

Chapter - 12

HOW TO DECONGEST THE CITY [PART I]: MEASURES FOR VEHICULAR FACTORS

The measures that are required for reducing congestion and pollution in an urban area can be divided into two broad groups viz. [1] measures against vehicular factors and [2] measures for a better road infrastructure. In this chapter I will discuss how to control vehicular factors.

The vehicular measures are directed mainly towards reducing the number of vehicles on roads. This can be achieved either by measures to discourage or by putting a check on its sale or elimination of unfit vehicles from roads. Temporary reduction in the number of vehicles on roads in day time can be achieved by such measures as would minimize unnecessary use of personal vehicles. As for control over pollution, any measure that is targetted for vehicular number, for its fuel efficiency or for a better infrastructure will also help in reducing pollution.

[I] BETTER MASS TRANSIT SYSTEM

A better public transportation system is extremely important both on highways and in the city. A cost effective, safe bus service and other means like metro rail would be extremely helpful for minimizing several traffic-related hazards on roads. If this service is really comfortable with sufficient frequency then more and more people having personal two or four-wheelers would be inclined to use it. Due to increased running cost, traffic congestion, jams and parking problems, people from all classes are desperately looking forward to a good alternative. It needs to be discussed in greater detail.

(1) The ground reality today: If we consider urban traffic, this has been universally accepted and realized world wide that buses and other means of mass public transport are very effective measures for reducing traffic congestion, so much so that it is being considered equally or rather more important than the road infrastructure. Even in the most developed countries an enormous amount of money on infrastructures [roads and flyovers] has failed to bring the desired results in reducing pollution and the traffic congestion. The fact is that in many developed countries, the governments are fed up with keeping the pace of road infrastructure with that of traffic load. These measures for road infrastructure though improve

traffic conditions, but that lasts only for a short time and conditions deteriorate rapidly due to very fast growth of the city. The same have also been noticed In India. You have a very speedy ride on the flyover that has just been inaugurated, but very soon you see the traffic crawling there. In the most privileged city of India i.e. Delhi every 10 years the number of vehicles is increasing six times more than the growth of road infrastructure in the same duration. It is really very tough now to keep pace in terms of roads along with that of traffic load. So now even those countries which can very well afford better roads infrastructure, instead of going for more roads and flyovers, are thinking and giving more stress to alternative plan in terms of mass transport.

(2) The present status of this service:

[a] Inside the city: At present city buses constitute less than 1% [0.2-0.8% among different cities] of the total vehicles in the city. The city bus service is doing well mainly in metro cities where it represents up to 4-5% of total vehicles and carries 40-60% of total number of passengers of the city. Of the remaining people of the metro, 20% use personal vehicles [two or four-wheelers] and the rest use autorickshaw, tempo, cycle-rickshaw, bicycle, or walk to commute. However, if we consider the bus service in smaller cities, it is virtually non-existent in most. In smaller cities people move mainly by personal vehicles and by the other means mentioned above. The irony about the personal vehicles is that they carry only about 20% of the public, but occupy the 80-90% road space. Another unfortunate fact is that at present owing to poor road infrastructure, in most of the routes in most of the small cities, the conditions are not adequate for the city buses. Thus there is a strong justification to motivate and facilitate the personal vehicle users to shift towards mass transportation means.

What proportion of the total commuters should travel by MTS, depends mainly on the population of that city. For example, in a city having a population between 5-10 lakhs about 40-50% of commuters should use MTS. While on the other hand, for a city having population above 50 lakhs it is expected that 70-85% of public should use it if congestion is to be avoided. In a small city, a mass public transport system mainly means a city bus while in metro cities a local train, metro rail and mono rail are the other options in addition to buses.

[b] Outside the city: The condition of the bus service of State roadways or State road transport corporations, in most of the States, is deteriorating with the passage of time. Instead of getting upgraded due to increased passenger load, deterioration in such an important service

merely shows how neglected this department is. During the last 30 years, the contribution of the State-run bus service has dropped to one-third [from 45.4% in 1976 to 17.5% in 2006] while the population during this period has become almost double [54 crore in 1971 to 111 crore in 2008]. Both the Union and State governments have now reduced the funding of roadways. The governments now strongly feel that service should be privatized. This is the latest philosophy or concept in the government that, if any corporation becomes a non-profit-making one, just privatize it. However, I believe that there are some services like public transport and health care that really need to be run by the government only.

