

EPCA Report No. 31 (March 2007)

Report on the urgent need to augment and restructure the Delhi bus transport system to help mitigate air pollution in the city

In the matter of W.P. (C) No.13029 of 1985; M.C. Mehta v/s UOI & others

1. **The Hon'ble Supreme Court has been monitoring air pollution in the city of Delhi. Over the past years it has intervened and directed for measures to clean the air. In this regard, in 1998, it directed the government to make the transition to cleaner fuel, Compressed Natural Gas (CNG). It also directed the government to expand its public transport bus fleet to 10,000. This order of the Hon'ble Court has resulted in lowering pollution levels in the city and has been widely hailed across the world.**
2. **But these gains made in combating air pollution in the city are being lost because of the increased motorization, which in part is driven by the lack of a viable public transportation alternative. It is imperative that steps are taken to reverse this trend. Otherwise, efforts made by the Hon'ble Court to combat air pollution will be negated.**
3. **EPCA has in the past pointed to the need to upgrade the public transportation network of the city (see reports: The imperative of controlling vehicle numbers and increasing access; Report on public transport projects in Delhi; Status report on implementation of the High capacity bus system in the NCT of Delhi). The Hon'ble Court has issued directions to implement the proposed high capacity bus system in Delhi (order dated November 30, 2005).**
4. **In this report, EPCA has reviewed the capacity of the current public transportation system. The report recommends the need for urgent action to upgrade, restructure the bus system and to integrate it with other public modes of transport – metro rail etc.**
5. **Based on these findings, EPCA seeks directions from the Hon'ble Supreme Court.**

1. Background

The Hon'ble Supreme Court has consistently noted the importance of upgrading public transportation to address the rapid motorisation in the city, which in turn is leading to crippling congestion and pollution. The Hon'ble Court directive of July 28, 1998 (see annexure 1) was the first mandate to the city, which directed it to augment its bus transport programme and linked this augmentation to clean fuel. In other words, the court stressed the need for bus transportation, but directed that this transportation should be based on clean fuel.

In this directive, the Hon'ble Court had asked the city to increase its bus fleet from roughly 3500 in the mid-1990s to 10,000 by 2001. It also specified that these buses would run on CNG. This order of the Hon'ble Court was implemented by end 2002 and has led to major gains for air quality in the city.

Subsequently, the Hon'ble court has directed the Delhi government to implement the transport policy that includes plans for mass transport systems like the Delhi metro, high capacity bus system (HCBS), light railways and monorail. In its November 30 2005 order the Hon'ble Supreme Court has directed the government to implement the HCBS on a time-bound basis. EPCA is monitoring progress and has kept the Hon'ble Court informed through its reports. These projects, if implemented on time and on an extensive scale, can make significant impact in reducing car numbers, congestion and pollution in the city. But as these projects have a lengthy time schedule for implementation it is imperative that strategies are devised for effective action in the short run as well.

EPCA is concerned that during the implementation phase of the transport infrastructure projects, without an alternative plan to augment the available public transport, personal vehicle numbers will increase exponentially. The easiest and cheapest way to deliver change within a short timeframe is to improve the conventional bus transport system. This strategy can be very effective in improving mobility planning for the city and can be leveraged, with modern technological innovations to contain motorisation.

It is with this interest that EPCA has assessed the current bus transportation system in Delhi. This report provides a status of the current situation and recommends what needs to be done.

The assessment has found that current bus numbers are falling short of the demand in the city. It is even more disappointing to note that the current bus numbers do not even add up to the target of 10,000 set by the Hon'ble court in its July 28, 1998 order. The Delhi government is therefore, in breach of this directive. This requires immediate intervention to increase the bus numbers and also develop an operational plan that will improve the overall efficiency and quality of the bus service in the city.

New study finds maximum impact of CNG buses on air quality in Delhi

A new study recently released by the Washington based think tank Resource for the Future (RFF) has assessed the impact of various pollution control measures on air quality trends in Delhi over a 15 year old period (1990-2005) and found that the CNG programme has made the most significant impact on air quality in Delhi.

This first ever, rigorous quantitative analysis has matched actual air quality data with changing trends in key pollution sources in the city to explain the improvements in Delhi's air quality. Results suggest that the

conversion of buses to CNG has helped reduce respirable particulate matter, carbon monoxide, and sulphur dioxide, and has not contributed to the increase in nitrogen dioxide levels. Conversion of buses to CNG is important because buses travel more kilometres in the city and contribute more to the pollution load. The conversion has therefore, resulted in greater gains.

This scientific assessment also shows that gains made from the CNG switch will be lost if the number of km travelled by all vehicles especially personal vehicles is not controlled. It therefore, underscores the need to improve public transport among other strategies which can reduce the pollution load per passenger kilometre travelled in the city.

2. Growth of personal vehicles

EPCA would like to emphasise that in its assessment, the exponential increase in numbers of personal vehicles is threatening to undo all gains made to clean the air of Delhi. The city already has more than 4 million registered vehicles. **In 2006, the city added nearly 0.36 million vehicles. In other words, it is adding nearly 1000 vehicles each day into the city.** The bulk of these vehicles are private – **963 new personal vehicles are added in the city each day.** This is almost doubling of what was added in the city even in 2000-2001 (see table 1: Exploding numbers and increase in cars and Graph 1: Increase in personal vehicles in Delhi).

