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### Urban Infrastructure--Road Transportation Problems and Issues: A Case Study of Municipal Council, S.A.S. Nagar, Mohali (Punjab)

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TRANSPORTATION IS the movement of goods or people from one location to another location. This includes just about every type of movement possible. More specifically, transportation is the movement of goods beyond their local production area and the movement of people between different geographical locations. Transportation contributes to the economic, industrial, social and cultural development of any country. Transportation is vital for the economic development of any region since every commodity produced whether it is food, clothing, industrial product or medicine needs transport at all stages from production to distribution. In the production stage, transportation is required for carrying raw materials like seeds, manure, coal, steel etc. In the distribution stage, transportation is required from the production centres viz; farms and factories to marketing centres and later to the retailers and the consumers for distribution. The inadequate transportation facilities retard the process of socio-economic development of the country. Thus, the adequacy of transportation system of a country indicates its economic and social development.

#### Roads in S.A.S. Nagar (Mohali)

S.A.S. Nagar (Mohali) is situated in the vicinity of Chandigarh, the capital of Punjab and Haryana. It was created in 1966 after the creation of Chandigarh as Union Territory and the capital of Punjab and Haryana. It is a newly created district of Punjab spread over an area of 23.86 Sq. Kms. having a population of 1, 23,484. Earlier, it was a sub-division under Anandpur Sahib Constituency of district Roopnagar. The Government of Punjab, on April 13, 2006 at the time of Baisakhi festival in the region, declared S.A.S. Nagar (Mohali) as 18<sup>th</sup> district of Punjab.

There are three types of functions relating to roads in S.A.S. Nagar (Mohali):

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- (i) Construction of Roads; (ii) Maintenance of Roads; and
- (iii) Education to citizens for safety of roads

Construction of roads comes under Greater Mohali Area Development Authority (GMADA), while their maintenance is the responsibility of Municipal Council, S.A.S. Nagar (Mohali).

The Roads division of the Council covers-15 residential phases, nine industrial phases and the three villages namely--village Mohali, Shahi Majra and Matour. This division is responsible for maintenance of roads, roundabouts, parking lots, foot paths and cleaning up of road-berms and back-lanes. The division comes under the overall headship of the Municipal Engineer.

The Municipal Engineer (ME) is responsible for keeping the history of each road of the city. For this, a register is maintained in which all the details relating to the construction of roads such as

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date of its making, time taken for its construction and the name of the contractor are registered. It is his duty to see the roads which demand recarpetting on completion of the recarpetting period of three to five years and also to ensure recarpetting of roads which break before this time period. This is generally done on the basis of the report received from the J.E. of the concerned area. After getting the report, the ME inspects the roads and invites tenders for giving repairing work on contract to some private firm.

After passing the tender, an MOU is signed between the ME and the contractor, which specifies the terms and conditions to be followed by the contractor and his men for a given time period for the completion of work. The terms and conditions of MOU are determined by the ME in accordance with the Punjab Municipal Act 1911.

#### Objectives of the Study

- i) To study the condition of roads;
- ii) To study the citizens' perceptions with regard to condition of roads.

#### Methodology

The present study was based on both primary and secondary data. For the purpose of collecting the primary data, a questionnaire for citizens, was prepared. Multi-stage stratified random sampling was applied for the selection of respondents. A sample of 559 residents was taken using multi-stage stratified random sampling. The respondents represented all the segments of the Council area, viz. residential, industrial and villages. Out of the total 15 residential phases one each most and least populated was selected. A sample of 283 houses from the most populated phase and 70 houses (constituting about 10% of the universe) from the least populated phase was taken. As many as 100 industrial units (constituting about 10% of the universe) were selected randomly representing all types, viz large, medium and small units. Since, there are only three villages namely village Mohali, Shahi Majra, and Matour under the Council area, respondents were drawn from all these villages. A sample of about 45 houses from village Mohali, 21 houses from Shahi Majra and 40 houses from Matour (representing 10% of the total houses) had been taken.

The secondary data included relevant research books and journals. Other secondary sources like government reports, surveys

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and unpublished doctoral dissertations were also used.

Method of Observation: Personal observation by the authors during visits to different areas of the city has provided reliable information in collecting data.

#### Issues in Urban Road Transport in India

The existing transportation facilities have not been keeping pace with the high growth in transport demand because of three reasons--(i) Vehicular Congestion; (ii) Road Accidents; and (iii) Vehicular Pollution.

