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VEHICULAR POLLUTION:
CONTROLS AND
JUDICIAL RESPONSES

The problem of vehicular pollution has become one of the greatest causes of concern to everyone in the present world. It is estimated that vehicles contribute 45% of world's pollution load\(^1\). However, the proportion of pollutants varies with the type of engine\(^2\), speed, maintenance and operating efficiency. Vehicles are considered to be the main source of air pollution in India, especially in the urban areas\(^3\). Substantial rise in the number of vehicles in big cities have made them choked cities\(^4\). Added to this, road-based passenger transport in India has recorded high growth since 1980\(^5\). The slow growth of road infrastructure and high growth of transport performance and number of vehicles all imply that Indian roads are fast reaching a saturation point in utilizing the existing capacities\(^6\). This has opened the way for a major public health hazard in the form of vehicular pollution, which warrants a comprehensive review of the existing regulations and control mechanisms in the arena, so as to make suggestions for the future.

\(^2\) There is evidence that diesel engines are less polluting than petrol engines if its ignition is properly adjusted and maintained. See Khushoo, T.N. (Ed.), "Environment and Transport", in *Environmental Concerns and Strategies*, Ashish Publishing House, New Delhi(1998), p.38.
\(^4\) "Calcutta Air Pollution Alarming High" *The Times of India*, September 9, 2000, p.7.
\(^5\) Roads accounted for 44.8 billion passenger kilometer (PKM) in 1951, which had grown to 251.5 billion passenger kilometer in 1996. In contrast, the total road network increased only 8 times from 0.4 million kms in 1950-1951 to 3.3 million kms in 1995-1996. For details, see *supra*, n. 3 at p.8.
\(^6\) Ibid.
High Density of Vehicles—The Main Cause

High vehicle density is mainly known as the curse of the Indian urban centers. The number of motor vehicles in India has increased from 0.3 million in 1951 to 37.2 million in 1997. Out of these, 32% are concentrated in 22 metropolitan cities. Delhi itself accounts for about 8% of the total registered vehicles and has more registered vehicles than those in the other 3 metros (Mumbai, Calcutta, and Chennai) taken together. At the All India level, the percentage of two wheeled vehicles in the total number of motor vehicles increased from 9% in 1951 to 69% in 1997. Out of the total number of registered vehicles, personal transport vehicles constituted 78.5% of the vehicle population. The drastic increase in the number of vehicles has resulted in significant increase in the emission load of various pollutants, which contaminate the atmosphere and become injurious to human beings and the comfortable enjoyment of life. As a result, the capacity of the atmosphere to dilute the pollutants gets overburdened, leading to air pollution. In areas of high vehicle density, temperature inversion conditions also results in

8 Handbook on Transport Statistics in India, supra, n.3 at p.10. In Delhi, Automobiles account for 64 per cent of the air pollution. As on March 31, 1982, Delhi had a total number of 5,92,584 vehicles of which 65% were two-wheelers, 3.5% were three-wheelers, 25% cars, jeeps and other medium size vehicles and 1.5% were buses and the remaining 7% were goods carriers. However, in 1999 the vehicular population rose to a whopping figure of 13.5 lakhs, which means that within about 8 years there has been an increase of about 8 lakhs of vehicles in Delhi which would work out to an addition of about 1 lakh every year. Two wheelers and three wheelers contribute 60 per cent of the total emission of carbon monoxide (CO) and about 80 per cent of total hydrocarbons. See also, Report of the Monitoring Committee on ambient and automotive emission levels set up for examining the impact of surface transport on air environment of Delhi, as cited in M.C. Mehta v. Union of India, (1991) 2 S.C.C. 353 at pp.356-357.
9 In Delhi, out of the daily pollution load, the share of the transport sector has increased from 64% in 1991 to 67% in 1997 and during this period the daily pollution load increased from 1450 tonnes to 3000 metric tonnes. For details, see the White Paper on Pollution in Delhi with An Action Plan, Ministry of Environment and Forest, Government of India, New Delhi (1998) at p.67.
10 It is also estimated that carbon monoxide and hydro carbons account for 64% and 23%, respectively, of the total emission load due to vehicles in 12 metropolitan cities. For further information, see “Air Pollution and Its Control”, 2(1)Parivesh Newsletter, Central Pollution Control Board, New Delhi (June, 1995), p.20.
photochemical smog causing ill-health effects. Among many factors that contribute to air pollution, for these reasons, vehicular pollution is regarded as the primary source and that its impact is widespread.