Table 1: Exploding numbers and increase in cars

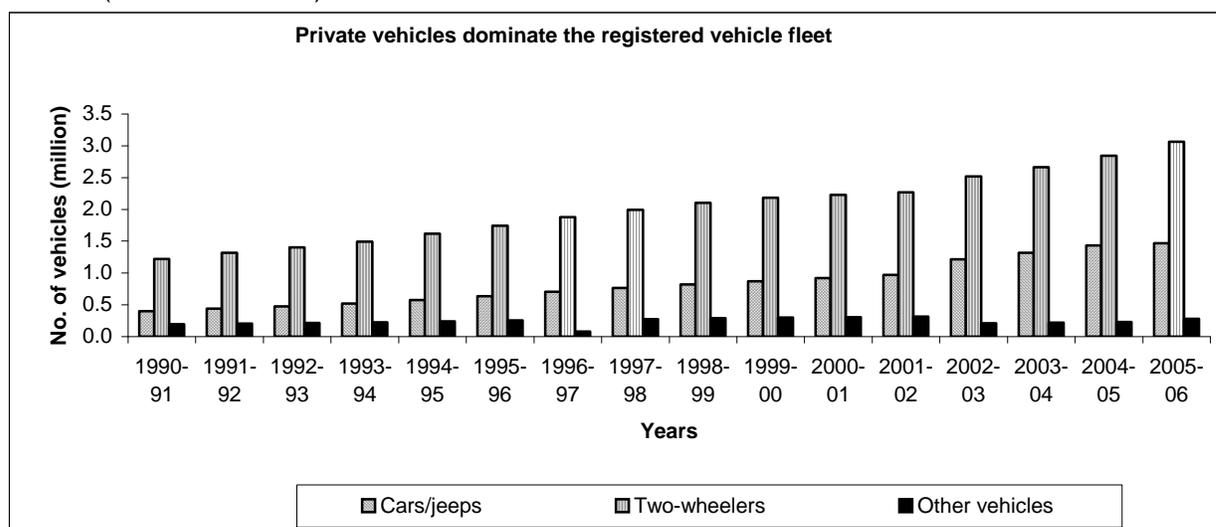
	Vehicles registered during 2000-01	Per day reg. during 2000-01*	Vehicles registered during 2005-06	Per day reg. during 2005-06
Cars	84,482	231	112,585	308
Two wheelers	121,465	333	238,822	654
Total private vehicles	205,947	564	351,407	963
Total vehicles (private +commercial)	211,588	580	362,982	994

* Considering entire year

Source: Estimated on the basis of Economic Survey of Delhi 2005-06

Graph 1: Increase in personal vehicles in Delhi

Cars have recorded decennial growth rate of 92 per cent -- highest among all categories of vehicles (1995-96-2005-06)

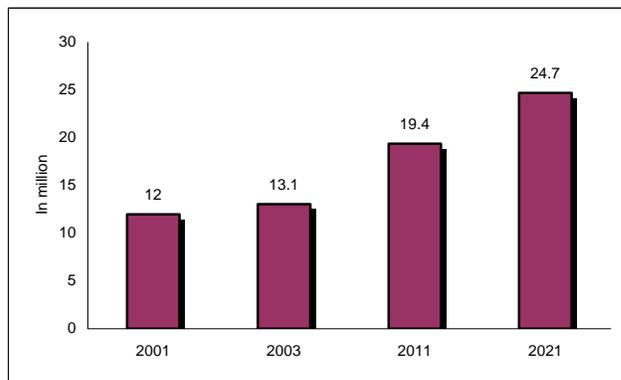


Source: Vehicle Registration data, Transport Dept, Delhi; Economic Survey of Delhi (1999-2000); Delhi Statistical Handbook for 2004 & 2006

The future looks even more ominous, as vehicular trips per day are expected to increase phenomenally in Delhi (see Graph 2: Increase in intra city vehicular trips per day in Delhi). According to a September 2005 study by RITES, between 2001 and 2021, the population of Delhi is estimated to grow from 13.8 million to 23 million. During the same period, vehicular trips per day are estimated to grow from 12 to nearly 25 million.

If we assume that 80 per cent of these trips would be carried by all types of public transport, which is currently the case, the total number of trips to be catered to by public transport by 2021 would be 23 million per day. The present bus services, the phase 2+3+4 of the metro rail and the Integrated Rail-cum-Bus transit (IRBT) system if implemented as planned together it is estimated would carry about 15 million trips out of the total 24 million vehicular trips per day by 2021. Accordingly 9 million trips per day must be additionally catered to by other modes of public transport.

