

HISTORY, POLITICS AND TECHNOLOGY OF CNG – DIESEL BUS SWITCH IN DELHI

RAKESH MEHTA
CHAIRMAN AND MANAGING DIRECTOR
DELHI TRANSPORT CORPORATION
NEW DELHI 110016

ABSTRACT

The changeover from diesel powered to CNG powered public transport buses was a result of the Public Interest Litigation filed by an environment activist lawyer M.C.Mehta. in the Supreme Court of India. Based on the recommendations of the Environment Pollution (Emission and Control) Authority, set up by the Supreme Court, orders were issued in 1998 for public transport buses to switch over to single fuel mode of CNG by 1st April 2001. Since this was not implemented by the due date, a situation has emerged where politicians, bureaucrats, chassis manufacturers, gas suppliers and governments are indulging in a “blame game” through the fourth estate, both print and electronic. While the sufferings of the common man have increased due to the uncertainty of the fuel to power public transport, the huge debates have put issues of environment and health in relation to air pollution, on top of the agenda of Delhi’s press and television. There has never been a more consistent coverage of the issues involved and the people are involved for the first time in giving vent to their ideas on the issue of Pollution and Public Transport.

This paper reviews the history of the momentous order of the Supreme Court, the way it was implemented and analyses the inter-play of the many factors which impeded its implementation. The complexity of the task involved and the lack of focus among the various agencies in implementing the orders are analysed. The resultant political fall out and the attempt to challenge the Court on the basis of “peoples’ power” are familiar themes in Indian politics. How the Court handled the situation and ensured that its orders are to be taken seriously and its consequences are examined.

The process of decision making in a democratic country is complex. Often the experts are unable to agree and politicians find good fodder in their conflicting statements to push their vote banks and challenge governments. This scenario may not be good for implementing decisions but it has an important spin off by creating awareness of the issues among the people and forces the decision makers to respond and act. There are no quick fix single solutions since the daily lives of millions of commuters are involved. While writing about this issue, the CNG debate is still alive and Supreme Court hearings are going on. The paper concludes by highlighting the key lessons learnt.

HISTORY, POLITICS AND TECHNOLOGY OF CNG – DIESEL BUS SWITCH IN DELHI

**Contributed by RAKESH MEHTA
Chairman and Managing Director
Delhi Transport Corporation
Indraprastha Estate
New Delhi –110002
INDIA
Telephones 00-11-91-3379075
Fax 00-11-91-3715877
E-mail cmddtc@bol.net.in**

INTRODUCTION

The case for CNG started with Delhi having earned the reputation of being the third most polluted city in the world. Public Interest Litigation (PIL) has gained momentum in India with the initiation of “judicial activism” during the tenure of Justice P.N. Bhagawati, former Chief Justice of the Supreme Court of India. A public interest lawyer activist, Mr M.C. Mehta, filed a PIL in 1996, *M.C. MEHTA versus Union of India and Others* (Writ Petition Number 939 of 1996) calling for measures to improve air quality in Delhi in view of the failure of the administration to do anything substantive in the matter. Many hearings were held and the Court has passed orders “realising the urgency and importance of protection and improvement of the environment”^{1 (1)} particularly in relation to vehicular pollution. The Supreme Court heard the matter on various dates and ordered on 28th July 1998 as follows:

1. Augment public transport to 10,000 buses by 1/4/2001
2. Introduce unleaded petrol in NCT Delhi by 1/9/1998
3. Supply pre mix petrol for two stroke engines by 31/12/2000
4. Replace all pre 1990 autos and taxis on clean fuel by 31/3/2000

¹ Order of the Supreme Court of India dated 28th July 1998 in the Public Interest Litigation regarding air pollution filed by M.C. Mehta, an activist lawyer.

5. Financial incentives for post 1990 autos and taxis by 31/3/2001
6. No 8 year old buses to ply except on CNG or clean fuel by 1/4/2001
7. Entire city bus fleet to be converted to CNG by 31/3/2001
8. New Interstate Bus Terminals (ISBTs) to be built at entry points to Delhi by 31/3/2001
9. Indraprastha Gas Limited (IGL) to expand CNG network to 80 supply stations by 31/3/2000
10. Two independent fuel testing stations to be set up by 1/6/1999
11. Automated Inspection and Maintenance set up IMMEDIATELY
12. Comprehensive I&M program to be started by 31/3/2000
13. CPCB to set up new air quality monitoring stations by 1/4/2000
14. Restrict plying of all commercial vehicles to those which are less than 15 years old.