It is found that slow speed of vehicles five to ten Km/ph during peak hours will increase the emission rate of atmospheric pollution. Vehicular movement also contributes to the total emission load by formation of roadside air borne dust. The level of air quality assessed at traffic intersections in the country reveals alarming rate of respirable particulate matter. Similarly, carbon monoxide levels also remained higher than the prescribed permissible limit in these areas. Older vehicles are predominant in vehicle vintage. There is predominance of two stroke two wheelers, adulteration of fuel and fuel products, improper traffic management system and chaotic road conditions. There is absence of effective mass rapid transport system and intra-city railway networks. High population exodus to urban centers also aggravates the problem. These are the general characteristic features of traffic intersections of any city in India. It is true that advanced manufacturing techniques have considerably reduced emission from automobiles. However, the benefits are upset by the rapid increase in the number of vehicles.

**State of Kerala as an Example**

The State of Environment Report, Kerala 2005 has identified vehicles as mainly responsible for the deterioration of air quality in Kerala. The ever increasing use of fossil fuel in transportation is also found as adversely affecting air quality. It is estimated that there are 25 lakh licensed vehicles on Kerala roads, whereas the length of the

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13 A Joint Study by the National Cancer Institute and the University of Calcutta has revealed that smog or grossly polluted air of megapolis has caused ailments among school children such as adverse lung reactions and genetic abnormalities in their exposed tissues.

14 Air quality monitoring conducted at different traffic intersections in Delhi revealed that the respirable particulate matter was excessively high at all the monitoring locations.


16 Published by the Kerala State Council for Science, Technology and Environment.
carriage way is 21,347 Km. Kerala recorded an astonishing increase of 2000 per cent in the number of vehicles during the 1975-2002 period. The number of vehicles on Kerala roads rose from 1,19,720 in 1975 to 23,15,372 in 2002. At the same time, the rate of increase in road length was just 44 per cent during this period. The road length only reached 21,347 Km. from 14,870 of 1975. Kochi, Thiruvananthapuram and Kozhikode account for nearly 40 per cent of the vehicles registered in the State. It is found that personal transport vehicles constitute 72 per cent of the vehicle population in the State. Scooters and motorcycles accounted for 77 per cent of the personal transport vehicles. According to the official figures, there are 4,46,959 vehicles in Kochi, followed by 3,50,455 in Thiruvananthapuram and 2,07,117 in Kozhikode. Wayanad has the least number of vehicle population, i.e. 33,550. The Report highlights that the ambient air quality of Ernakulam has been adversely affected by the presence of maximum number of vehicles.

**Poor Maintenance of Roads and Vehicles: Another Major Reason**

The problem of air pollution from motor vehicles is posing a serious challenge to the administration, town planners and the enforcement agencies. Among the several causes, improper maintenance of vehicles is a major cause for the alarming rate of pollutant emissions. Very often, it is seen that vehicles are not properly checked by the supervisors on receipt of driver's complaint. The increase in transport demand and the number of vehicles is not balanced equitably against the increase in maintenance facilities. The vehicles use to emit heavy black smoke due to lack of proper maintenance. The poor upkeep of roads results in poor conditions of vehicles leading to high rate of pollutant emission. The anxiety for laying more and more roads has resulted in the accumulation of the deficiencies in the existing network like missing links, missing major

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17 "Vehicular Pollution in India; Let Polluters Pay", available at www.ignon.ac.in, accessed on March 2, 2008.
bridges and absence of sufficient strength of road crust to bear the increasing traffic. Large proportions of over aged vehicles, extensive overloading and increasing traffic jams are also responsible for automobile pollution in India. The vehicles are not generally replaced on their due dates and they continue to be operated. An over aged vehicle need more maintenance and also releases more smoke and noise. The overloading due to the nature of transport demand and frequent traffic jams in cities, have multiplied the problem of automobile pollution, also leading to public annoyance and nuisance.

