly double. The rate of increase in vehicular number in metropolitan cities is relatively high as compared to smaller cities and about 30-35% of total vehicles are plying in metro cities. In recent years the automobile industry is growing by about 12% a year.

On Indian roads you can find a variety of vehicles. If we include both motorized and non-motorized vehicles, about 25 types of vehicles can be seen on roads. Among the motorized ones, about 70-75% belong to two wheeler category, car/jeep/taxi constitute 12-14%; trucks about 4-5%, buses 1% and rest 6% belongs to other category.

[II] A Lagging infrastructure: The worst trend in recent years

Besides accidents, the two other most important hazards of this exponential growth in vehicles that we see in urban areas are: a dismally poor road infrastructure leading to traffic congestion and deadly pollution. If one compares some Indian facts with those of developed countries, one would realize that within the next few years, coming on to the roads is going to be a more terrible experience or would prove a nightmare for you. I find two significant disparities in this context that I would like to share with people.



(1) In most of the developed countries about 50-60% people have personal vehicles [maximum in USA i.e. 85%]. Due to this adequate number of personalized vehicles in these countries, the rate of vehicular growth in future is very low and that is about 0.8% per year. In these countries the infrastructure that has been present, can very well accommodate this slowly rising number of vehicles. On the other hand in India at present only about 10% of population has personal vehicles. However, in contrast to developed countries, the number of vehicles in India is growing very fast [about 10% per year], that is, about 10-12 times faster than in developed countries. In India just imagine, if the present 10% of vehicular ownership is sufficient to cause the collapse of the present road infrastructure, what would happen when we will approach the figures of developed countries .i.e. 50-60% and that too, with a rate that is 10-12 times faster than those countries?

(2) The second factor that is affecting our infrastructure adversely is the status of urbanization. In most of the developed countries where about 80% people are living in urbanized areas, in India it is only 28% of the population that is living in cities. Again, considering the great potential of urbanization in India, what would happen to infrastructure if we approach the figure of the developed countries?

The attitude of the government at present appears like that of a manager of a cinema hall, where, in spite of knowing the fact that virtually there is no space inside, he continues to sell tickets saying 'go and enjoy the show'. There is already flowing a flood of vehicles on Indian roads. The government is probably waiting this flood to take the shape of a tsunami on the roads.

[III] VEHICLES AND POLLUTION:

[A] Vehicles and Air Pollution:

Out of the total air pollution vehicles cause about 72%, industries are responsible for 20% and the rest 8% is caused by the others. Pollution is directly proportional to the number of the vehicles in a city. The dangerously increasing number of vehicles is posing the greatest threat to the environment. Due to the rapid increase in number of vehicles, during the last 20 years vehicular pollution has increased about eight times, while industrial pollution has increased only four times over the same period.

(1) *The Effect on Body:* This vehicular pollution mainly affects our respiratory system. However, there is no part in the body which is immune to it.

1. *The respiratory system:* The pollution causes problems like asthma, allergic bronchitis and nonspecific chronic bronchitis. All these

diseases cause a reduction in lung function and cardio respiratory reserve. When some acute problem occurs over the pre-existing chronic disease, the morbidity and mortality is much higher as compared to those who have not been exposed to pollution. According to a WHO report in 2007, air pollution in India causes 5,27,700 premature deaths every year. That comes to one-fourth of the total of two million deaths occurring world wide due to air pollution. Considering the figure of vehicular contribution of this pollution, 72% of this mortality can directly be related to vehicular pollution. Out of the total 150 millions asthma patients in the world, 1/3rd belong to India and pollution is considered to be the main reason for it. According to WHO, about 4-8% of total deaths in the world in a year are related to air pollution. Pregnant women, the elderly, the sick, and young children are more susceptible to pollution.

2. *Cardio Vascular System:* Contrary to general belief that pollution mainly affects the respiratory system, it has been proved by the British Heart Foundation that diesel fumes can also cause cardiovascular diseases.