Out of the 14 items ordered by the Supreme Court 8 have been implemented. These relate to items 2,3,4,5,6,10, 13 and 14 listed above. Of the remaining issues which have not been implemented, the most contentious issue relates to the non plying of inter- state buses in the city and construction of new ISBTs, as well as the plying of **entire city bus fleet on single fuel mode of CNG**. The considerations before the Supreme Court in passing such orders was based on the assurances of unlimited availability in the present and the future, of CNG gas. The court ordered the setting up CNG infrastructure to meet the demand. This judicial fiat was not taken seriously by any one till January 2000. It was not considered feasible by the central and state government to introduce the single fuel mode in Delhi. The price difference between CNG (Rs 12.20 per kg) and petrol (Rs 28.75 per litre) made it viable for scooters and taxis to switch to CNG. Financial incentives from the government by way of cheap loans from the Delhi Finance Corporation for replacement of old taxis and scooters hastened the process of induction of CNG vehicles. Currently the numbers of vehicles running on CNG are as follows:

- Taxis and cars : 2000
- Autos (three wheelers) : 30000 (to increase to 50000)
- Buses : 3000 (to increase to 11000)
- Mini Buses : 1200

MAIN ASPECTS OF THE VARIOUS IMPORTANT RECENT HEARINGS OF THE SUPREME COURT:

Various hearings have been held in the Supreme Court and orders have been passed on each of them. The more recent orders which have had an impact on the induction program are as follows:

1. **26th March 2001** - The Court stated “ **We are conscious of the fact that due to lack of effective action taken by the private bus operators as also the governmental authorities, with effect from 1.4.2001, inconvenience is likely to be caused to the commuting public --- , but, this ‘urban chaos’ ---- however is a creation of the administration and the private operators and they have to thank themselves for it**”.² The Court decided to force the reluctant private operators to place CNG buses on road by making the operation of diesel buses conditional to the booking of orders for CNG buses, ignoring the pleas of the private operators that they had no faith in the CNG technology. The date given to book orders was 31st March 2001 to be eligible to get Special Permits from the State Transport Authority, for permission to ply diesel buses up to 30th September 2001. This was later extended to 31st January 2002 by a later order of 18th October 2001.
2. **4th April 2001** - The Court stated that “ **We are distressed at certain reports which have appeared in the print and electronic media, exhibiting defiant attitude on the part of the Delhi Administration to comply with our orders. The attitude, as reflected in the newspapers /electronic media, if correct, is wholly objectionable and not acceptable. ----- we direct the Chief**

² Order of the Supreme Court dated 4th April 2001 in the Public Interest Litigation *M.C. Mehta vs Union of India* relating to air pollution in Delhi.

Secretary , Government of Delhi to place on affidavit the stand of the Delhi government insofar as implementation of the orders of this court are concerned as also about the statements, if any, made by the Chief Minister, and Minister for Transport , government of Delhi, outside the Legislative Assembly as have appeared in the print and electronic media.”³ The Court had almost issued a contempt notice to the government and ordered that there shall be no dilution of its orders.

3. **27th April 2001** – The Court accepts the explanation furnished by the Chief Secretary in his affidavit reaffirming the intention of the government to implement the orders of the Court.
4. **13th September 2001** - The Ministry of Petroleum files an affidavit stating that there is not enough CNG available to provide for the transport requirements of Delhi. This causes consternation in the Court particularly in view of the earlier stand in various affidavits filed by Indrapastha Gas Limited that there is no shortage of CNG. The Court asks the Amicus to convene a meeting of all the concerned to sort out the problem of availability of CNG.
5. **28th September 2001** - the Court reiterated its resolve not to dilute its orders to switch all city bus fleet to CNG despite the position taken by the Federal government that there was not enough CNG to cater to the increased demand. The reasoning of the Court was that the allocation of CNG gas had been made to industrial houses after the orders of the Supreme Court of July 1998 and this was in violation of the Court’s orders. The government was directed to indicate a time schedule for converting the city bus fleet to CNG. They observed that **“Unfortunately, attempts have been made to confuse the entire issue of controlling vehicular pollution and helping environment to a a debate on – “CNG Good or Bad”. It is not disputed by anyone before us that CNG at present is the available clean fuel. Therefore the debate – “CNG Good or Bad” is only an attempt to shift the focus from clean environment to CNG or confuse the entire issue. Those attempting to do so perhaps do not realise their responsibility towards the citizens, who suffer because of vehicular pollution. We are not inclined to take notice of various confusing statements being made by different persons from time to time in this behalf and would contend by saying that “forgive them for they know not what they say”.**⁴
6. **18th October 2001**--- the Court directed the Union government and state government to resolve the difficulties and implement the orders of the Court in letter and spirit. A status report on the phasing out of diesel buses is to be filed in the Supreme Court every four weeks. The date for plying diesel buses on special permits was extended up to 31st January 2002 but the court desired to see the numbers of diesel buses reducing substantially in the status report.

Diesel was seen as the main “culprit” for air pollution, mainly because of the perception in the court’s mind that diesel was being adulterated extensively with kerosene which has substantial subsidy for the use of poor households for cooking purposes. This adulteration would exacerbate pollution and could not be controlled even if the emission standards were enforced.