Privatization of any sector or service shows an open acceptance by the government that it has failed in its duty to properly use its resources and manpower and most importantly to control corruption in that particular sector. Instead of finding a solution to it, privatizing a corporation that is really very important for the poor and lower middle class population, betrays an escapism from the problem. If gradually all government industries and corporations are privatized or disinvested, the job of government would be confined only to collecting revenue and taxes. In my view privatization of a service may be acceptable if it is meant for a upper or upper middle class only. Nobody would mind if the government privatizes its airline, but certainly yes, if it privatizes its rural or city bus service.

Experts on this subject think that if run properly, there is no reason why the State-owned bus service should suffer losses. In fact, there are many examples that show that it is fetching profit. The bus service of Indore is a good example of this venture.

(3) How MTS helps: The advantages of this service both in and outside the city are many:

(a) Reduction of accidents: Major potential victims of the accidents [two-wheelers, cyclists, pedestrians] are shifted to a safe metallic box i.e. bus.

(b) It will make the traffic smoother by reducing congestion. Studies have shown that on an average the road space occupied by the bus in terms of per passenger is 10 times less than the personal or private vehicles on the road.

(c) It helps to check pollution e.g. in Delhi the public transport vehicle, that carries 60% of its commuters, is responsible only for 20% of the total pollution there.

(d) Less wastage of automobile fuel will save not only public money but also government's money given as a subsidy on petroleum products.

(e) To catch a bus while going out or returning home you have to do some walking which helps to keep you fit.

(4) Government-owned transportation is safer: Travelling in bus is considered to be safer than other modes available provided this sector is being run by the government or by a reliable organization. The reason why government-owned transportation is safer is the 'trip factor'. There are many private transport vehicles for the public that run either in the city or on outskirts of the city e.g. buses, mini buses, tempo, unauthorized jeeps [autorickshaw also comes in this category]. In order to make more money they all try to make more and more trips. They believe only in the numbers game. To fulfill this basic aim, they drive very dangerously, ignoring all traffic rules. Their masters also give incentives to drivers for doing more business. For this, they not only compete with government-owned vehicles but also with each other to grab more passengers and money. This tendency is not seen in government vehicles as its drivers do not have a psychological pressure for risk-taking or dangerous driving. This could be the reason why blue line buses kill more people than the government-owned buses in Delhi.

At present by checking fitness of the drivers and vehicles, the government is trying its best to reduce the number of deaths by the private buses. Again, it is apparent that it is not the problem of the hardware but of the software programming in brain of the private vehicle drivers. Another reason against private buses is that they do not stick to time schedule, stop anywhere to drop or pick up passengers, do overloading, not giving any concession to disabled passengers or students, poor maintenance of vehicles and poor behavior of their staff. This probably explains the reason why in and around the city, mass transportation facility should be provided by the government.

(5) It is affordable to all: Why?

[a] In context with Roadways: Social and economic inequality is a great problem in our country. A wide disparity in economic status among our countrymen exists. In other words, their paying capacity for travelling varies very widely. On one hand, there are people who can afford any fare according to their needs, comfort and safety. On the other hand, there are extremely poor persons whose only priority is the cheapest fare for their destination. They cannot afford any extra money in the name of comfort or safety. In the poor category there are further 3-4 sub-divisions, and depending on their earning they use bus, mini bus, truck, tractor, unauthorized jeeps, tempo, cycles, animal-drawn carts or walking. Although many of these poor people can afford a safer option of roadways buses,

often there is no bus for the required destination or the frequency is inadequate compelling people to travel by these dangerous private vehicles. It is this segment which really requires help from the government.

The State Government should provide transportation service to the poor category as a minimum profit-making business, considering it as a commitment to social justice. This would not only save this group from the clutches of these dangerous jeeps but also ensure the safety of other commuters on highways. Simply banning such unsafe unauthorized vehicles would not serve the purpose. Instead, the government has to address real problems and provide a solution.

[b] In the context of city buses: A similar situation prevails in city bus service. There is an extremely poor class in the city that has only one means of transport i.e. bus. For example, daily wages workers, labourers and domestic helps who hardly get Rs 50-100 a day and just can't afford other means even for a few days a month. Every single rupee matters to them. I think, it is politically also correct to say that maximum voters belong to this category.

(6) It should also be subsidized: To provide this service at an affordable rate is not an easy task for the Corporation. The government should provide some kind of subsidy and special concessions to this class. If we consider the advantages of this subsidy i.e. the number of lives that we would save especially of relatively poor vulnerable road users who are facing maximum deaths on roads and reduction in pollution and traffic congestion, it is quite justified to give some kind of subsidy to it. In no other traffic plans we would be able to get such cost effective results in such terms.