3. *Cancer:* Evidences are pouring in that exposure to polycyclic aromatic hydrocarbons (PAH) and benzene from automobile exhaust especially from diesel can cause even lung cancer. This has been supported by the fact that an increased risk for lung and prostate cancer has been found in truck drivers who are more exposed to diesel fumes. A Natural Resources Defence Council study in the US has shown that children riding diesel school buses are being exposed to 46 times the cancer risk and that was considered significant by the USEPA.

4. *Changes in blood:* Lead can cause anemia while increased blood level of Carboxy haemoglobin due to carbon-mono-oxide can reduce oxygen carrying capacity of blood.

5. *Central Nervous System:* Lead can cause neurological diseases. A fuel additive called MMT [a manganese-based highly toxic octane enhancer in petrol] is a strong neurotoxic substance causing Parkinson's disease like symptoms. This substance has probably been removed after protest from NGOs. A study in London shows that increased level of lead has been associated with significantly increased aggressive behaviour in young criminals.

6. *Gonads:* Quality of semen is reduced especially in those who are more exposed like traffic police.

7. *Eyes & skin:* Irritation or allergic diseases of eyes, skin and nose have increased significantly in the recent times.

8. *Birth Defects:* A study on pregnant women in USA has shown that air pollution can increase the chances of birth defects, fetal growth

retardation and premature delivery. The chances are more in cases where the residence is close to roads or when exposure to pollution occurs during first or last three months of the pregnancy.

(2) Pollutants emitted in fumes: More than 3,000 environmental chemical compounds have been identified in the polluted air from vehicles. Some of the important toxic compounds emitted from fuel are suspended particulate matters [PM-10 and PM-2.5], Carbon mono oxide, Polycyclic Aromatic Hydrocarbons (PAH), Benzene, Sulphur Dioxide and Nitrogen Dioxide. The pollutants that are lighter in weight [less than 2.5 micron in size] are much more harmful. Any compound that is present in this size whether a metal-like lead or any hydro carbons go deep into lungs and get deposited there. These lighter particles can even escape the mechanism of Euro II or Euro III. At present the concentration of these dangerous particles is much higher than the permitted levels in most of Indian cities.

(3) Factors affecting pollution: Degree of pollution depends on several factors.

1. *Urban vs rural:* Pollution is more in urban areas. If we go further, in urban areas it is more on roads and is maximum at crossings. The incidence of respiratory diseases in metro cities, like Delhi, is 10-12 times more than that of smaller towns. In metro cities about 20-30% of population suffers from respiratory diseases caused by air pollution. The worst thing about vehicular pollution is that emission occurs at the ground or breathing level. In case of industrial pollution, emission occurs at a much higher level and that too in an area a little away from the city. In fact, pollution is a side-effect of any city that grows fast.

2. *Diesel vs petrol vehicles:* Diesel fumes are much more toxic than petrol. Diesel vehicles emit three times more nitrogen oxides and 100 times more particulate matter as compared to petrol ones. As already mentioned above, certain compounds in diesel fumes can even cause cancer. Unlike European countries, clean diesel is not available in India. Thus emission level of sulphur dioxide is quite high [350-500 ppm] as compared to Europe [10ppm]. The horrifying fact at present is that the number of diesel-based cars is rapidly increasing. Every year diesel cars are increasing approximately by 100%. In 1999, out of total cars, only 4% belonged to diesel category, while in 2006 this proportion has reached 20%. The Diesel cars are expected to be nearly 40-50% of new car sales by 2010. On the other hand, petrol cars are increasing annually by 10-12%. We are already worried about the very rapid rise in total number of vehicles. It is much more worrying that there is disproportionate rise in diesel cars.