ACTION TAKEN BY DELHI TRANSPORT CORPORATION :

Between July 1998 and April 2001 (three years) given by the court to switch to single fuel mode of CNG by buses, the following actions were taken by DTC:

1998:

AUGUST: discussions were held with Ashok Leyland and Telco the two manufacturers of bus chassis, to convert the DTC’s existing diesel bus fleet to CNG. Both the companies did not

³ Order of the Supreme Court dated 4th April relating to the Public Interest Litigation *M.C. Mehta vs Union of India* regarding air pollution in Delhi.

⁴ Order of the Supreme Court dated 28th September 2001 regarding the Public Interest Litigation in the case *M.C. Mehta vs Union of India* on air pollution in Delhi.

recommend conversion of diesel engines to CNG and were in favour of new chassis on grounds of safety.

1999:

FEBRUARY: it was decided to place orders for ten new chassis each with Ashok Leyland and Telco. Telco offered lean burn technology whereas Ashok Leyland offered stoichiometric technology.

JUNE: Since DTC had a large fleet of diesel buses, a tender was floated for conversion of buses and ten buses were offered to Rare Fuel Technologies. The approval given to the company by Ministry of Surface Transport for conversion expired in December 1999 and the firm could not get extension of approval for its conversion technology. Hence no more buses were given for conversion apart from 7 buses which were converted by the firm till December 1999. The performance of these buses was not up to the mark and there were questions of servicing and spares.

2000:

FEBRUARY: Ministry of Surface Transport and Highways notified the emission norms for CNG buses in February 2000.

MAY: Ashok Leyland got type approval for its CNG engine in May 2000. A Mission Task Force was set up by Delhi Transport Corporation to coordinate the efforts to match the gas infrastructure, training, spares, and chassis related issues. Seven meetings of the Mission Task Force were held from May 2000 to October 2001.

JUNE: Telco got type approval for its CNG engine in June 2000. Since the conversion technology had failed to give satisfactory result, it was decided to set up a price negotiation committee for new CNG chassis. And the price was finalised. There was huge price difference between the two chassis manufacturers. Telco price was Rupees 11.31 lakhs (US \$25,133) and Ashok Leyland price was Rupees 10.10 lakhs (US \$22,444). Both companies were asked to offer the same lower price and orders were placed for 500 bus chassis on each of the two chassis manufacturers.

NOVEMBER: two global tenders were floated for conversion of buses but were not successful since there was no response from suppliers having the requisite approvals from the Automotive Research Association of India, Pune, which is the certification agency for engines.

DECEMBER: meetings were held with the Bhure Lal Committee. This is the Environment pollution (Prevention and Control) Authority set up by the Supreme Court to assist the Amicus Curie, Mr Harish Salve, on matters of pollution and environment in Delhi. It consists of Bhure Lal (a bureaucrat), Kiran Dhingra (a bureaucrat), Anil Agarwal (chief executive of the NGO Centre for Science and Environment, New Delhi), Jagdish Khattar (Chairman and Managing Director), Maruti Udyog Limited, a prominent vehicle manufacturing company), and Dilip Biswas (Chairman Central Pollution Control Board). This committee was always in favour of CNG on the ground of adulteration of diesel and concluded that the main problem in Delhi was the need to ensure quick reduction of Suspended Particulate Matter which was the main pollutant. The Committee was informed of the measures taken by the Delhi Transport Corporation to induct new CNG buses.

Issues related to the construction of bus bodies were taken up in tandem with the placement of orders for bus chassis. The biggest problem was that the body fabricators in Delhi had been ordered to close their units being polluting units involved in phosphating of the materials used in buses, whereas CNG is not available outside Delhi. Various methods had to be tried including using low bed railway trailers, mounting the chassis on truck trailers, and pulling the chassis by tractors, and even tying the chassis and using one to pull the other until it ran out of gas and then reversing the process! Ultimately the system adopted was to use tractors to pull the chassis and buses even though it took longer time to travel to destinations.

2001:

January: orders were placed for construction of bus bodies with 27 builders spread across India from Jamshedpur to Ahmedabad, Pathankot to Mumbai for construction of 2000 bus bodies. This is the biggest order placed by DTC in its entire history of 27 years. With a fleet of 2120 CNG buses DTC has become the largest CNG city bus fleet operator in the world.

AUGUST: The Supreme Court in its hearings seems to be reviewing its orders since the Government of India now says that there is not enough CNG available for public transport in Delhi because of prior commitments for power and fertiliser industry. Have all the investments made by DTC gone waste? This is a big question in our mind today.