I strongly believe that among the two basic kinds of subsidies i.e. subsidy on a service and subsidy on some commodities, the subsidy on a service like travelling has fewer chances of being misused by the public. In a true sense, it would be enjoyed by the lower and middle class people. The poor fellows who use it would use it only to an extent that is required by them, in other words it is not as if the same person would start making more trips on roads because it is subsidized or cheaper. Similarly, don't expect that a person using a luxury car would come and sit in the bus just on the grounds of economy. On the contrary, if you give the subsidy to some commodity, then it is quite possible that a significant part may be used by the rich or lead to corruption. People would have a tendency to stock it more than what is required. I can give some examples that would help to understand how the subsidy given for service is more useful for the target groups. If Railways slash fares of a general coach, a person of AC category would not be motivated

for a general coach; instead a poor person would be benefited. If you reduce the fee in government schools this would not motivate the rich to shift their children from public schools to government ones.

(7) It should have more categories: Considering the need of the middle and upper class people there is need for more than one category of bus service. A better service in terms of comfort and speed, not necessarily subsidized, is necessary for that section. For example, in trains there are many categories ranging from first AC to general compartment. We see that all kinds of classes in trains are always in great demand. Similar categorization is also desired on roads. The rich believe in safe and comfortable travelling while the poor opt for the cheapest transport.

(8) Change in tax regime: At present the government is levying a higher road tax on buses as compared to personal four-wheelers, e.g. in Delhi the average tax in a year for a car costing about Rs 4 lakhs comes to Rs 500/year. While for the city bus this tax comes to Rs 13000/year, i.e. 26 times. This tax policy is more or less similar in most of the States. In this way, it discourages the bus system. This is inconsistent that cars occupy more road space [in terms of area occupied vs. total passengers carried] and pay less tax. I suggest that all such taxes including excise and others should be kept to the minimum for buses. Similarly, regarding the bus fare the State governments take more than 20% of the bus fare as passenger tax that needs to be reduced.

(9) Learn a lesson from Indian railways: At one time the Indian Railways was declared a 'business of losses' by the Rakesh Mohan Committee, but now the same Railways for the last few years has not only been making profits [Rs 20,000 crore in 2007] but is also able to reduce the fare. This is despite a fact that out of total number of passengers only 10-15% travel by trains while the rest use roads for travelling. The length of National and State highways together is three times more than the total length of the Railway network and the government is spending several thousand crore on road-making. But in return except for some octroi on highways [that too goes into the pocket of the company responsible for its maintenance] we get nothing through its roadways bus service. Thus there is still a good potential in the Roadways sector.

One more important point worth mentioning here is that in Railways, it is the freight carriage that contributes mainly towards its profit [about 65%]. If the government uses the road network for running its own goods transportation service [as it carries 60-65% of Indian freight] that will not only enhance the amount of profit but also make better use of the same manpower of the Roadways department. This would not only make this

department financially stable but also help in controlling the most vital problem of road traffic i.e. accidents. How? On highways trucks have been found to be the impacting vehicle in 65% of accidents. In the chapter of road accidents [under section 'some good and bad things about truck drivers'] I have analysed this fact in detail. There you can see, once these truck drivers start working under a big organization, it might help in correcting many indirect factors responsible for this high incidence of accidents. At present when the government is adopting a policy of disinvestment and privatization of various sectors and services that are no longer profitable, to suggest this may appear odd or a poor joke.

(10) Public transport vehicle should get priority over others:

Those vehicles that carry a good many passengers, e.g. buses should be given priority over other vehicles on the road. In many countries, there are separate lanes for buses and they also get priority at traffic signals. This rapid transportation of people can further be increased by increasing the capacity of the existing bus system. Recently, a high capacity bus system [HCBS] or Bus rapid transport project [BRT] has been introduced in Delhi as an effective way [as claimed by the government] to check congestion on roads. When people see the difference, how fast and comfortable the BRT is, they could be dissuaded from using personal vehicles. Here all the buses ply on a dedicated lane and there will be no criss-crossing in lanes by cars and two-wheelers. However, it is possible only in a well-planned city where there is extra space available throughout the route [without a break or bottleneck] that can be devoted to this rapid transit system without compromising space for the remaining traffic. Even this separate bus lane itself should be wide enough so that if one bus has some fault, then the other can overtake it without causing a traffic jam. However, regarding the usefulness of the bus rapid transport system of Delhi there are mixed reactions from the public. Therefore before using it in other cities, its results must be analyzed properly, made public and if found suitable as well as profitable it should be put into practice.

How does a check on personal four-wheelers help to decongest roads?

While targeting a reduction in the vehicles on the roads, a check on personal four-wheelers would yield better results because: [1] the proportion of space occupied by personal four wheelers on the road vs. person carried inside is very poor [2] One personal four-wheeler almost occupies one lane [3] It is a common cause for precipitating a traffic gridlocks or jams.