3. *Traffic congestion:* Slow speed of vehicles significantly increases pollution. A reduction of speed from 30 km/hr to 10 km/hr can increase the emission of toxic fumes by about 60-80%. That is why those who are living or working in congested areas especially on road side like traffic policemen, hawkers, shopkeepers, drivers of public transport system, have to suffer more from pollution. The situation becomes worse in case of a traffic jam. Probably this is one of the reasons why Kolkata has become the most polluted city of India. In a recent study by Chittaranjan National Cancer Institute [CNCI] during last 6 years, it has been found that 70% of its population is having one or other forms of respiratory ailments with relatively high incidence of lung cancer [18 out of every 1 lakh/year]

4. *Winter season:* The effect of pollution is more in winter. In winter due to reduction in air flow, the air containing heavy particles is not dispersed by natural winds thereby causing the formation of smog. Thus there is a rise in respiratory diseases in the winter season.

5. Old and poorly maintained vehicles cause more pollution. A study shows that in India 20% of 'bad in service vehicles' contribute as much as 60% of total vehicular pollution.

6. The pedestrians or drivers of two wheelers suffer much more than four wheeler drivers.

[B] Vehicles and Dust Pollution:

Moving vehicles disperse a lot of dust into the atmosphere. Busier the traffic more the time taken by the dust to settle on the ground. Besides, absence of pavement or lack of greenery in the vicinity of roads also increases dust formation. The dust in the air is next to fuel in causing pollution and in some cities it has been found to cause as much as 33% of total pollution. Besides humans, road side trees are the other great sufferers of dust and fumes. Trees remain stunted as leaves are covered by a thick tarry dust virtually sealing its breathing pores. You may notice how bright the leaves look after the first showers of the rainy season. Except those trees which were planted long before, survival or growth of the trees on roadside is becoming very difficult due the extremely high level of pollution.

[C] Vehicles and Noise pollution:

Noise pollution by engines and honking and blowing horns of a large number of vehicles has reached to an extent that is seriously affecting hearing in the public especially traffic policemen, bus drivers and children. Have you realized that late in the night when traffic stops, you can clearly listen to the tic tic of your clock or a sound of bell coming from a great distance. Presently, vehicles are the main source of noise pollution while

commercial activities, generators and religious activities come after this. A study in metro cities has shown that incidence of mild, moderate, severe and complete loss of hearing among people living near the road crossing is 62.14%, 25.71%, 5% and 1.42% respectively. Similarly, in a study on traffic policemen in a metro city, the incidence of noise induced hearing loss has been found to be around 21%. The recommended maximum noise limits in day time in urban and residential areas are 55 and 45 dB respectively. However, frequently the noise levels in metros as well as small cities have been found between 76 to 90 dB. A study in Delhi showed that even in the silent zone like hospitals, noise level was found around 80 dB [where it should be below 50/40 dB].

There is provision of punishment in the M V Act for the noise pollution and it does not allow motorists to install horns with over 85 decibels, pressure horns or multi-toned/shrilled horns. If we go by these criteria, majority of vehicle horns cross this limit as the noise level has been found between 95 and 100dB. According to the existing provisions of the Motor Vehicles Act, a fine of Rs 100 can be imposed for honking that seems to be too little. Even this existing law is seldom enforced. So, if we really want to protect the people from noise pollution, there is a need for increasing the fine as well as in the drive against the noise pollution.

[D] Vehicles and Global warming:

Due to the huge expansion of vehicles the generation of CO₂ has increased significantly. This CO₂ is an important component of the gaseous mixture that causes green house effects. During the 20th century, the temperature of the globe had increased by 0.6 degree, glaciers were reduced by 10% and the sea level had increased by 0.69 to 0.88 meter. If no measures are taken in the 21st century, a rise of 1.4 to 5.8 degree in temperature is expected. It is affecting mainly costal areas of the developing countries of Asia, Africa and Pacific islands. About 262 million people have already been reported to be affected by natural calamities in recent years. The effects of global warming on our lives depend mainly on rise in temperature in degrees. For an example, an increase by 1 degree would put many species in danger, a rise of 2 degree would affect crop production, a rise in 3-5 degree would cause communicable diseases in half of the world population and a rise above 6 degree would cause frequent natural disasters with the threat to many cities getting submerged.