Graph 2: Increase in intra-city vehicular trips per day in Delhi

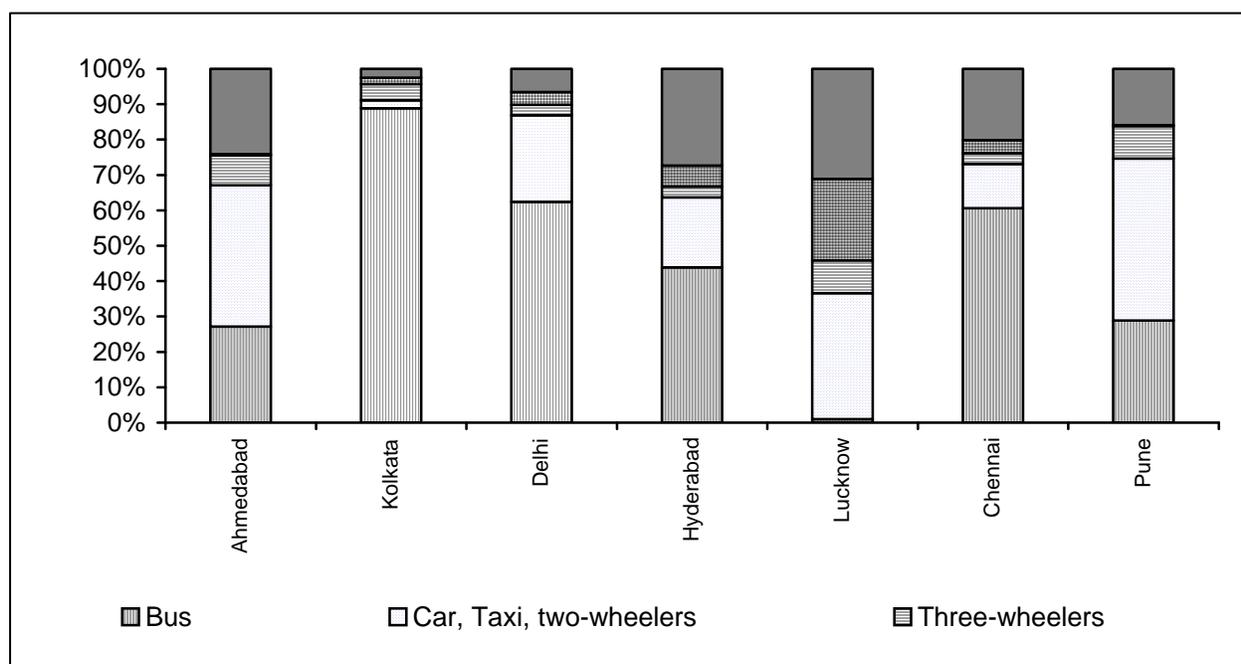


Source: Anon 2005, Integrated Multi-modal public transport network for the NCT of Delhi, Final Report, RITES Ltd, New Delhi

It is therefore important that immediate steps are taken to expand the bus fleet to enable much larger usage of public transport and reduce use of personal vehicles at this stage of motorisation. If adequate numbers of buses are not available to cater to these trips cars and two-wheelers will increase beyond the carrying capacity of the city with serious consequences.

If upgraded in scale and quality, buses can be very effective in meeting larger share of commuting demand in the city. It is important to note that till the early 2000, the fleet of buses though in a very dilapidated condition and plagued with inefficiencies, met more than 60 per cent of the travel demand in the city (see graph 3: Buses meet substantial travel demand). It is important to build on this strength as it is a low cost solution to the city's mobility crisis.

Graph 3: Buses meet substantial travel demand in Delhi



Source: World Bank 2002, Household travel characteristics in various cities, Table 9, Appendix 1: Tables for Selected Statistics, New Delhi, p 59

3. Status of public transport buses in Delhi

The system that governs the bus usage in Delhi is complicated. The buses operate under different arrangements and licensing systems issued by the state transport authority for different types of bus usage. These include:

1. Permits for stage carriage: Buses that ply under this scheme form the spine of the city bus service. These operate on routes specified by the state transport authorities and are available round the clock. This service is provided by the state owned Delhi transport corporation (DTC) and the private bus operators who are licensed by the state transport authority
2. Permits for buses under contract carriage: These buses are not part of the city bus service but operate on the basis of private arrangements and operate point to point as chartered services catering to niche groups like office goers, school children on fixed routes and time. Though these buses cater to significant travel demand they are not part of the regular city bus service.
3. Buses on tourist permit.
4. Buses operating under inter-state bus permits. These buses ply on inter state routes and can cover a maximum distance of 16 km within the city.

The buses plying under the stage carriage permit are an important part of the city bus services and should be the immediate focus of improvement. EPCA's analysis shows that the numbers under this scheme has dwindled over time and this requires immediate attention.

3.1 Assessing the number of buses in the city bus service

To assess the numbers of buses, data from the operational statistics of DTC and the bus registration data from the state transport authority have been used. Estimating actual numbers of vehicles in Delhi is difficult as the registration data is cumulative – it adds new registration every year without adjusting the numbers of vehicles, which have been phased out. Fortunately, in case of buses because of the implementation of the CNG programme and the consequent renewal of the entire bus fleet this problem can be avoided. The entire bus fleet in Delhi has undergone complete renewal from 2001-2002. Either some existing diesel buses have been retrofitted to run on CNG or entirely new buses have been inducted by both DTC and the private bus operators.

Even then some data discrepancy prevails as the records on stage carriage buses do not always distinguish between the buses on city routes and those on inter state routes or indicate the number of buses on diesel and CNG on interstate routes. Buses on interstate routes are not meant for city service though they may serve a limited route within the city. However, the 2005-2006 operational statistics of DTC has given the specific numbers of buses on the city routes and on inter state routes. This shows that about 75.56 per cent of the fleet is under city bus service covering the NCT Delhi area and all are operating on CNG.

Since such break-up is not available for all the years since 2000 when the implementation of the CNG programme had effectively begun, EPCA has assumed, based on the data for the year 2005-06, that at least 75.56 per cent of the fleet each year is for city bus services and the rest are on interstate routes. Accordingly the trend in the numbers of buses available for the city bus services have been worked out and assessed. Buses plying within the city are all on CNG.