Example: Here we take an example of a road where the maximum speed that is allowed is 30km/hr. Now we would try to get an answer to the question as to how many four-wheelers can be accommodated



safely in one lane of a one kilometer stretch of this road in this given speed limit of 30 km/hr. The answer would depend on two factors, viz. size of the particular four wheelers [mainly the length] and the minimum safe distance that has to be maintained between the two four-wheelers without increasing unnecessary risk of collision. According to a simple formula, if you are driving at a speed of 'x' km/hr then you should maintain a distance of at least 'x'/3 meters [or 'x' feet]. In this particular example, this would come to 30/3 or 10 meters. Now if this is a case of small cars, the length or segment of one lane that would be occupied by one car would be 13 meters [where 3 meters is length of the car and 10 meters is the minimum safe distance between the two cars]. Thus on a one km stretch of a lane, the maximum number of such small cars [running at the speed of 30 km/hr] that can be accommodated safely would be $1000\text{mt}/13\text{mt} = 77$. Suppose, it is a car of bigger segment having a length of 4.5 meters, the maximum number of such cars that can be accommodated safely would be $1000\text{mt}/14.5\text{mt} = 69$ cars. Now suppose, it is a bus having a length of 9 meters, then the maximum number of such buses that can be accommodated safely would be $1000\text{mt}/19\text{mt} = 52.6$ buses.

Interpretations: 1. Here we see that in addition to the size of the vehicle the safe distance that has to be maintained between two vehicles, is equally or rather more important that determines the number of vehicles that can be accommodated safely in a particular stretch of a road lane. Here you see that the same 1 km stretch that accommodates 77 small cars, if replaced by buses having a size three times that of a small car, can still accommodate 52.6 buses. If we count the number of passengers carried in these vehicles, we find that in the case of a small car having a seating capacity of four a total of $77 \times 4 = 308$ persons can be carried while in the case of a bus having a seating capacity of 52 a total of $52 \times 52.6 = 2735$ persons [i.e. 9 times] can be transported. Practically speaking, it is much more than this figure of '9 times' as cars are on an average half occupied while the city buses frequently carry double the passengers of their capacity.

2. An increase in number of four-wheelers in the same stretch of single lane affects the average speed of all vehicles much more adversely than we usually expect. With the same example we would see how this happens. In a case where 77 small cars are running in a 1000 meters stretch at 30 km/hr, out of the total 1000 meters, 231 meters is occupied by the vehicle themselves while the 769 meters is the total inter-vehicular space that has to be shared and maintained between these cars to prevent collision [that comes $769/77$ or approx. 10 meters for an individual car].

Suppose, the number of small cars is increased to its double [i.e.154 in 1000 meters stretch], now out of total 1000 meters, 462 meters would be occupied by the cars [$154 \times 3\text{m} = 462$] while the total inter-vehicular space left now would be about 538 meters. In other words, the average space between the two cars would now become $538/154 = 3.5$ meters. So the maximum speed the cars now can have in this given 3.5 meters space would be $3.5 \times 3 = 10.5$ km/hr [average safe speed (in km/hrs) = minimum safe distance [in meters] \times 3]. Thus we see in case the vehicles get doubled in one lane the average speed instead of getting halved as we expect, becomes one third of the initial.

3. The width of a four wheeler does not affect much so far as the speed and number of vehicles to be accommodated in a particular stretch is concerned. Yes, a vehicle having more width can accommodate more persons.

[II] CYCLING AND WALKING

It is true that owing to the risk of heavy traffic on roads, we hesitate to go by walking or cycling. However, for some small jobs in the same locality, where traffic is not that busy, we can walk or can go by cycle. Sometimes, because of congestion and parking problems, you find that going by a car may take more time as compared to a cycle. Considering the problems of constant traffic jam and increasing fuel cost, I think, within a decade or so every one of us would have to keep a cycle in our house as an optional vehicle, whether or not we are willing to have. In many countries, there is provision for separate lanes for cycles. That increases its safety and thus encourages people to use bicycles.

Do we know how many health problems are being caused by our sedentary lifestyle or lack of activity? According to a WHO report Indians are paying Rs 40,000 crore every year for their lack of activity and improper diet and with every passing year this is increasing by Rs 20,000 crore. The incidence of deaths related to cardiac disorders and diabetes in India has increased to the extent of an epidemic and is responsible for the maximum cases all over the world. If we consider the growth of drug turnover as an indirect indicator, we find that every year there is about 40% rise in demand for anti-diabetic and anti-hypertensive drugs. Just the sale of drugs for these two diseases alone is more than Rs 1,000 crore in a year. If you include the total cost of the treatment [consultations, investigations, hospital care, etc] you would realize that a big share of total earnings of Indian patients is being consumed by these two diseases only. The more alarming sign is that even in the adolescent group the incidence of obesity, diabetes and hypertension has

gone up to 14%.