**Health Hazards of Vehicular Pollution**

The worst thing about vehicular pollution is that it cannot be avoided as the vehicular emissions are emitted at the near-ground level where one breathes. Particulates emitted by motor vehicles pose serious hazard to the health of human beings, animals and plants and also to the longevity of structures and properties. In the process of combustion of fuel, vehicles discharge into air pollutants such as carbon monoxide, unburnt hydrocarbon, oxides of sulphur, inorganic lead, and particulate matters which have deleterious effects on human beings. These gaseous components cause burning of eye, nose and throat irritation. Chronic pulmonary diseases like bronchitis and asthma are aggravated due to vehicular pollution. Carbon monoxide found in the smoke is toxic due to its ability to react with haemoglobin in blood which in turn forms carbon haemoglobin. Consequently, it results in reduction of the oxygen carrying capacity of blood and thereby causes injury to vital organs in the body. It also increases stress on those suffering from cardiovascular and pulmonary diseases. Policemen, traders, shop 

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19 Sangal, P.S., “Air Pollution by Motor Vehicles-A Strategy for Control” in Gerg Biswal and Tiwana(Eds.), *Environmental Pollution and Control*, p.50.

20 Khushoo, T.N., *supra*, n.2 at p.43.
keepers and others who stay for long periods of time along traffic areas are generally affected. Dizziness, headache, reduced visibility and loss of consciousness are the main symptoms of carbon monoxide. Certain heavy metals like lead, emitted by the motor vehicles may enter the human body through lungs and cause poisoning. The main source of lead in urban atmosphere is the vehicles. Inorganic lead acts as an agent of health disaster and it causes various human health disorders, abnormalities, gastrointestinal damage, liver and kidney damage and infertility. It also affects the mental health of children.

Legal Control of Vehicular Pollution in India

The maiden legislative attempt to control vehicular pollution in India can be found in the Air Act, 1981. This was followed by the Motor Vehicles Act, 1988 and the rules made thereunder.

i) Air (Prevention and Control of Pollution) Act, 1981

In India, pollution due to vehicles is primarily intended to be controlled through changes in the design and installation of suitable components right at the time of manufacture of the vehicle. Under Section 20 of the Air Act, State Government is under an obligation to give such instructions to the authorities in charge of registration of motor vehicles as are necessary to ensure compliance with the standards fixed by State Pollution Control Board regarding emission of air pollutants from automobiles. The above provision is intended to ensure that no vehicle which does not meet such requirements shall be on the road. In relatively more high polluted and high traffic intensity regions, pollution due to vehicles can be controlled by

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restricting the use of certain types of fuel\textsuperscript{24}. Petrol mixed with lead could be banned or in extreme cases a ban on petrol driven or diesel driven vehicles can be imposed within certain area. The Air Act does not envisage compliance of emission standards by an individual automobile or grant of consent or prosecution under the Act in case particular automobile is not meeting the standards except those matters generally covered under Section 22 where essentially all types of emissions are covered\textsuperscript{25}. However, the Act authorizes Government in consultation with the Board to instruct the transport authorities for developing expertise by making vehicular pollution survey covering all ramifications.