3.1.1 Trend in total number of buses under stage carriage: The available data shows that in 2007 the total number of CNG buses registered under both stage and contract carriage is 15,217. Out of which, 8,341 buses are under stage carriage permit and 6,786 under contract carriage permit. A large share of the contract carriage buses – as many as 3,647 buses, operate under interstate contract carriage permits and of the remaining 3,139, approximately 55 per cent operate as school buses.

However, it is important to note that the city bus service is operated by buses licensed as stage carriage. These buses number 8,341 and therefore, are less than the buses mandated by the order of the Hon'ble Supreme Court on July 28, 1998. This order had specifically directed for the **“augmentation of the public transport (stage carriage) to 10,000 buses by 2001.”**

Moreover, a substantial part of these buses are the mini to mid sized buses that are defined as with seating capacity of 15–25 passengers and not full sized buses with seating capacities of 37-55 passengers. This therefore, means that there is lesser capacity to transport people by this mode. It has never been noticed that the increase in bus numbers in Delhi has happened largely on account of the increase in small and mid size buses. Between April 2000 and March 2003, the mini and mid size buses have increased considerably. Though their growth has been curbed now especially after freezing of the registration of the RTVs, they still account for approximately 16 per cent of the entire stage carriage fleet and 25 per cent of the private stage carriage fleet. The small and mid size buses are entirely owned by the private bus operators.

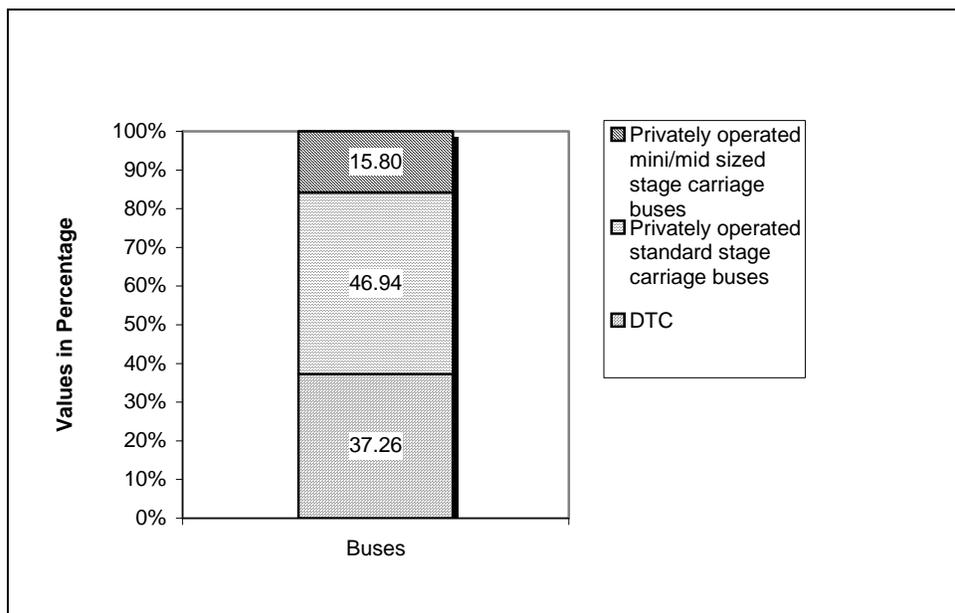
Of the 8,341 buses, 7,023 buses are the standard buses under stage carriage and the rest -- 1,318 -- are mini to mid sized buses. It is also estimated that roughly 25 per cent of the DTC fleet (total 3454) operates on inter-city routes. In other words, it is not available for city operations. Therefore, only 2610 buses of DTC ply within the city, offering services both to commuters and school children. EPCA has been informed that roughly 1000 buses are leased to schools during the hours of 6.30 am to 8 am and 12.30 am to 2.00 pm. These buses are then unavailable for city bus service for half the day.

In other words, the intent and spirit of the 1998 Supreme Court directive has been flouted as the city is short of roughly 4000 buses as against the ordered 10,000 which were to be on the roads of Delhi by 2001. It has also to be noted that this order was passed in 1998, when the population of the city was lower and therefore, not only are the numbers below what was ordered for then, but clearly inadequate for the needs of today. It is no wonder that we are seeing phenomenal rates of motorisation in the city.

3.2 Assessing the ownership of buses in the city

If both small and standard buses are included to estimate the total bus fleet under stage carriage (8341) then 62.74 buses are with private bus operators and 37.26 percent are with the Delhi Transport Corporation (DTC). (Graph 4: Share of total stage carriage fleet by ownership). However, if only the standard (full sized) buses under stage carriage permits are considered, then DTC's share increases to 3,108 buses, approximately 44.25 per cent of the total.

Graph 4 Share of total stage carriage fleet by ownership (per cent)