Regarding the measures to combat this menace, I clearly see two areas of discussion, national and international. As regards measures at the national level, curbing the excessive vehicular number is extremely essential besides, curbing excessive power consumption. Since India is

still at the developing stage, it is difficult to restrict industrial emission rigidly. However, as for emission occurring due to luxurious activities, unnecessary use of vehicles, excessive power consumption, etc. is concerned, this can certainly be reduced.

If we talk of an international measure, at present the status of this global warming is like WTO. That means that the agenda is important enough to discuss it internationally, but most countries, instead of a practical solution, seem to be interested only in enjoying the picnic with 'talk and blame game' at different places and different platforms. Here it is worth mentioning that in general this problem is mainly contributed by the developed countries, USA being responsible for 20% of total green house emission in the world. Perhaps, that is why these countries do not seem to be as serious as we expect. They are finding it very hard to change their comfortable lifestyle. According to the report of UN Framework Convention on Climate Change [UNFCCC], the rich countries, instead of cutting their emission of green house gas, have increased it by 9.9% during the 1990 to 2006 period. This is in spite the earlier warning by scientists that global emission needed to be cut by as much as 30% from 1990 level in order to stabilize the temperatures at a bearable point by 2020. The worst offenders in the rich countries are Australia [increase by 27.3%], USA [increase by 14.4%] and Turkey [increase by 95%] in this 16 year duration. Though there are some rich and industrialized countries that have shown a decrease in it e.g. UK [decrease by 15.1%], Germany [decrease by 18.2%] and Eastern European countries, where the economic meltdown had led to reduced emission by default. The rich countries are persistently putting pressure on India and other developing countries to take adequate measures to reduce emission. On the contrary, the developing nations are adamant that all the emission that has already been accumulated is mainly contributed by rich countries.

[IV]Some other worrying facts about vehicles:

[A] Tendency to Showcase Vehicle:

It is quite natural that when we get some new vehicle in our life for the first time, we feel proud and want that it should be acknowledged by others. The type of feeling is the same whether a child is getting a bicycle or one goes for a car for the first time. This is natural and appears to be normal. However, there is a class that knowingly or unknowingly goes beyond this and tries to dominate others by displaying its wealth and prove its exceptional social standing in a vulgar way by means of vehicles by its number, interiors, costs, etc. Some rich fellows feel that whenever a new luxury car is launched in a city, it should be added to their fleet whether or not it is really required. Yes, by this you

may be called a rich fellow and you can impress someone on the road, but certainly you cannot be called a great person. Ultimately, it is your overall personality, work or humble attitude towards the society that make you popular or great and not these parameters of your wealth.

[B] Car: a home away from home or annexe of house?:

If we talk about our non-professional time, the most important places in our life where we spend our significant time are the bedroom, toilet and driving a vehicle. That is why for some people after home, car may be the second most important item in life. It is seen these days that extreme form of luxury, that is dominating our life style, is also being forwarded to the car. We decorate our cars as we do for our drawingrooms or try to get comfort akin to a bedroom. Nowadays in vehicles we expect everything powered and automatic that can be controlled by finger tips. In view of our attitude companies are trying their best to cash in on this tendency and attitude by adding more and more extra features. In future we may probably control it by our voice commands or eyes. Some German engineers are trying to make a mind reading car that will interpret the mind or EEG [electro-encephalogram]. Now machines would control our minds, not vice versa!

Basically, vehicle or a car is a means to commute from one place to other safely and comfortably. It is quite justified to add some features regarding safety and comfort. It is very difficult to define comfort as it is a relative term that is individualized and subjective and is governed mainly by our pocket. Once you enjoy a higher comfort in the vehicle, it is hard to resist it and you always have a tendency to go for a still higher comfort zone. Now, I believe we should seriously think about this. We should not overindulge in comfort business. If automobile companies are really interested in technological advancements, they are welcome in other fields, like for more fuel efficient engines and in alternative fuels, etc.