#### Vehicular Congestion

While growth in transport brings some positive benefits, such as productivity gains which are good for economy, it also has negative impacts in terms of damage to the environment and increased road congestion.

Congestion on roads is considered to be one of the major problems confronting urban transportation in India. It is a state of excessive accumulation or overfilling or overcrowding on roads.

Street and highway congestion imposes the social and economic costs upon society. Specifically, congestion increases travel time, increases the accident rate, results in higher motor vehicle operating cost due to greater fuel and motor oil consumption and wear and tear increases the costs of goods.

Congestion is generally due to a mismatch between the population, number of registered vehicles and road length.

#### i) Population, Registered Vehicles and Road Length in India

In India transportation demand in urban areas continues to increase rapidly as a result of both population growth and excessive growth in number of vehicles. India Development Report 2004 reveals that the number of registered vehicles in India has outgrown the number of people, i.e. the growth in motor vehicles has outpaced the population growth. While the urban population increased from 230 million to 326 million with the growth rate of 3.7 per cent during 1991 to 2001, the number of registered vehicles raised from 21374 thousand to 54991 thousand with the growth rate of 14.2 per cent during the same period. Thus, the growth of motor vehicles is almost three times faster than the growth of population. This in turn would result into almost choking up of roads and increasing the atmospheric pollution.

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Growth in the number of vehicles does not match with the corresponding expansion in road length. The Indian road network covering a length of 3.34 million km is the world's second longest network. It is further divided into following--national highways-65,569 km., state highways-1,30,000 km., urban roads-88,00,33 and other roads 3.32 million km (Source:- www.Ministry of Road Transport and Highways.nic.in).

A huge investment is involved in urban transportation system under Five Year Plans in India--

Plans	Rs. in crore
Ninth plan (1997-2002)	- 7415.26
Tenth plan (2002-2007)	- 9416.90
Eleventh Plan (2007-2012)	- 43251.00
Total-	17283.16

Thus, a sum of Rs. 17283.16 were given to road transport under various plans. But unfortunately, present investment in urban road transport has been proved to be insufficient to meet the fast growing transportation needs of urban areas. Therefore, the present infrastructure is just not able to cater to the exponential growth of vehicles and population leading to congested and longer journeys on roads.

## (ii) Population, Registered Vehicles and Road Length in Punjab

Punjab is situated in the north-western corner of the country. It is spread on an area of 50,362 sq. km. covering a population of 243.59 lakh. It has total road network of 54,836 km., which includes--national highways--1729 km., state highways--2166 km., urban roads--3021 km. and other roads--47941 km (Source: Http/www.Punjabgovt.nic.in)

TABLE 1: POPULATION, REGISTERED VEHICLES AND ROAD LENGTH IN PUNJAB (1991-2001)

	1991	2001	Decadal Growth	Growth Rate
Population (in lakh)	59,83,180	82,625,11	22,79,331	3.4%
Registered Vehicles (in lakh)	13,29,482	27,16,650	13,87,168	9.4%
Road Length (in km)	2,403 km	3,021 km	618 km	2.3%

SOURCE: Economical and Statistical Abstract, Punjab, 2005.

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The Table shown above depicts that the urban population of Punjab has grown by 3.4 per cent from 59,83,180 lakh to 82,62,511 lakh, while the registered vehicles have increased by 9.4 per cent from 13,29,482 lakh to 27,16,650 lakh and road length has increased by 2.3 per cent from 2,403 km to 3021 km from 1991 to 2001. Thus, the growth of vehicles in Punjab is faster than the growth of population as well as road length.

As far as allocations on urban road transport system under Five Year Plans is concerned, a sum of Rs. 52,529.51 lakh were sanctioned under Ninth plan (1997-2002) and 2,71,150.00 lakh were sanctioned under Tenth plan (2002-2007). But these allocations have not yet solved the problem of congestion on urban roads in Punjab. Thus, congestion is a serious problem in Punjab.