\textbf{ii) Motor Vehicles Act, 1988}

The Motor Vehicles Act, 1988 prescribes measures for upgrading the quality of motor vehicles and abatement of vehicular pollution. It also contains provisions for emission checking, prosecution steps and action for cancellation of registration as methods to regulate and control air pollution. Under the Act, the critical components of motor vehicles shall conform to the prescribed standards and specifications\textsuperscript{26}. Certificate of registration for non-transport vehicles is to be renewed only after the issuance of fitness certificate by the competent authority\textsuperscript{27}. The authorized testing stations are to be equipped with modern equipments with a view to ensuring quality of maintenance of motor vehicles and they are also empowered to issue fitness certificate, in addition to the office of transport department\textsuperscript{28}. Compulsory inspection of vehicles relating to mechanical defects is required before registration\textsuperscript{29}. The authority has power to prescribe the age limit of motor vehicles to eliminate

\textsuperscript{24} Id. S.19(3).
\textsuperscript{26} Motor Vehicles Act, 1988, S.110.
\textsuperscript{27} Id. S. 42.
\textsuperscript{28} Id. S.56.
\textsuperscript{29} Id. S. 44.
vehicles causing air and noise pollutions\textsuperscript{30}. The law further prescribes that the periodicity of fitness of transport vehicles should be uniform throughout the country\textsuperscript{31}. Quite apart from that, the Central Government reserves the rule making power regarding safety belt, inbuilt safety arrangements, standards of components, standards of emissions of air pollutants and noise and loaded goods vehicles to off-roads the excess goods before proceeding further\textsuperscript{32}. The State Government is empowered to frame rules for the upkeep of motor vehicles in its jurisdiction\textsuperscript{33}.

\textbf{iii) Motor Vehicles Rules, 1989}

Rules have been incorporated in the Central Motor Vehicles Rules, 1989, taking cue from Section 20 of the Air(Prevention and Control of Pollution) Act, 1981. Rule 115 of the Rules provides for fixation of standards for emission of smoke, vapour etc. from motor vehicles and directs that "every motor vehicle shall be manufactured and maintained in such condition and shall be so driven that smoke, visible vapour, grit, sparks, ashes, cinders or oily substance do not emit therefrom". Rule 115(2) of the Rules says that on and from the date of commencement of the Rule, every motor vehicle shall comply with the standards laid down therein.

Rule 116 of the Rules provides for adoption of tests for smoke as well as carbon monoxide level emitted from motor vehicles. It also empowers Officers not below the rank of Sub Inspector of Police or Inspectors of motor vehicles to take action against drivers of those vehicles which emit smoke and/or other substances in excess of the emission limit\textsuperscript{34}.

\textsuperscript{30} Id. S. 59.
\textsuperscript{31} Id. S. 56.
\textsuperscript{32} Id. S. 110.
\textsuperscript{33} Motor Vehicles Act, 1939, Ss. 20, 21(J), 41, 70, 90.
\textsuperscript{34} Central Motor Vehicles Rules, 1989, R.116 reads:
"116. Test for smoke emission level and carbon monoxide level for motor vehicles-(1) officer not below the rank of a Sub Inspector of Police or an Inspector of motor vehicles, who has reason to
Administrative Measures to Control Vehicular Pollution

Time and again, Government has been taking various measures to mitigate emissions from transport sector. However, much of the concern went focused in laying emission norms, fuel quality, inspection and maintenance, and towards phasing out the old vehicles.

1. Stringent Emission Norms

The mass emission standards for new vehicles had been first notified by the Government of India in the year 1991. Stringent emission norms along with fuel quality specifications were also laid down in 1996 and 2000. Euro-I norms were made applicable in the country from 1 April 2000 and Euro-II norms from 1 April 2005 all over India35.

2. Cleaner Fuel Quality

To conform to the stringent emission norms, it is imperative that both fuel specification and engine technologies go hand in hand. Fuel quality specifications have been laid down by the BIS for gasoline and diesel for the period 2000-2005 for Delhi and beyond 2005 for the country36. Considering the increased usage of diesel in
the country, it was felt expedient and necessary to reduce its sulphur content. For gasoline, lead has been phased out in the entire country with effect from February 1, 2000. Similarly, steps are on the anvil to reduce the benzene content. It has been decided that gasoline with 1% benzene is to be supplied to the whole of the NCT region by 1 October, 2000 and later on the above prescription is to be extended to other parts of the country.  