NOVEMBER 2001:

All the 2000 CNG buses have joined the DTC fleet. Action is being taken to reorganise the depots and workshops to have dedicated diesel and CNG depots for inter-state and city operations. A study is being conducted on the performance of CNG buses on Delhi's road conditions. It will be some time before the CNG infrastructure is strengthened and operation of public transport fleet becomes efficient. Currently Delhi Transport Corporation is incurring dead mileage of nearly 13000 kilometers per day since there are only nine CNG filling stations whereas CNG buses are parked in twenty-five depots. Hence many buses have to incur dead mileage to fill up CNG. The kilometerage per day of operation has reduced from 180 kilometers per day to 140 kilometers per day. This is because of the longer time taken to fill up CNG due to lack of appropriate infrastructure.⁵

WAS THERE A DELAY AND IF SO WHO WAS RESPONSIBLE?

Multiple agencies were involved in the task. Central Government (Ministries of Transport, Petroleum, Environment and Law), State government (departments of Transport, Delhi Transport Corporation, Sales Tax), Manufacturers of chassis (Ashok Leyand and Telco), Certification Agencies (Automobile Research Association of India, Vehicle Research and Development Establishment, Indian Institute of Petroleum), manufacturers of cylinders of the required specifications and the Department of Explosives for certification of cylinders, users namely (DTC, Schools, Private bus Operators), Indraprastha Gas Limited and Gas Authority of India for setting up the infrastructure for supply of gas.

This itself indicates how complex was the task of making such a major shift in the fuel mode for the capital. Delhi has a population of 13 million people and 5 million passengers travel by city buses daily. The Court perhaps did not assess the complexity of the task and having passed the orders in July 1998 expected all these agencies to get their act together to implement the Court order. But many were not convinced about the order and the task was stupendous. So for the first two years there not much action and in the third year applications were filed to seek more time which were summarily rejected. Then the Blame Game started which made matters worse. No one was willing to take the lead in the matter. There was lack of perception about the issues involved: for example the Transport Ministry took time to notify the emission norms, the testing agencies were unclear about the certification procedures, the DTC was not clear about the safety of the technology, government was not willing to fund an unproven technology since public funds were involved, the experts like Tata Energy Research Institute and Indian Institute of Technology Delhi had views which were directly opposed to those of Anil Aggarwal, a member of the Bhure Lal Committee. They felt that enough research had not been done to look at the sources of pollution and public transport was being unfairly targeted by the committee and would have adverse long-term consequences on general pollution levels. Some members of the public felt that a pilot project should have been commissioned first

⁵ Action Taken Report filed by the Delhi Transport Corporation in the Supreme Court in the affidavit of V.K.Bhatia dated 21st February 2001 in the Public Interest Litigation *M.C. Mehta vs Union of India* regarding air pollution.

before making it mandatory for all vehicles in Delhi. These issues have yet not been resolved and the debate continues! It can be concluded that the delay cannot be attributed to any single agency and perhaps the absence of a well-defined implementation machinery was the major lacuna in implementation.

CONTROVERSY ON THE AVAILABILITY OF CNG SUPPLY :

The initial allocation of gas for transport in Delhi was 0.15 MMCMD (Million Cubic Meters Per Day) A bus takes on average 60 kg of gas in one filling. The approximate ratios for gas requirement for various types of vehicles are as follows:

- 15 autos == 1 bus
- 4 RTV s == 1bus
- 8 taxis == 1 bus

With the above the total requirement of CNG to cater to the entire demand of gas for those who are plying vehicles and have booked for vehicles as per the orders of the Court has been calculated as 1.8 MMCMD (Million Cubic Meters per Day). The current demand is 0.50 MMCMD which has a poor infrastructure leading to long queues and severe public criticism. The gas pipeline which carries gas to Delhi also caters to industrial units, power plants and fertiliser plants. It is not possible to cut these allocations for public transport. Hence it has become necessary to augment the supply of CNG gas for transport sector. This will take time and hence there is delay in implementing the orders of the Court. The issues raised by the Ministry of Petroleum and Natural Gas are as follows:

- The total initial allocation of gas made to IGL was 0.15 million standard cubic meters per day (MMSCMD). As against this the demand up to August was 0.50 MMSCMD. This is projected to grow to 1.8 MMSCMD. This would entail enhancing the demand for CNG. It is further contended by the Ministry of Petroleum that the output of CNG gas from the oil fields is in the declining phase and is expected to decline gradually. The import of LNG is still in a development phase and would take at least three years and its impact on the price of gas could not be predicted. Hence the plea made by the Ministry of Petroleum was that they are not in a position to make committed supply of gas as per the projections for the demand.
- The inter-ministerial Task Force has recommended the emission norms of Bharat Stage II for commercial vehicles in Delhi in 2001 (same as Euro II)
- The Task Force has recommended emission standards of Euro III for Mega Cities (>100,000) from April 2005
- Low sulphur diesel of 0.05% sulphur should be treated as “clean fuel”. It was contended that there is no such thing as clean fuel since it is directly related to the engine technology as followed in Europe wherein Euro II technology uses 0.05 % (500 PPM) max sulphur; Euro III uses 0.035% (350 ppm) max sulphur ; and Euro IV uses 0.005 % (50 ppm) max sulphur.
- It was also contended that particulate emissions difference using CNG and low sulphur diesel is only 10% and the costs are enormous in comparison both for vehicles run on CNG as well as maintenance costs.
- Many countries like USA, Japan, South Korea, Thailand, use 0.05 % sulphur diesel and many are far behind. Hence the measures taken in Delhi are commensurate with the need to bring down the pollution.
- In view of the realisation that the demand was growing much more than projected, the Ministry informed the Supreme Court that it would only be able to meet the requirement of gas for the existing vehicles and not for the projected growth. It sought a ban on registration of new vehicles under CNG after 30th September 2001. It was committed to supply gas only to the vehicles which had placed firm orders for purchase of new CNG vehicles or had booked for conversions. This changed the entire