## (ii) Population, Registered Vehicles and Road Length in S.A.S. Nagar (Mohali)

Since the formation of the Municipal Council S.A.S. Nagar (Mohali) in 1995, a total road network of 234 km has been developed by the Greater Mohali Area Development Authority (GMADA). Approximately a sum of rupees 110 crore is spent on the development of roads annually by GMADA and around 3-4 crore of rupees is spent by the Council on maintenance of roads developed by GMADA. But the problem of congestion in S.A.S. Nagar (Mohali) is as serious as is found at the state level or Centre level:

TABLE 2: POPULATION, REGISTERED VEHICLES AND ROAD LENGTH IN S.A.S. NAGAR (MOHALI) (1995-2005)

	1995	2005	Decadal Growth	Growth Rate
Population (projected) (in thousands)	96,091	1,59,522	63,431	5.2%
Registered vehicles (in thousands)	2,422	11,471	9,049	8.3%
Road length (in kms)	96 km	225km	129km	4.5%

SOURCE: District Transport Authority, S.A.S. Nagar, (Mohali)

The table shown above depicts that the population of S.A.S. Nagar (Mohali) has grown by 5.2 per cent annually from 96,091 to 1,59,522 during 1995-2005, while registered vehicles increased by 8.3 per cent from 2,422 to 11,471 and road length has increased by 4.5 per cent

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from 96 km to 225 km during the same period. Thus, increase in number of vehicles has outpaced the growth of population as well as road length in a decade.

#### **Problems faced by Citizens due to Congestion on Roads of S.A.S. Nagar (Mohali)**

The citizens of S.A.S. Nagar (Mohali) face a number of problems due to congestion on roads of the city as--

Firstly, citizens complain that the rush is so heavy on roads that they do not want to send their children alone on bicycle/scooter for school/college/tuition/coaching class, working ladies on scooter/car for office and elderly people for walks. Even it becomes very difficult for them to drive on such congested roads during office hours and usually they get late to office even after starting from home much before the arrival time. This problem becomes acute for daily passengers who work in some other cities like Patiala, Roopnagar, Fatehgarh Sahib etc.

The major cause of such a heavy rush on roads of the city is the non-existence of cycle tracks. As slow carriages like rickshaw, car, cycle etc. slow down the pace of other vehicles and thus add to congestion. Another cause of congestion is passing of goods vehicles like trucks, canters within city on some of the roads like roads coming from nearby villages like Sohana, Balongi etc. Secondly, insufficient parking spaces in the city cause disorderly parking of vehicles in parking places in different markets of the city and thus, creating a traffic nuisance.

#### *(ii) Road Accidents*

In India transportation demand in urban areas continues to increase rapidly as a result of population growth and changes in travel patterns. While the demand for urban transport is growing rapidly, the supply of transport infrastructure has not kept pace. Consequently, the mobility levels in cities have been falling. This has resulted in increased travel times, fuel consumption, vehicular pollution and road accidents.

The World Report on Road Traffic Injury Prevention released by the World Health Organization on the World Health Day (7<sup>th</sup> April, 2004) has highlighted that nearly 12 lakh people are known to die each year in road accidents globally. Keeping in view the increasing global concerns about the growing impact of road traffic accidents, the United Nations General Assembly and the World Health

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Organization had declared the year 2004 as the Year of Road Safety.

The situation is not different in Punjab, where roads are steadily becoming accident traps, with mishaps increasing each passing day. Going by statistics, every third day a human life is lost in a road accident in the cities of Punjab.

#### **Road Accidents in S.A.S. Nagar (Mohali)**

The city of S.A.S. Nagar (Mohali) has grown very speedily during the last decade (1995-2005). With the increase in population, the congestion on roads has increased a lot, which has resulted into a constant increase in the number of road accidents. The data on road accidents and persons killed during the last decade (1995-2005) has been presented in Table 3.

#### **Causes of Road Accidents**

According to report of working group for Tenth Five Year Plan in India, some of the causes of road accidents are:

*(i) Bad/Damaged Roads:* Bad roads or damaged roads are one of the major causes of accidents on roads. Most of the roads in India are in a pathetic condition. Almost all the roads are full of potholes. The water gets accumulated in these potholes during monsoon and becomes a major cause of accidents. Poor and improper maintenance of almost all categories of roads cause accidents. About 57 per cent of total roads in India are unsurfaced and unmotorable.

The majority of residents (85.7%) of S.A.S. Nagar (Mohali) are not satisfied with the condition of roads and the major reason of their dissatisfaction is damaged roads (57.8%). Even '*Hindustan Times*' reported on 22 April, 2006, "Almost all the major roads cutting through the district's length and breadth are interspersed with potholes and ditches, make driving a perilous experience".

47.9 per cent of residents are dissatisfied with the condition of roads during monsoon as accumulated water conceals the potholes and vehicles get entrapped in such potholes thus driver becomes a victim of accident. Hence, there is a need to enhance the life of roads through making roads with plastic waste and bitumen, which is more durable than present system of making roads with stone metal, bitumen, concrete, sand and charcoal. As it has better stress bearing and better riding-surface.