[C] Burning Car:

A new kind of accident is being noticed these days i.e. cars are catching fire suddenly. In most of such situations cars get permanently locked, not giving any chance to occupants to escape but to be burned alive. Inside a car the space is very small and it is full of plastics and foam taking no time to char the body of its occupants. In such a situation we are compelled to think whether the newer technological addition is really a boon or a bane. Why these incidents that were rare earlier, a few years back, have become very common these days? It shows that these are probably the side-effects of many unnecessary additional features

to the car. More features mean more electric circuits or wiring i.e. more chances of short circuiting. We don't know whether these devices are ordered from standard, reliable companies? Secondly, whether these devices have been tested in hot Indian climate or not?

Why are we becoming more and more calorie saver? If we consider the example of power window, we find that in India except for 2-3 months, you need AC for full year and the status of pollution outside also hardly allows you to put the window down and only once in a while. Why can't we use our hand a little bit to move the window glasses by using a lever-based glass mover? No doubt, you have to consume 3 calories for it, but it can prove a life-saving opportunity in some emergency situations, like drowning and burning of car where a power window and door may be permanently locked due to malfunctioning.

[D] Signs of nuisance on vehicles:

In India, we frequently see people using flags of political parties [that typically keep on changing with change in ruling party] or mention that the vehicle belongs to the press or the police. Similarly, on many vehicles beacon lights can be seen that actually do not belong to the eligible authorities. Why do they do so? Do they want to show that they have some special status or nuisance value on the road? Among all fields why do they choose to use the press, the police or political signs only? Many times the much-needed number plates are missing on the vehicle instead some other big plates are there indicating about funny organization that you have never heard of before, e.g. chairman, SSS [swamutra sewan samiti] or President BBC [Bandar bhagao committee], etc. People are so keen to show their status regarding their nuisance value that if allowed, they can put these name plates over their foreheads. We know that most of them are fake but the concerned organizations whose sign they are using do not take any action.

[V] Motor Cycle vs Scooter:

Among the various two wheelers in India, there are scooters, motor cycles and auto cycles [also called moped]. The moped is fast becoming an extinct species now. The scooter that used to be very popular a few years ago is also losing its popularity. Motor cycles now share 80% of total two wheelers and scooters and mopeds share 15% and 5% respectively. Probably experts might know why the motorbike is so popular; otherwise as far as safety on the road is concerned, I see many advantages in the scooters over motorbikes. Bikes provide less protection to legs and also pose the risk of burns on legs by silencer in case of an accident. When you increase the speed of a scooter above 60 km/hr, you are

made conscious by its vibration and sound so that you do not feel like going for a higher speed. This feature certainly may not be liked by youngsters, but I consider this as a safety feature of the scooter. While on motorbikes, unless you go above 60 km/hr it does not feel as if you are driving. The so-called thrill comes only when you drive it above 60 km/hr. This high speed will cause more injury if an accident occurs. The bike has no third wheel while a scooter has. The scooter is very safe for the second person sitting behind the driver. This is especially true of women and kids who comfortably fit between the driver and the third wheel. While in bike there are fair chances of trapping of dupatta or saree of the women sitting behind into its wheel.

I have enumerated so many plus points of scooter, but as per the sale figures, nothing is like bikes. Besides a good fuel efficiency and mileage, only one extremely good feature of the bike is that of its single flat seat. This is liked by the young boys very much. It gives a very nice 'intimate feel' when a boy goes for a drive with his girlfriend sitting astride holding him with her arms around his shoulders. Sometimes he unnecessarily uses brakes to enjoy the 'proximity'. Although many scooters are having a similar seat now, lekin woh baat nahin. For the same reason romantic couples might miss the 'similar kind' of single, uninterrupted front seat of old model cars that used to be there before the invention of the floor gear.