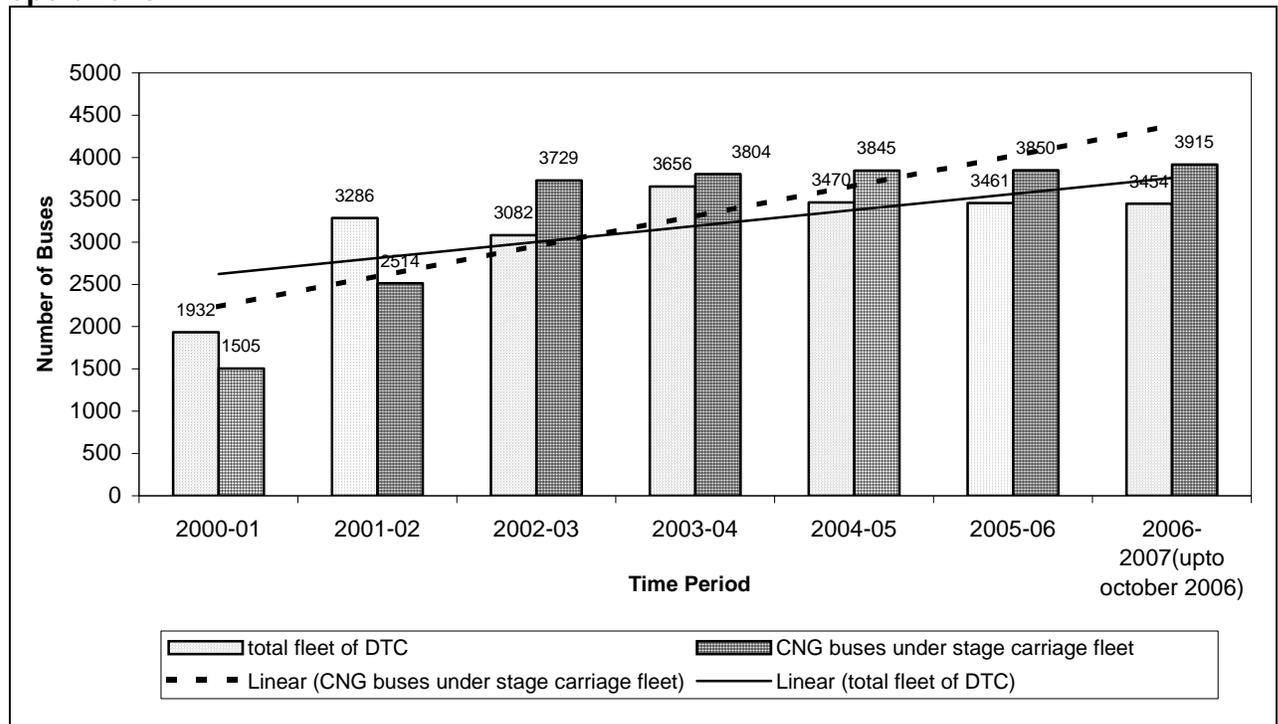


Source: 1. DTC Operational Statistics (2005 – 2006),
 2. Computed from data on registration of buses obtained from State Transport Authority

3.3. Assessing the trend in bus numbers in the city bus service

During the initial stages of transition to CNG, bus numbers show wide fluctuation. The number dropped sharply in 2000-2001 when in compliance with the Supreme Court order of July 28, 1998, buses more than eight year old were withdrawn. The annual percentage growth was a negative at - 37.53 per cent. The numbers began to pick up thereafter. But the total numbers of buses under DTC and private bus operation have remained stable since the full implementation of the CNG programme in 2002-03 (Graph 5: Total number of stage carriage buses under DTC and private bus operations).

Graph 5: Total number of stage carriage buses under DTC and private bus operations



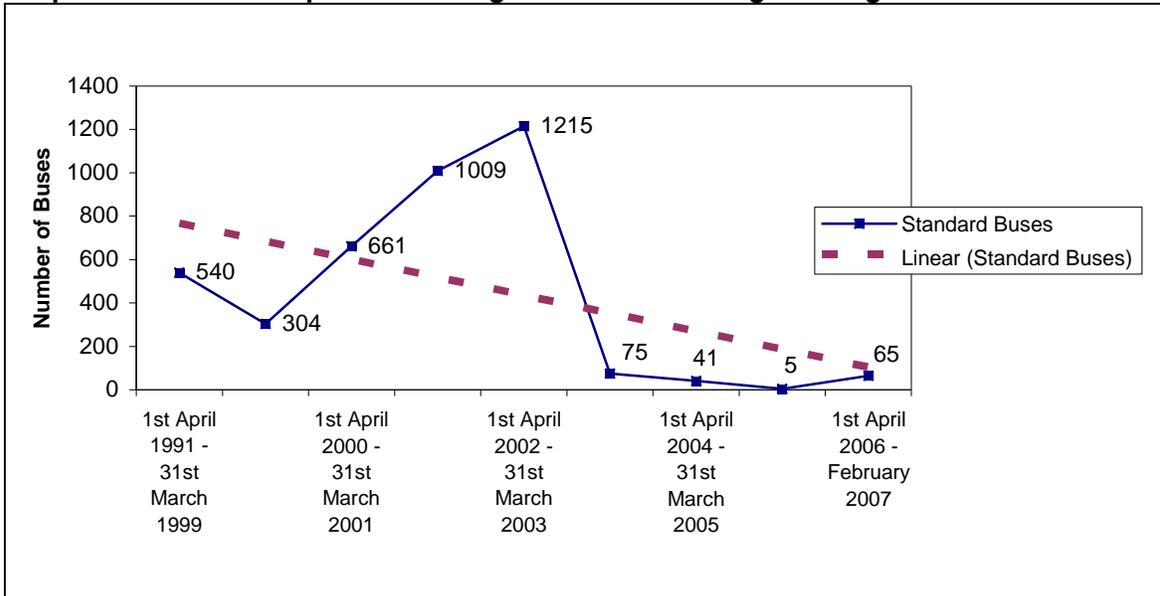
Source: 1. DTC Operational Statistics (2005 – 2006),

2. Computed from data on registration of buses obtained from State Transport Authority

Note: Nearly 25 per cent of the DTC buses ply on NCR and interstate routes. This means actual numbers in city bus service is 25 per cent less than the total number of buses under stage carriage.