*(ii) Inadequate Lighting on Roads:* Inadequate lighting on roads is another cause of road accidents. This is mainly due to dysfunctional

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TABLE 3: TOTAL NUMBER OF ROAD ACCIDENTS OCCURRED AND PERSONS KILLED IN S.A.S. NAGAR (MOHALI) (1995-2006)  
(In numbers)

Year	Total number of accidents occurred	Persons killed
1995	101	46
1996	119	51
1997	145	58
1998	161	69
1999	182	78
2000	203	89
2001	242	103
2002	278	121
2003	312	137
2004	343	149
2005	368	168
2006	388	184

Source- District Transport Authority, S.A.S. Nagar, (Mohali).

streetlights and road signals. The problem gets acute at night when potholes become invisible and vehicles fall into it or clash with another vehicles.

In S.A.S. Nagar (Mohali) most of the roads at night are without streetlights. Due to which vehicles fall into pits and meet with accidents. It has also been observed that the telecom firms dig up pits to lay underground wires and after completion of work, labourers don't bother to fill the pits. These open pits become major cause of road accidents. Though, these firms give bank guarantee to council for repairing the roads and footpaths after completion of work, they don't take care about these open pits once their work is done. So, the council should make arrangements to supervise the activities of such firms and fine should be imposed on erring firms.

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(iii) **Stray Cattle/Dogs:** Stray cattle and dogs play havoc for people on road. These animals can be seen moving frequently on roads, streets, parks and have become major cause of accidents.

In S.A.S. Nagar (Mohali), the menace of stray cattle/dogs has risen to such a level that people fear to move out of home especially during night hours, when farmers from nearby villages leave their cattle for grazing. This is the time when people come from offices. These animals block the way and hurt passer-by.

The Council keeps on catching these animals but it is not in a position to keep the stray cattle and dogs after catching them. As the city has a very small cattle pound of capacity of 60 to 70 cattle. Besides, it has also problems relating to inadequate fodder and shortage of manpower. So, to deal with this problem a bigger cattle pound should be made with better facilities and a separate cell for dogs.

Other causes of road accidents include the fault of driver/pedestrians/passengers, mechanical defect in vehicle, fallen trees, bad weather etc.

#### **Vehicular Pollution**

Means of transportation play a very important role in the overall development of a country. Availability, intensity, frequency, efficiency and cost of means of transportation are considered as index of development. But as the numbers of vehicles are increasing rapidly, it has slowly but rarely started hindering our atmospheric purity with the vehicular pollution.

Vehicular pollution is mainly an urban problem. Besides, its direct impact on respiratory system and heart, motorized transport produce around a quarter of anthropogenic emissions of gases leading to climate change. Indian cities qualify as some of the most polluted in the world and heading the list is the national capital, Delhi which is the fourth most polluted city in the world.

#### **The principal pollutants emitted by vehicles are-**

(i) Carbon Monoxide (Co); (ii) Hydrocarbons (HC); (iii) Oxides of Nitrogen (NOx); (iv) Suspended Particulate Matter (SPM). Petroleum based vehicles also emit polynuclear aromatic hydrocarbons (PAHs) and aldehydes in traces. Depending upon the sulphur content in the fuel, varying amount of SO<sub>2</sub> is also emitted. In addition, the exhaust gases from petrol based fuel vehicles also contain lead compounds.

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National Ambient Air Quality Programme (NAMP)

The Central Pollution Control Board (CPCB) has been assigned various functions under the Air Act 1981, to plan a nation-wide programme for the prevention, control and abatement of air pollutants. Accordingly the National Ambient Air Quality Monitoring programme (NAMP) was initiated in 1984-85. Its network consists of 308 monitoring stations covering 115 cities/ towns in 25 states and 4 Union Territories of the country. The NAMP network is operated with the involvement of various agencies that is State Pollution Control Boards, the Central Pollution Control Board Headquarters and Zonal offices.

The data presented above shows that the Suspended Particulate Matter (SPM) levels in four metropolitan cities is well above the National Ambient Air Quality standards, while Sulphur Oxide (SO<sub>2</sub>) and Nitrogen Oxide (NO<sub>x</sub>) are within limits during the last decade from 1993 to 2003.