scenario for the Supreme Court and it had no option but to review its own judgement. Though the Court took note of the fact that the IGL had all along stated that there was enough gas available to meet even the future demand, the Ministry took the stand that IGL was not competent to make such claims since it was a private company, and the Ministry had never made such a claim in the past. The Ministry took the stand that the directions of the Court had been complied with to clean up the air. These were:-

- Use of low sulphur petrol of 0.05% (500 ppm) ref form 1/4/2000 in National Capital Region from the standard of 0.15 % (1500 ppm)
- Use of 1% max benzene petrol in Delhi ref. 1/11/2000 and in NCR ref. 1/4/2001 from the standard of 5%
- Use of 0.05 % (500 ppm) diesel in Delhi ref. 1/3/2001 from the standard of 0.25 % (2500 ppm)
- Use of 0.05 % (500 ppm) max sulphur diesel in NCR ref. 1/7/2001.
- Mandatory vehicle emission norms for private non commercial vehicles to be Euro II ref 1/4/2001
- Mandatory vehicle emission norms for commercial vehicles to be Euro II as soon as objections are heard.(notification issued)
- Unleaded petrol being supplied in Delhi ref. 1/9/1998
- Promotion of the use of catalytic converters in petrol driven vehicles
- Supply of pre –mix 2-T oil from retail outlets for scooters, to prevent over use of mobil oil. ⁶

The above stance of the Ministry has created a piquant situation. There are many experts who do not agree with the policy of defining the fuel and insist that the emission standards should be enforced and choice of fuel should be left to the market to decide. Various fiscal incentives could be given to encourage clean fuels. By insisting of a single fuel mode the Court was ensuring that technological innovation would not be forthcoming in transport sector.

BLAME GAME AND CNG POLITICS :

The blame game led to politics of the worst kind. The orders of the Supreme Court were passed when the rival BJP was in power in the NCT Delhi. But they had placed orders for purchase of Euro II diesel buses of urban type. When the present government of the Congress took over, they cancelled the order. But there was little done to ensure a coordinated approach towards implementation of the Supreme Court orders. There was a feeling that perhaps the Court was not serious and more time would be given because the stoppage of public transport was unthinkable and the Court could be persuaded to extend the time indefinitely. However three interim applications filed by DTC and transport department in March 2000 seeking more time due to the delay in implementing the orders of the Court were summarily rejected as withdrawn. It was then that the government got serious about the matter and placed orders for buses. But the private operators were not willing to buy the more expensive buses. The price of a diesel bus is Rs 9 lakhs (US \$20,000) whereas that of a CNG bus is Rs 16 lakhs (US \$35,555). ⁽⁸⁾ By March 2000 there was more CNG gas available in the grid than there were takers for it. IGL filed an affidavit in the Court that there was enough CNG to meet the current and future requirements. The DTC was the first transport undertaking which placed orders for 2000 buses and informed the Court. Since the then existing law in the Motor Vehicle Act permitted CNG vehicles to fix their own fares and operate on their own routes without being regulated by the State Transport Authority, many individual transporters booked new CNG buses and started plying their buses. By March 2001 there were 700 such buses on the Delhi roads. Government felt that an unregulated market for buses would create chaos and moved the Central Ministry of Surface Transport

⁶ Information taken from the Affidavit dated 26th April 2001, of Shivraj Singh, Joint Secretary Petroleum, filed on behalf of the Ministry of Petroleum, in the case *M.C. Mehta vs Union of India*, regarding air pollution in Delhi.

to amend the Motor Vehicles Act and remove the relaxation given to green fuels like CNG. A request was made to issue an ordinance but the government decided to bring in a legislation which was passed by Parliament in August 2001. The new law is being implemented now and all CNG bus owners have to apply for permits from the State Transport Authority for plying on specific routes.