Now we can easily see that some 'purposeful' walking or cycling for our daily routine work not only makes traffic convenient, but also pays a lot for your health in future. Our colleagues who did not follow this principle might develop one of the above mentioned diseases or get overweight and would be forced by the physician to go for some hard physical activity. You may spot them walking without a break in winter at five in the morning wearing monkey caps and with canes to scare away dogs. The reason is that the motivation 'force' behind them is their wives who take the advantage of their past experience of sending the stubborn children to school in the morning. Now for fitness they will have to do all purposeless physical activities not only to burn calories but also burn their money and valuable time. Thus you can realize how effectively some purposeful walking reduces the burden of many purposeless physical activities imposed on you later in life.

[III] NEED FOR BETTER TECHNOLOGY

Most of the automobile companies, although working globally, have double standards. They do not launch vehicles of latest Euro standards or fuel efficient vehicles simultaneously in developed as well as in developing countries. It has been seen that India and Asia are lagging far behind by a long time in getting it. Nowadays in India we are enjoying almost all the latest or world-class technologies in every field. Then why do we lag behind with respect to automobiles? In general, the present Indian vehicles are less fuel-efficient and much more polluting than their counterparts in developed countries. In India the bureau of energy efficiency under energy conservation act has proposed norms on fuel efficiency that has been based on the weight of vehicles. When the bureau tested the present Indian vehicles on road for their fuel efficiency, only 40% of small cars [965-1080 kg] and 25-30% of mid-segment cars [965-1530 kg] could pass the test. It's very shocking that none of the bigger segment cars [above 1980 kg] including the SUVs, could clear the test. Both petrol and diesel vehicles performed badly in the fuel efficiency test. It is interesting to note that these are the results after relaxation in norms.

In developing countries pricing comes first over the other priorities and commitments. This is the plea that companies often use to convince us. Is it really so? We, the customers, if asked to choose the priority among the three features of vehicles viz: luxury, safety and environment-friendliness, most of us would choose luxury first, safety second and environmental as third. Is it right? Companies also play with the same psychology that out of two additions in cars i.e. environmental friendly and luxury friendly, it is the luxury-friendly addition that is more convincing

to customers. It is easier to impress customers by adding some other luxury features to cars in the same budget than adding some environmental-friendly technology. It is also a fact that luxury addition is the demand from the customers while the environmental-friendly addition is the demand either from the government or from some so-called environmental activists who are thought to be a hurdle for any industry. The attitude of the company is, 'in India who cares for rules'. So they try their best to sell as long as possible and if some uncontrollable situation or pressure comes, they would see to it. Why bother at outset? 'Sab theek ho jata hai' is the guiding principle.

The government is planning to impose a tax in addition to excise tax on these fuel-inefficient vehicles. Depending upon fuel efficiency it will range from 8-25% [Those vehicles having fuel efficiency more than 90% will be spared]. Why are these companies so reluctant about the fuel efficiency and it is equally surprising why the government is so lenient to these companies. For example, as per the standards prescribed by the government of India, the Indian diesel vehicles of Euro-3 are legally entitled to emit three times more nitrous oxide as compared to European standards. I don't even understand the concept of allowing fuel inefficient vehicles to run in India after imposing an extra tax on these. If something has been found hazardous for human health in other parts in world, how could it be safe for Indians? What does it show? If some medicine has been found harmful or is banned in other countries, will the government allow it for Indians after imposing some extra tax? It is a clever use of 'concerns for health' for revenue generation.

[IV] CURB MISUSE OF SUBSIDY ESPECIALLY FOR DIESEL

The number of diesel vehicles, especially the diesel based cars, both in the small and large segment, is increasing every year by approximately 100%. The detailed statistical data have already been discussed in chapter 8 [vehicles on road] under section pollution. Why are these diesel cars increasing in numbers? The main reason is that diesel is more subsidized than petrol. People get back easily the premium or the extra cost given for it. Needless to say that the government has to bear heavy losses for this. In other words, the subsidy given for the diesel is being used for 'luxury'. This in a true sense is the misuse of the subsidy. The provision for subsidy is acceptable if it is utilized in mass transportation vehicles like buses and trucks and to some extent in the case of taxis, where this can help to check inflation. However, if this is a case of personal cars or SUVs, this would certainly be called the luxurious use of the subsidy. It is not only the question of heavy losses to the government only, but also the question of public health

as relatively more deadly diesel is being consumed to spew toxic fumes over pedestrians and two-wheelers. In this regard the government has recently in 2008 imposed an additional excise tax [Rs 15000 to 20000] on SUVs, MUVs and luxury cars above 1500 cc capacity. Though this will certainly increase the government's revenue, but, we have to wait to see whether it would curb the misuse of diesel subsidy effectively.