Vehicular Pollution in Punjab

In Punjab, Punjab Pollution Control Board (PPCB) is responsible for monitoring the levels of SO<sub>2</sub>, NO<sub>x</sub> and SPM at different monitoring stations covered under NAMP. The network under NAMP in Punjab includes nine monitoring stations at Ludhiana, Jalandhar, Patiala, Amritsar, Bhatinda, Naya Nangal, Mandi Gobindgarh and Dera Bassi.

The data depicted above shows that the SPM levels in all the three major cities of Punjab has crossed the National Ambient Air Quality Standards, while SO<sub>2</sub> and NO<sub>x</sub> have not exceeded their limits during the last decade (1994- 2003).

Vehicular Pollution in S.A.S. Nagar (Mohali)

The responsibility of measuring the air pollution level of cities other than those which are not covered under National Ambient Monitoring Programme (NAMP) lies with the respective District Transport Authorities. Like in S.A.S. Nagar (Mohali) the pollution level is measured by the District Transport Authority (DTA). Though under NAMP three pollutants SO<sub>2</sub>, NO<sub>x</sub> and SPM are measured, at S.A.S. Nagar (Mohali) only one pollutant, i.e. Carbon monoxide (CO) is measured.

The reason for measuring only one pollutant is that the level of CO in the city has been within the permissible limit as prescribed under the Act. After crossing the limit, it would come under NAMP.

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TABLE 4: THE LEVELS OF SO<sub>2</sub>, NO<sub>x</sub> AND SPM AT FOUR METROPOLITAN CITIES (1993-2003)

City	(In microgm/cu.m)									
	SO <sub>2</sub>		NO <sub>x</sub>		SPM					
	1993	1998	2003	1993	1998	2003	1993	1998	2003	2003
Delhi	13.70	15.60	12.20	30.10	35.10	43.30	362	342	315	315
Mumbai	49.50	15.90	7.70	32.30	14.70	18.70	475	211	219	219
Kolkata	65.10	47.20	18.0	62.00	39.70	75.50	507	283	244	244
Chennai	10.30	10.30	6.60	27.10	15.40	7.50	73	131	149	149
Standard	60	60	140							

SOURCE : <http://www.punjabpollutioncontrolboard.gov.in>

TABLE 5: THE LEVELS OF SO<sub>2</sub>, NO<sub>x</sub> AND SPM IN THREE MAJOR CITIES OF PUNJAB (1994-2003)

City	(In micro gm/cu.m)									
	SO <sub>2</sub>		NO <sub>x</sub>		SPM					
	1994	1998	2003	1994	1998	2003	1994	1998	2003	2003
Ludhiana	20.02	22.05	10.04	51.01	46.09	31.08	213	314	198	198
Jalandhar	28.03	34.10	11.11	19.01	21.03	26.09	226	283	266	266
Patiala	13.06	05.02	07.01	25.03	14.01	26.8	207	276	253	253
Permissible limits	60	60	140							

SOURCE: <http://www.centralpollutioncontrolboard.nic.in>

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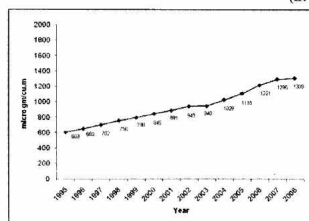
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CHART-1

THE LEVEL OF CO IN S.A.S. NAGAR (MOHALI) (1995-2008)

(In microgm/cu.m)



SOURCE: District Transport Authority, S.A.S. Nagar, (Mohali)

The data presented above indicates that the level of CO in S.A.S. Nagar (Mohali) has increased from 603 mg/cu.m to 1309 mg/cu.m with an increase of 3.1 per cent annually and this growth has been falling within the permissible limit of 2000 mg/cu.m during the last decade (1995-2008).

For measuring the level of CO in the city, Smoke Density Test (SDT) is carried out by the Petrol Pump dealers authorised by the District Transport Authority at pollution check centres. Two such centres have been there, one in ph. 3A and other is in ph. VII, where such tests are carried out with the help of an Automatic Emission Analyzer, an instrument prescribed under the Act.

A pollution control certificate is issued by the dealer to the vehicles conforming to the standards. This is issued for a period of six months on payment of Rs. 35 for two/ three wheelers and Rs. 45 for four/ above wheelers.