When the Court met to hear the matter in March 2001, the government of Delhi came in for severe criticism from the Court and a Contempt notice was filed in the form of a PIL by an advocate B.L.Wadhwa on the ground that criticism of the Court on the issue of CNG by the Chief Minister and Transport Minister involved contempt of the Court. The issue became charged up because the observations on single fuel mode were made in the Assembly and repeated by the press in the news. The Court demanded an apology from the government. It took a tough stand against the reluctance of private operators and ordered that only those transporters who would book new CNG vehicles or place orders for conversion by 31st March 2001 could ply their diesel buses up to 30th September 2001. There was a mad rush for bookings since the Court had given only three days time for completing the bookings and filing affidavits in the court for having done so. They could then be given Special Permits to operate diesel buses up to 30th September 2001.^{7 (9)}

The situation changed dramatically by July 2001. The CNG queues became longer and bus operators including DTC could not get gas after waiting for 8 to 10 hours. The compressors broke down frequently, there were cylinder bursts and one bus caught fire. Then one set of NGOs started speaking to the press against the order of the Supreme Court regarding single fuel mode of CNG for the entire city bus fleet. TERI and IIT Delhi led the charge. Their argument was that the emission should be controlled and fuel should not be decided since it would create inefficiency in the sector. They questioned the technical capability of the Bhure Lal Committee to give single fuel mode recommendations to the Court. The Petroleum Ministry backed out of the claim of IGL that there was unlimited availability of CNG. By the time the Court met on 17th August 2001 the situation had turned, since the Ministry itself claimed that there was not enough CNG. The case was adjourned and the Amicus was given the responsibility to sort out the issue of availability of CNG in the context of the orders of the Court.

The situation is now very fluid and sparks are flying all around. The Fourth Estate is making the most of the news value of the debate. TERI is leading the charge and supporting Ultra Low Sulphur Diesel as a clean fuel. It has published a booklet on the issue and issued press statements. The higher NOX and Hydrocarbons in CNG have been ignored and technology issues have not been addressed. On the other hand the Center for Science and Environment has charged TERI with representing the diesel lobby.⁽¹⁰⁾ It is fully supporting the Court. Anil Agarwal of CSE is a member of the Bhure Lal Committee. The position of the Central Government is going to put the brakes on the issue of single fuel mode. The effort is to somehow provide CNG to those who have made the bookings for CNG vehicles. Since this alone would require massive investments and expansion of the CNG infrastructure, it would take over two years. Hence there would be a need to stagger the induction of CNG vehicles and coordinate the manufacture of the vehicles with the creation of the CNG infrastructure.

ISSUES IN THE DEBATE ON CNG :

There are groups which insist that CNG is not the only Clean Fuel. The Supreme Court in its order of 26th March had opened up the debate by stating that **'During the course of arguments, it was contended before us that low sulphur diesel should be regarded as a clean fuel and buses be permitted to run on that. It is submitted that in some other countries ultra low sulphur diesel**

⁷ Order of the Supreme Court dated 26th March 2001 in the Public Interest Litigation filed by *M.C. Mehta vs Union of India*.

which has sulphur content of not more than 0.001 per cent is now available. We direct the Bhure Lal Committee to examine this question and permit the parties to submit their written representations to the committee in that behalf.”⁸

Tata Energy Research Institute and Indian Institute of Technology Delhi regard City Diesel using Ultra Low Sulphur Diesel (<50 ppm sulphur) as a clean fuel. The Centre for Science and Environment does not consider it as clean a fuel as compared to CNG. The Bhure Lal Committee considered the issue and concluded that no fossil fuel is clean fuel and the issue is one of relativity. Between diesel and CNG, natural gas is cleaner than diesel no matter what the sulphur content is in diesel, it concluded.

The contrasting positions of Tata Energy Research Institute and Centre for Science and Environment on the issue of single fuel mode can be seen in their booklets published during the height of the debate. Tata Energy Research Institute has this to say: “Motorised transport, particularly the use of private transport, continues to pollute Delhi’s air, making it one of the most polluted cities in the world. Clean fuels can be a part of the solution only if there are enough buses on the road to prevent more people from opting for personal transport. What is more pragmatic is to augment the bus fleet and allow it to run on any clean fuel, be it CNG or ULSD, and focus on devising and implementing strategies that can show results quickly.”⁹

The Center for Science and Environment in turn commissioned a study by Frank Dursebeck, Lennart Erlandsson and Christopher Weaver who concluded in their study Status of Implementation of CNG as a Fuel for Urban Buses in Delhi, that,

“We are unanimous in our view that the principal programme elements required to implement the CNG bus programme in Delhi appear to be in place, and that this programme appears poised for outstanding success. This is an accomplishment of which the world will take notice and in which the principal agencies and persons involved can rightly take pride. This programme can serve as an outstanding example for other cities and nations of a successful transition to CNG.”