[V] WITHDRAW OLD OR POLLUTING VEHICLES

Old vehicles are more polluting and carry more risk of accidents. Although there are strict laws and provisions for penalty for the polluting vehicle, we hardly see their implementation in Indian cities except in metros. Commercial vehicle owners have been found to be more reluctant in this respect. But there should be universal and strict criteria to define the road life of vehicles. While deciding road life, we should also take into consideration facts like, commercial or personal vehicles and run on petrol or diesel, etc. Vehicles after this period should be removed at least from urban areas. Even vehicles fulfilling the pollution criteria are found safe for travelling, they should be allowed only on the outskirts of the city or in rural areas.

[VI] DISCOURAGE PERSONAL VEHICLES IN CONGESTED AREAS

This can be done in two ways: [1] Congestion Charges - In some cities and countries [London, Singapore] this is already in practice. Congestion charges are claimed by [a] The help of an electronic device fitted in the vehicle. When it passes through congested zones, it is sensed by the roadside equipment in this area. [b] Taking the photograph of number plates while entering these zones. In both the cases the information is passed on to the RTO and the dues are claimed through a letter. In some areas, the congestion charges are taken only during peak hours or charges may be kept high for peak hours. [2] Use a separate transport system in congested zones that is non-polluting or non-motorized, e.g. Cycle Rickshaw.

[VII] INCOME TAX

You may be surprised how tax and traffic decongestion are related. Income-tax can play a great role in decongesting the traffic. But at present it is not playing its role as effectively as expected. It is quite possible that a person may be having many cars in his own name or by proxy, but may not be a tax-payer or a PAN card holder. People go to showrooms and make cash-down payments of several lakhs to purchase vehicles. Bribing by gift of some expensive cars on Diwali day or New Year day is quite common by high profile dealers for getting their illegal jobs done. It is frequent to see in a tax raid, tax-officers find 2-3 vehicles parked

in the premises, but surprisingly, the owners of the houses say that these vehicles do not belong to them. If the tax department wishes, it can take away these vehicles. This is despite the fact that the glove compartment of the car has receipts of all services and insurances charges in the owner's name.

Targeting the people of this class who are having many cars in their houses just for luxury without a genuine need and probably through the income earned without paying tax is extremely necessary. Sometimes, the Income-tax department sends letters of enquiry to car owners with the policy that those who respond are to be grilled. The respondents then feel like 'Aa bail mujhe maar,'(inviting the ox to hit you) while for those who ignore it, no more further enquiry is made. While sending these letters to only those car buyers who are living in the same city are chosen for the enquiry as pursuing those who are living in some other cities is considered a futile exercise as the revenue, if it comes, will increase the collection of other tax region only.

Every year 15,51,880 cars are sold in India. I want to know from what percentage of buyers the tax department is really able to make a genuine inquiry to find out whether or not these buyers are income-tax payers. Is the number of tax-payers increasing with that of increase in the number of the cars on Indian roads or with the growth or turnover of the automobile sector? I don't think so as in India only 3 crore people pay income-tax and their number is increasing with every year by 3% only. [as from 28.4 million in 2002 to 31.5 million in 2006]. Out of these three crore tax-payers, in only 1.35 lakhs of cases the annual income is more than 10 lakhs. Considering the present tax limits, most of car owners should fall within the tax net.

In the Income-tax department either there is a shortage of manpower or lack of will. As far as lack of will is concerned, it is very unusual for someone to say no to 'Laxmi'. So I believe the former reason must be the correct one. I would like to emphasize the importance of manpower with an example. As doctors working in an intensive care unit, we use several monitors to get the vital information regarding various body systems of critically ill patients. This information is very well shown on monitors and in addition to it there are alarms for our attention. But all these monitors will be of no use if there is no competent and vigilant doctor who can not only pick up and interpret this information but can also react accordingly to save the life of the patient. Similarly, in Income-tax dept, there is no dearth of information but probably of manpower only. In an era of information technology, effective means are available to get the desired information against any tax evasion. In fact all information

is only a few clicks away on their computers, but this vast store of information on the computer is of no use unless of course it is utilized. It is true that a machine cannot replace a man howsoever advanced the technology may be.