According to information available from the state transport authorities, the number of private standard buses under stage carriage permit is reducing because there are many buses that have completed a life of 10 years are either replaced or are transferred to contract carriage permit that has a legal life of 15 years. In this case the bus owners are given a time period of 4 months to 22 months for replacement of vehicle after which they are presumed 'dead' if replacement of the vehicle does not take place under stage carriage. Sometime, the bus operators do not ply the vehicles or renew permit if they incur losses or their vehicle are not found fit.

Graph 6: Trend in new private bus registration under stage carriage



Source: The graph has been prepared based upon the data obtained from STA and operation statistics of DTC

Similarly, state investments in purchase of new DTC buses have also stagnated after the initial fleet expansion. The total numbers have increased marginally from 3131 in 1999-2000 to 3454 now. It is only now in 2007, that DTC has initiated a tender to buy 700 new buses.

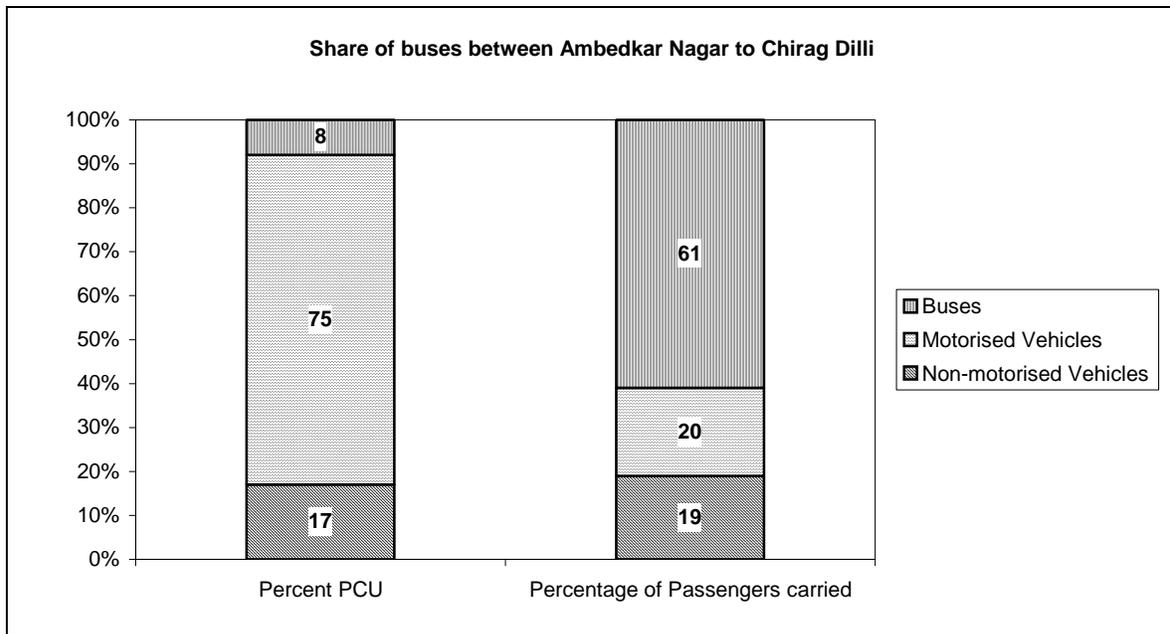
The reason why bus numbers are not increasing is because the Delhi State Transport Authority has also frozen the number of new permits that will be issued for private buses in the city. In addition, DTC has not expanded its fleet. The last big purchase of buses by DTC was in 2000 when it added 2000 buses in its fleet.

In summary, there has been less than marginal growth in the number of buses on the city roads over the last 4 years. During the same period, in comparison, there has been a 100 per cent and more growth in personal vehicles.

3.4. Assessing the role of buses in transporting people in the city

The last detailed modal split survey – an assessment of how people’s travel in the city is split between different modes of transportation – was conducted in early 2000. This data showed that over 60 per cent of the travel demand in the city was met by buses (see graph 3). The April 2006 a short duration spot survey in one stretch of the proposed High Capacity Bus corridor found that this trend has continued till date. Buses still transported over 60 per cent of the people, while cars, which occupied more than 75 per cent of the road space, transported less than 20 per cent of the people. Bicycles and other non-motorised forms of transport still moved 19 per cent of the people, occupying 17 per cent of the road space (see graph 7: share of buses at Ambedkar Nagar stretch of road).

Graph 7: Share of buses between Ambedkar Nagar to Chirag Dilli



Source: RITES presentation to EPCA on April 15, 2006 based on joint traffic survey in Ambedkarnagar

The question then is to assess how people travel. This data is not readily available but enquires and assessment made by EPCA shows:

Metro: The website of DMRC says that the metro network of 65.1 km transports over half a million commuters daily (0.5 million).

DTC buses: According to the operational statistics of DTC, the average number of passengers carried per bus per day is 973. The average number of passengers carried by DTC daily within the city is approximately 2.5 million.

Private buses: The 2001 assessment shows that private buses carry 1584 passengers per bus per day. If this is taken as the basis for calculation then private buses transport roughly 6.2 million people per day.

The total number of passengers carried by all buses – DTC and private – each day in the city is approximately 8.7 million. If the metro’s 0.5 million is added, then these transport roughly 9.2 million each day.

In 2003, RITES had estimated that there were 12 million passenger trips per day in the city. But by 2005, RITES estimated roughly 16 million passenger trips per day in the city.