The Myths addressed by CSE are as follows:

- a) Low Sulphur Diesel is clean fuel: this has been debunked by stating that the technology of particulate traps is still evolving and is not perfected. The low sulphur being used in Europe is 30 ppm sulphur diesel which will take a long time to come to India.
- b) Particulate traps can work with 500 ppm sulphur : this is blatantly wrong and no company making particulate traps is making such claims.
- c) CNG causes cancer: diesel is much more carcinogenic than CNG.
- d) CNG vehicles are not safe: CNG being lighter than air is easily dissipated in case of gas leak. The cylinder technology is well developed.
- e) CNG is experimental and will inhibit better engine technology: the world over city governments are switching over to natural gas vehicles and it enables developing countries to reach Euro IV standards on simple technology.
- f) There is not enough CNG: Gas can be enhanced and the government is inflating the demand.
- g) CNG buses are more expensive: if savings in health costs are included, the cost of CNG bus is lower.

⁸ Order of the Supreme Court dated 26th March 2001 in the Public Interest Litigation filed by M.C.Mehta vs Union of India.

⁹ Tata Energy Research Institute’s Report “ Delhi’s Transport and the Environment – shaken but not stirred” published by TERI Information Dissemination Services, Darbari Seth Block, Habitat Place, Lodhi Road , New Delhi.

- h) CNG hurts the poor the most: there is a need to address the abnormally low tax structure for private vehicles which could be used to subsidise the poor and public transport.
- i) CNG emits more greenhouse gases: this is not proved by facts and research.¹⁰

CONCLUSIONS :

The twists and turns of the CNG debate can be illustrated by two articles written in the press on 20/8/2001. The Times of India wrote: **“ HOLD YOUR BREATH, all’s not fair in the air”** It points out that the public perception on pollution is largely based on visible forms but the relationship between visibility and pollution is complex and there is need to have greater scientific investigation.

On the other hand the Indian Express article written by Anil Agarwal captions : **“ CNG crisis shows how little our politicians really care Smell the air, Minister”**. This article states that the conflict is between public interest and private interest. Since CNG cannot be adulterated there is no money in it, hence the politicians are supporting diesel!

The CNG issue has clearly divided the press, intellectuals, and government into two camps. There is much politics and there is little scientific debate over the issue. **THE DEBATE HAS HEIGHTENED AWARENESS ABOUT THE CAUSES OF AIR POLLUTION THOUGH IT MAY NOT HAVE FOUND A CONCLUSIVE ANSWER.**

The Supreme Court perhaps failed to appreciate the lack of capacity of the different arms of government to cooperate in such a complex task.. Having passed the orders it expected the Central and State governments and the different agencies under them to work determinedly to implement the order. This did not happen. **IMPLEMENTATION ISSUES WERE IGNORED.** In government it is easy to pass orders but in 90% of cases it is extremely difficult to ensure implementation. Perhaps it would have helped if the Supreme Court has constituted a TASK FORCE to ensure the implementation of its order. This TASK FORCE should have reported directly to the Court at regular intervals right from July 1998 about the time frame of implementation and the different actions required to be taken to implement the orders. One of the basic cause of delay was lack of coordination. IGL did not make the necessary investments in time to create the infrastructure since there were few customers. The customers on the other hand were hoping to get relief in the form of low sulphur diesel being allowed by the Court. The manufacturers were not sure of the orders and unable to plan their production schedule.

Issues of cost have not been addressed squarely neither by the Court nor by the government, nor by the intellectuals or the press. These have been raised by the bus operators. The comparative cost of using the diesel version engine technology to give the same type of emissions, as CNG have not been examined. It is not a good policy to replace all the public transport fleet of a company all at once. It means that the company is tied to one type of technology for a decade. The future scenario of bus transport and vehicular pollution standards for a Metro like Delhi with a very high level of vehicle population was never seriously examined to derive policy perspectives. **ALTERNATIVE COSTS OF TECHNOLOGY AND ITS EFFECTS ON AIR POLLUTION WERE NOT SERIOUSLY EXAMINED.**

The entire debate was caught in the diesel versus CNG cycle. Other Alternative Fuels were not considered even though these are being promoted in India. Options like LPG, Electric buses, battery operated options, were not taken into account. One size fits all approach has perhaps created a situation wherein there is no going back but to ensure that the required fuel is made available even by reducing the allocation to other consumers. In due course the strengthening of CNG infrastructure will

¹⁰ Publication dated August 2001 “The Smokescreen of Lies- Myths and facts about CNG” by Centre for Science and Environment, New Delhi.

make this a viable fuel for Delhi. It will enable the city to achieve Euro IV norms without going in for sophisticated technology immediately. In the years to come diesel technology can be developed which can use ultra low sulphur diesel of 30 ppm or less. This will take time and effort. In contrast the CNG technology is not so complex though it is more expensive than the current Euro I diesel engines being used in Delhi today.