Here's a Tip: Cars should be sold by a company only to those who produce a PAN card, or a copy of tax returns filed. This number should also be mentioned on registration papers. It should be mandatory for the local car Showroom of Company or RTO department to send information regularly to the income-tax office. Besides, it should be made compulsory to keep copies of the last returns filed along with other necessary papers with the vehicles. The Income-tax people like traffic police should make a random checking on roads just to confirm whether copies of the last returns filed is there in the car and also whether the same PAN as mentioned in the original registration paper. Secondly, it should be made compulsory that vehicles be registered only in the city that has been mentioned in tax returns. That will ensure whether owners actually belong professionally to the same city or not. It has been found that people instead of registering in the city from where they have purchased vehicles, go to other cities either to save road tax or for some other reason. Now with this new rule most of the vehicles would be confined to the same area. Thus the town planner can actually know how many vehicles are running in the city while going for reforms in infrastructure for the betterment of the city traffic.

Every law has some flaws. So we have to be prepared for that. [1] Because it is possible after filing a single tax returns in that particular year in which the vehicle was purchased, the person may disappear. Random checking on the road will ensure that they regularly pay the tax. [2] PAN number should also be mandatory for the person who takes a second-hand vehicle, otherwise he may buy on someone else's behalf and soon after this he would get it transferred in his name. [3] At present those who have income from agriculture are exempted from tax liability. People may misuse this provision. If they purchase personal four-wheelers or SUVs, this itself indicates that they are not poor and should not be considered eligible for exemption.

I assume that some day a law would be enforced where fast moving cars on roads will be looked at by Income-tax people just as some fishermen see moving fleshy fishes in a pond. However, under the prevailing circumstances, it is a far off dream.

[VIII] INCREASE POWER PRODUCTION

An adequate power supply would cause lesser consumption of

diesel for power generation [personal, in commercial markets, industrial, etc], thereby reducing pollution. A huge amount of diesel is being used for keeping the malls or commercial complexes air-conditioned which is another example of luxurious use of the subsidy. To discourage such use of subsidized diesel, the government has proposed to fix a different price rate and colour for diesel being used for this purpose. However, unlike diesel cars, the use of diesel for power generation is not a preferred choice for the users. The cost of power by using diesel is 4-5 times greater than the power we are getting. Since the government has failed to provide a proper supply of power, people have no choice but to go for this costlier option. If hundreds of workers are sitting idle in a factory owing to power shut down, what choice the factory owners have to deal with it except using diesel? So, unless the government targets the root cause of the problem, I don't think that different price structures for diesel are going to solve the problem. It will just open one more front for corruption.

Similarly, adequate power generation will also favour electrification of Railways thereby reducing its consumption of diesel [227 crore liters per year]

[IX] ENCOURAGE NON-POLLUTING OR ALTERNATIVE FUEL

(a) Compressed natural gas [CNG]: The government has started making it compulsory to convert diesel vehicles into CNG in an attempt to minimize pollution. CNG does not contain toxic PAHs or SO₂ and it runs more quietly producing lesser vibration. Its main disadvantages are its short supply, a high vehicle cost, requires a distribution system, shorter driving range and a heavy fuel tank. It is interesting to note that the drive for CNG conversion is confined only to commercial vehicles for public transportation like buses, taxis, and autorickshaws and that too in some selected cities. In most of Indian cities the number of such vehicles is around 3-4%. On the other hand, a rapid rise of personal diesel and petrol vehicles are nullifying the advantages of the government's drive for CNG conversion. Thus we see that practically pollution is caused mainly by private vehicles [80% of total]. The big question is why the government is hesitant to pressurize personal vehicle owners for CNG conversion. Is it really the shortage of alternative fuel, lack of will or fear of boomerang effect of this drive like that of MCD demolition case?

(b) Liquid Petroleum Gas [LPG]: The government has allowed the use of liquid petroleum gas as fuel in vehicles. It is better to go for a company-fitted kit instead of local available kits that may not be fire or leak proof. As regards fuel economy, CNG is cheaper than LPG. Since the availability of CNG is a problem, in the near future more LPG-

based vehicles are expected to run on roads. Both LPG and CNG-based two wheelers have also been launched recently in the market. Although gas-based vehicles have been found to be as safe as petrol or diesel one. However, it is a matter of investigation whether this is true in cases of accidents also? Are the gas-based vehicles more prone to catching fire at the time of an accident?

(c) Battery-powered or electric Car: Now battery operated four and two wheelers are available. The advantages are that the design is very simple as there are no complex parts like fuel pump, combustion system, pollution and noise treatment mechanism. The disadvantage is that its batteries need a lot of space, require 6-8 hours charging time, short range of drive [100 miles for car and 60-80 miles for bike] and after logging a certain distance batteries require to be changed. Unless some compact and powerful batteries with less recharging time as with lithium ones are available, its acceptability is not going to increase.