## Problems faced by Citizens due to Vehicular Pollution in S.A.S. Nagar (Mohali)

The pollution level of Carbon Monoxide (CO) in the city has yet not crossed the permissible limit; people complain that increasing vehicles have been enhancing the pollution level day by day. As it is enhancing respiratory diseases such as asthma and bronchitis, skin allergies, headache, nose irritation etc. Carbon Monoxide is one of

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the components of the group of seven major pollutants (sulphur dioxide, carbon monoxide, suspended particulate matters, volatile organic compounds, nitrogen oxide, ozone and lead), which contribute the largest volume of air quality degradation and are considered the most serious threat of all air pollutants to human health and welfare. And it has been proved that above 15 mg/cu.m of CO affects the respiratory and central nervous system severely.

So, there is a need to control the pollution by properly implementing the Central Motor Vehicles Rules, 1989. As firstly, it has been observed that the pollution control certificates are not regularly checked by the traffic police at the traffic intersections. Therefore, people do not bother to get this certificate even after the expiry of the time limit of 6 months. Though a fine of Rs. 500 is imposed on non-possession of the certificate. There is no use of such provision, when regular checks are not carried out. Secondly, there is no check on pollution check centres, which are issuing pollution control certificates to vehicles without testing them especially to old and ill-maintained vehicles which do not meet the prescribed standards and thus, emit more pollution. So, proper inspections should be carried out to nab the culprits at pollution check centres.

## MAJOR FINDINGS

- v Vehicular congestion on roads is the major problem in the city. This is mainly due to increase in the number of vehicles, which have out-paced the growth of population as well as road length in a decade (1995-2005).
- v Non-existence of cycle tracks for slow carriages like rickshaw, car, cycle etc. slow down the pace of other vehicles adding to congestion.
- v Another cause of congestion is passing of goods vehicles like trucks, canters within the city on some of the roads like the roads from nearby villages of Sohana, Balongi, Tangori etc.
- v Congestion on roads has resulted into a constant increase in the number of road accidents. There are three causes of road accidents:
- v **Bad roads**--Most of the roads in the city are in a poor condition. They are full of potholes. Water gets accumulated in these potholes during monsoon and becomes a major cause of accidents.
- v **Inadequate lighting on roads**--Most of the roads at night are

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without streetlights, due to which vehicles get entrapped into pits and meet with accidents.

- v **Stray cattle/dogs--** Stray cattle/dogs menace has assumed alarming proportions in the city with people continuing to face accidents, sustaining injuries involving such animals.
- v Insufficient spaces cause disorderly parking of vehicles in different markets thus creating traffic nuisance.
- v Vehicular pollution has increased a lot. Though, the level of Carbon Monoxide (CO) has increased from 603 mg/cu.m to 1309 mg/cu.m, it has been falling within the permissible limit of 2000 mg/cu.m during the last decade (1995-2008).
- v Though the pollution level of Carbon Monoxide (CO) has not crossed the permissible limit yet increasing vehicles have been enhancing the pollution level day by day. This is mainly because of two reasons:
- v Firstly, the pollution control certificates are not regularly checked by the traffic police at the traffic intersections. Therefore, people do not bother to get this certificate even after the expiry of the time-limit of six months; though a fine of Rs. 500 is imposed on non-possession of the certificate. There is no use of such provision, when regular checks are not carried out.
- v Secondly, there is no check on pollution check centres, which are issuing pollution control certificates to vehicles without testing them especially to old and ill-maintained vehicles which do not meet the prescribed standards and thus emit more pollution.

## SUGGESTIONS

- v There is a need for decongestion of roads by separating slow carriages from other fast moving vehicles with the introduction of the system of cycle tracks.
- v The problem of congestion can also be solved through:
  - four lanning of certain routes like from Ph XI to Tribune Chowk Chandigarh and road from village Balongi to Ph XI;
  - finding of certain alternative routes to divert the traffic;
  - separating goods vehicles by allotting them independent routes outside the city;

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- v In order to avoid traffic nuisance due to insufficient parking spaces in different markets, underground parking may be made with separate parking for two-wheelers and four wheelers.
- v There is a need to enhance the life of roads by adopting certain new methods such as making of roads with plastic waste and bitumen. This is a unique method discovered by a Bangalore based scientist which is more durable than present system of making roads with stone metal, bitumen, concrete, sand and charcoal. It will not only tackle the problem of plastic waste which can be bought from the rag-pickers, but will also have better stress-bearing and better riding-surface.
- v To tackle the problem of road accidents due to stray cattle/dogs, there is a need to equip cattle pound with better facilities and a separate cell for dogs by allocating more funds.

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