Therefore, even though buses, which transported 8.7 million passengers each day, carried roughly 73 per cent of the city’s people in 2003, Metro, with its 0.5 million commuter’s daily, moved roughly 4 per cent of the city’s people in 2003. As per this estimate, it would become clear that buses and metro taken together transported close to 80 per cent of the city commuters. Cars and two-wheelers, whose number has exploded in the city, moved only 20 per cent of the people.

But by 2005 as passenger trips have increased, the augmentation of mass transit has not kept pace. The problem is compounded by inefficiency and poor maintenance of buses, which means that service is not optimised. This situation demands a quantum jump in the provision of mass transit in the city. While the metro and the high capacity bus system, will undoubtedly great assist in the mobility plan for the city, it will not be enough. The conventional bus, upgraded with new technologies and conveniences, will provide options for people to use, as against personal transport systems.

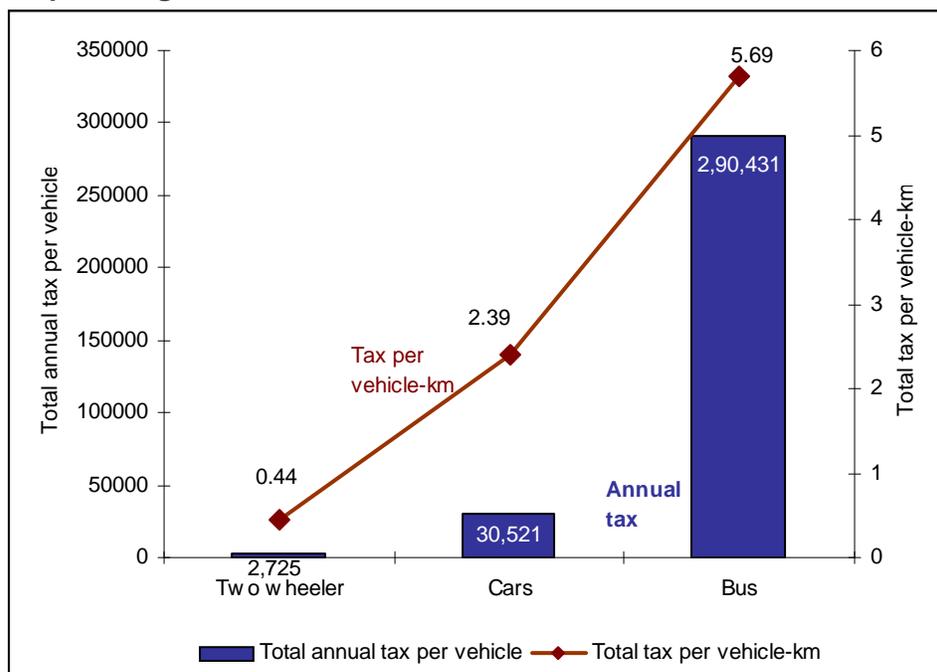
It is also clear that if the numbers of buses was increased substantially in the city, then the travel demand of the two-wheelers and cars could also be shifted to this mode of transport. This strategy is a critical component of the clean air strategy for the city, as already acknowledged by the direction of the Hon'ble Court of July 1998. Furthermore, this strategy is cost-effective and easy to implement and even as the other mass transit systems are built and operationalised, it can be put in place.

4. Assessing the economic incentives for buses

It is strange that in our socialist country transportation taxation policies serve the interest of the rich verses the poor. This is clear from the fact that on an average, across the country, buses pay the highest road and passenger taxes as compared to cars or two-wheelers.

A 2004 World Bank estimate shows that the total tax burden per vehicle km is 2.6 times higher for public transport buses than cars in India (see graph 8: Higher tax burden on buses). The study notes that “among passenger vehicles, buses pay the highest taxes on both a vehicle and km basis, which is very unusual”.¹

Graph 8: Higher tax burden on buses



Source: World Bank 2004

In Delhi, while a car pays a one-time road tax while a bus pays an annual road and passenger tax.

The taxes for cars range between Rs 3800 to Rs 7000 depending on the weight of the vehicle. On an average it can be assumed that the car owner pays Rs 5000.00 as a one time, which if computed against the 15 year life of the vehicle, would mean a tax of Rs 333 per year.

As against this, a bus is required to pay Rs 1915 and Rs 280 per passenger per year. The passenger numbers are calculated as 40 seated and 20 standing with an exemption given to 18 passengers. In total the bus then pays tax based on 42 passengers per year, which means that the annual tax is Rs 13,675 for each bus each year.

Clearly, this fiscal policy will need to be urgently reviewed and revised, if transportation by buses and other mass transit systems, catering to large numbers of people, has to be encouraged.

5. Addressing the management imperative

The expansion of the bus fleet poses both institutional and financial challenges. Currently, city bus operations are managed through the state agency, the Delhi Transport Corporation (DTC) and by private sector operators. Both the systems are under severe pressure. The state agency DTC is plagued with inefficiencies, operating losses and poor cost recovery that undermine the quality of the bus service. On the other hand, private bus operators are totally unorganised and incapable of providing efficient, quality and most importantly safe service.

This completely unplanned privatisation has over time attracted small time investors, which today run and operate the city bus service of this mega capital city. It is even difficult to estimate the actual numbers of private bus operators because records maintained by the state transport agency do not provide full details on the identity of the bus owner or operator. The buses also work under a complicated lease and contract system, which means that their registration and ownership passes over many hands.