(d) Solar-powered Cars: It uses the solar energy to charge batteries that in turn provide power to the vehicle. They are basically electric cars with an extra facility of continuous charging while driving. They have the advantage that their driving range is higher [135 miles]. When weather is cloudy or driving at night the car depends on batteries, so such cars have all the disadvantages of the electric car.

(e) Hydrogen-based car: This seems to be the most promising and best pollution-free alternative to the present fuel. This promises a big hope for the future generation vehicles. Hydrogen vehicles are ready to move from laboratory to roads. Some Indian companies are working on it and within one or two years probably they may be able to launch in India. Initially, they are planning for a hybrid car, i.e. operating both on petrol and hydrogen-powered engine. What's the principle? They use hydrogen as a fuel with the help of fuel cell. Hydrogen stored in the vehicle with the help of a fuel cell is combined with the oxygen chemically to produce electricity that is used to run the vehicle. It emits only water vapour, making a carbon-free emission. *Advantages:* All the problems associated with the electric or battery-based car will go away with the hydrogen fuel cell. Large amounts of hydrogen can be stored in the pressurized tanks that occupy less space than batteries for the electric car and also less than the present fuel tanks. Hydrogen, in the form of water, is the best source for it and that is available in the world in such abundance that we will never be in shortage of hydrogen. Considering all these, this can be the best replacement for the petroleum products and can be called an ideal fuel. *Disadvantages:* Affordability and the cost

of cars and availability of the fuel station for hydrogen refilling would be a big problem. Even in some developed countries where it is available, there are just a few refilling stations. So they are finding it practically difficult to use it on a large scale. In India, in so many years when the CNG is confined only to a few cities, how can we dream of a hydrogen car?

(f) Compressed air as fuel: French engineers, along with an Indian company, have claimed that in a few years they would be able to make a compressed air-based engine. The car will be driven by compressed air stored in the carbon fibre tank built in the chassis. The tank of the car can be filled with air from a compressor in just three minutes. If plugged into the mains, an in-built compressor will do the job. It is mainly for towns but can be used for a long journey with some additions.

(g) Green fuel or bio-fuels:

(1) Ethanol: It has been used successfully after blending it with petrol and it is being regularly used in many developed countries. Up to a blending of 10% the vehicles do not need to change its design. Blending by 24% is a usual norm in these countries. However, some countries like Brazil have designed vehicles that can run on 100% ethanol. As for India, the government has recommended a compulsory blending of 5% ethanol since November 2006 and 10% from October 2008. However, the present status is that even for 5% blending as against the demand of 50 crore liters, only one-fourth demand could be met. So, without adequate measures and foolproof policy, it would not be able to achieve a blending of 10% for many years. Besides this, the government policy towards excise duty and the willingness of the oil companies [as these would have a much less profit margin] will also determine its implementation in India. In India, its main source is sugarcane and it can be made available at the cost of around Rs 21-22/liter.

(2) Bio-diesel: It is made from a plant *Jatropha* but at present it is not available on a large scale. This can be blended easily up to 20% with a little modification in the present diesel engines. Dr Rudolf Diesel, who got the diesel engine patent in 1898, first used bio-diesel to run this engine. The *jatropha* plant has some excellent qualities. It can grow easily in waste lands and poor soil with little rain. It is resistant to diseases and is also not grazed by animals. In India, out of total 3.29 million hectare of land nearly 50% is either waste or degraded that can be used for it. Besides this, it will give employment to villagers and fuel for their cooking and lighting. The Planning Commission is encouraging

it in India and a target of 10% of the fuel demand would be met by bio-diesel by 2017. Let us see what happens.

[X] OTHER MEASURES

(1) Keep smaller vehicles as an optional one: Those who have four vehicles should also keep a two-wheeler like scooter with them. They can use any one of vehicles according to the need. Use car only when more persons have to travel or if heavy shopping has to be done.

(2) Pooling of personal vehicles: Pooling of both four and two-wheelers while going on the job will not only help in conserving fuel and decongesting the roads but will also improve social relations with your colleagues.

(3) Change timings or days of closure: e.g. Schools, offices and markets.

(4) NGOs: Considering the present reluctant attitude of the government, there is a strong need of NGOs or environmentalists to think about it and intervene.

Other suggestions that may not find favour are: 1. Only one vehicle per person. 2. Registration only after proof of parking space. 3. Restrict use of certain vehicles on certain days of the week.