There is a strong need to give impetus to strengthen the CNG infrastructure substantially. This is not possible if CNG continues to be dispensed by a public sector monopoly supplier like IGL. There is need to allow other players including private players to set up the CNG infrastructure in Delhi. **ENCOURAGING COMPETITION IN THE SETTING UP OF CNG SUPPLY STATIONS IS REQUIRED.**

The debate shall continue. The transition shall be slow and difficult. There are problems of sturdiness of technology, costs of spare parts, safety and regulation which still need to be addressed. It may take some years before the CNG engine technology stabilises in Delhi's road conditions. But in the current circumstances, it is the best option available. Yet it is not wise to close all other clean fuel options in the future.

One of the outcomes of the U turn taken by the Ministry of Petroleum on the availability of CNG is that the Court has reinterpreted its orders on single fuel mode and characterised different types of vehicles using specific fuels as permissible to ply in Delhi. This gives the impression that the "clean fuel" is defined by the vehicle which uses it! For example:

- For three wheeler autos use of Low benzene petrol is permitted apart from CNG as clarified by the Court in its order dated 18th September 2001 **"We, however, wish to clarify that there is no order made by this Court which either compels conversions of autos or taxis to CNG single fuel mode or prohibits the use of Euro II norms taxis or four stroke engines on clean fuel"**.¹¹
- For taxis the use of Euro II engines running on diesel using 500 ppm sulphur is permitted.
- Government vehicles and hospital ambulances are also exempted from the order of the Court.
- There are nearly 20,000 trucks which enter Delhi either to drop cargo or ply through Delhi to reach other destinations. Even though the Court has expressed concern on this, yet it has not been possible to check the entry of such vehicles into Delhi, in the absence of roads to by pass the trucks and prevent them from entering the Capital.

The issue of type of fuel and its effect on air pollution has clouded the linkage between engine technology and fuel. Efficient burning of fuel creates the conditions for cleaner exhaust gases and this needs efficient engines. The manufacturers of chassis have got away cheaply since they have not given any commitment on improving the engine technology in the future.

The rejection of the diesel option due to adulteration has brought the oil companies into disrepute and they have launched a media offensive to promote their "clean image".

Experts continue to be divided into CNG and diesel camps and have strong views on the subject. Both have merit in what they say and the debate promises to continue despite the order of the Supreme Court. Though the Supreme Court had distanced itself from the debate, but it concluded that CNG is the best option available in the given circumstances of the need to rapidly reduce suspended particulate matter.

In view of the above situation, it appears that the public transport buses have been the target of conversion to single fuel mode of CNG. This has created disaffection among the private bus owners who feel that they have been made the victims of higher cost of technology, whereas the cause of air pollution from other vehicular sources has not been addressed.

¹¹ Order of the Supreme Court of India of 18th September 2001 in the Public Interest Litigation case of air pollution in case *M.C. Mehta vs Union of India*.

The Chief Justice Anand has retired and the bench has been reconstituted with Justice Kirpal heading the bench. He has been involved with the case from the beginning and we can hope to see a close monitoring of the orders of the Court. Perhaps the unfinished agenda of cleaning up the polluted air in Delhi, will be pursued further by addressing issues of trucks, government vehicles, reducing the sulphur content of diesel for the future and creating a viable CNG infrastructure for Delhi.

REFERENCES :

1. Mehta, M. C. vs Union of India. Supreme Court orders in case Case Number 939 of 1996; orders dated 28th July 1998, 26th March 2001, 4th April 2001, 27th April 2001, 28th September 2001, 18th October 2001.
2. Sharma, Rajeev. Affidavit filed by Indraprastha Gas Limited dated 22nd March 2001 regarding availability of CNG.
3. Singh, Shivraj. Affidavit filed by Union Ministry of Petroleum and Natural Gas dated 26th April 2001.
4. Singh, Shivraj. Affidavit filed by Union Ministry of Petroleum and Natural Gas dated 13th September 2001 regarding availability of CNG.
5. Bhatia, V.K. Affidavit filed by Delhi Transport Corporation dated 21st February 2001 giving action taken.
6. Bhatia, V.K. Affidavit filed by Delhi Transport Corporation dated 9th August 2001.
7. Agarwal, Anil, and Sunita Narain. The Smoke screen of lies, myths and facts about CNG, Centre for Science and Environment, New Delhi 2001.
8. Dursbeck, Frank, Lennart Erla ndsson, and Christopher Weaver. Status of implementation of CNG as a fuel for urban buses in Delhi, for Centre for Science and Environment, New Delhi 2001.
9. Pachauri, R.K. Delhi's Transport and the Environment – shaken but not stirred. Report of Tata Energy Research Institute on fuel choice for Delhi undated.
10. Article in Times of India dated 20.8.2001, Hold your breath, all's not fair in the air, by Singh, Sangeeta and Seth, Neha.
11. Article in Indian Express dated 20.8.2001, Smell the Air Minister, by Agarwal, Anil.
12. Agarwal, Anil. Down to Earth issue on CNG dated September 30 2001 “ This is clean my lords”.