However, a careful assessment of this highly 'imperfect' and 'inadequate' data indicates that there are numerous operators who own only one bus. It appears that approximately 80 per cent of the 3999 odd individual private buses in the city are owned by single-bus owners.

This is not surprising because current legislations in fact provide for multiplicity of small owners. Under the practiced permit conditions one person cannot own and operate more than five buses. Even registered bus transport companies and cooperatives are allowed to own only up to 10 buses. It is estimated that out of the fleet of city buses, 211 buses are owned in varying numbers by such transport companies as M/s Balaji Services, M/s Ganga Transport Company, M/s City Lifeline, Ruby transport, Shalimar Travels etc. In addition, about 15 buses are registered with various co-operative societies like Mahipalpur, Narela, Delhi Ex-servicemen, Crown etc. The bulk of the buses are then with operators, under the current practice, cannot own more than 5 buses in the fleet.

What is clear is that this situation is designed to create enforcement and management problems in the city. It is clearly inappropriate for a large and efficient city bus service for a city, the size of Delhi.

It is therefore, critical that this current system be revamped and repositioned for efficient management. The private-cooperative or private-corporation model could be developed by which the existing private players could be grouped into a cooperative or merged into larger corporations. This will also require rationalisation of routes so that each player is not competing within the route and creating chaos for commuters.

It is also important to note that in the public bus service the role of the state agency is critical as it provides competition and accountability for private players. As the single largest investor and owner of buses in the city this agency is also expected to bear the future responsibility of further augmentation of the bus programme in the city. Therefore, it is important to chart the institutional reforms that are needed in its structure and operations to revitalize the agency

6. Planning for modern bus technologies and information management systems

It is important for the city to procure buses, which are generation-next. These buses must be modern, fuel and emission efficient and have conveniences that will attract car owners to switch, including air conditioning systems and GPRS tracking systems.

It must be understood that CNG buses which will now be procured for use will be in operation for the next 10 to 15 years. Therefore, efforts must be made so that these buses provide advanced emission control as well as greater in-built safety and reliability. In addition, the bus systems should be integrated with modern tools of tracking like GPRS, so that commuters are kept informed of bus movements in the city. This system is being successfully tried in the city of Indore, where the city bus company is operating buses with centralised tracking and current information system.

7. Assessing the numbers of buses needed in the city

There is no global standard benchmark to compare the adequacy of the bus numbers in the city. The reason is that most global cities consider situations where cars will replace buses and therefore, provide only supplemental transport needs. However, in the case of Indian cities, even rich cities like Delhi, what is clear is that the car has not replaced the bus it has only marginalised the space available for the bus on the road. Therefore, what is clear is that Indian cities will need to develop their own benchmark for numbers of buses required to transport people. This plan must consider that the bus and other forms of public mass transportation will provide viable, convenient and effective alternatives to private transport. The aim must be to cater to the majority passenger travel demand in the city – between 80-90 per cent using this mode.

In Mumbai there are 43 buses per 100,000 people; Kolkata 21 per 100,000 people. In Delhi, with a much weaker public transport network of metro and suburban rail there are 47 buses per 100,000 people. But in all these cities, public transport is falling woefully

short of the demand. Clearly, what is needed is to urgently increase numbers, but to ensure that the service is efficient and is run on modern and convenient buses.

8. Recommendations and directives sought from the Hon'ble Court

What is evident is:

- a. The city added roughly 1000 new personal vehicles each day last year and during the same period it added only 65 buses over the entire year on the roads.
- b. Each DTC bus transports roughly 1000 people each day and each private bus carries roughly 1600 people each day. In comparison a car or two-wheeler carry only 1 to 1.5 people each day.
- c. Clearly, this mismatch will lead to increased numbers of private vehicles on the road, which then adds to pollution and congestion.

Therefore, even as the city rightly plans for mass transportation by metro and other mass transit systems, it desperately needs to upgrade the number of buses on its roads.

Firstly, it needs to become compliant of the 1998 Supreme Court directive for 10,000 buses. It needs to fill the gap of 4000 missing buses immediately.

Secondly, it needs to increase the number, set in 1998 for 2001 population, by adding buses beyond the ordered 10,000 on its roads. Keeping in mind the population increase in the city, it would be important to have an additional 6,000 buses on the roads within the next 2 years.

However, these buses must be technological modern; run on clean fuel, they should run efficiently with revamped management systems and should use modern management and technological tools for better performance. In addition, the attempt should be to run the buses, as far as possible, on dedicated bus-ways, which will increase speed and efficiency.

The following directives to the Delhi government are sought;

1. To become compliant with the July 1998 Supreme Court directive by adding 4,000 buses to the city bus fleet by end 2008. As the need is urgent and the city is fighting against time, with nearly 1000 new private vehicles being added each day leading to congestion and pollution, the schedule should come into force within the next six months, and not wait for the end of the two year period.
2. To add another 6,000 buses by end 2009.
3. To restructure the institutional and management systems of the bus service so that it is both efficient and effective by end 2008.
4. To ensure that the buses that are added to the fleet are technologically modern, run on CNG with efficient emission control systems and provide convenient and preferred travel for commuters.
5. To review and rework current tax policies related to the transportation so as to provide incentives for public transportation and maintain an effective differential in favour of buses as against personal transport.
6. To ensure that the buses on the roads are effectively integrated with other public and mass transportation systems like the metro, rail and proposed light rail systems.
7. To ensure that as far as possible, the buses are provided with dedicated bus-ways, which will increase their efficiency and speed.