3. Inspection and Maintenance

The first and most important regulatory step at the governmental level towards emission control for the large in-use fleet of vehicles was the formulation of an inspection and maintenance system. Estimates show that it is possible to reduce 30-40% pollution loads generated by vehicles through proper periodical inspections and maintenance of vehicles. Inspection and maintenance measures for in-use vehicles are essential compliment to emission standards for new vehicles. But in India, the existing mechanism of inspections and maintenance is inadequate and still remains in the rudimentary form. Thus, there is a great need to conduct effective periodic inspections and maintenance programmes at the governmental level, to serve as an effective channel of regulation on fuel quality and compliance of emission standards.

4. Other Measures

There were other measures formulated at administrative level for ensuring clean fuel quality. As part of such attempt, on 1st April

38 Ibid.
40 However, what was lacking is that fuel policies were not accompanied by other policies that ensure that use of public transport did not decrease. The disruptions caused, increased cost of operations, increased fares in public transport appear to have led to shift from bus use to pooled car use and private vans for school children and others. See, D. Mohan, “Transportation Research and Injury Prevention Programme”, IIT, Delhi; Mohan, D., “CNG-A Big Mistake?” Economic Times, 16 April, 2002.
1999, the specifications for 2T oil became effective. In order to prevent the use of 2T oil in excess of the required quantity, premixed 2T oil dispensers have been installed in all gasoline stations of Delhi. Similarly, measures were taken to impose ban on commercial vehicles of more than 15 years old, ban the registration of new auto-rickshaws with front engine, replacement of all pre-1999 autos and taxis with new vehicles using clean fuels and for the removal of 8 year old buses unless they use CNG or some other clean fuel⁴¹.

**Prevailing Issues in Administrative Measures**

There are certain issues confronted by the Government in their administrative attempt to curb the menace of vehicular pollution. These issues make their role meaningless or rather obstruct the diligent performance of their functions. The major noticeable issues exist in the form of policy gaps and information gaps.

(a) Policy Gaps

There is a need to strengthen prevention based environmental policy. Issues such as cleaner technology and land use planning incorporating environmental considerations need to be given priority. At present there is no system to assess properly the effectiveness and impact of various policy measures. There is notable absence of separate transport policy at national and state levels. Further, there is no well defined policy to promote private participation in public transport. Added to this, there is also lack of co-ordination between various governmental agencies to improve transport services.

(b) Knowledge/Information/Data Gaps

It is a glaring fact that at present, there is clear absence of monitoring at hotspots/traffic intersections, which points to the need

for strengthening monitoring works at hotspots/traffic intersections by establishing new stations and by increasing frequency of monitoring. There is also the need for monitoring additional air quality parameters such as ozone, benzene, dry deposition of sulphates and nitrates. For this, private and community participation is also necessary. That apart, emission factor development should be followed for various activities and that emission load mapping should be done at regular intervals in all urban areas. However, unfortunately these factors are lost sight of at the Governmental level. It is also the long felt need that to strengthen the Governmental initiative, information should be made available on the number of vehicles on road, vehicle usage etc.

Judicial Responses: Activist Role of the Supreme Court

Judiciary's attempt to regulate and control vehicular pollution in India is seen manifested in the approach it has taken in public interest litigations that exposed the serious health hazards arising from vehicular pollution. The response of the court in this arena was characterized by a collaborative approach involving procedural flexibility, interim orders envisaging judicial monitoring and forward-looking relief.

Mehta Cases: Opening of a new Era of Judicial Activism

Mehta cases are known in the legal landscape for having pioneered the legal battle to protect air environment from degradation.

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44 Mr. M.C.Mehta, the famous public interest lawyer and Chairman of the Environment Protection Cell, Delhi has filed series of cases before the Supreme Court aiming at containing vehicular pollution in Delhi and some of which are unreported. For convenience of discussion, the leading Mehta cases are chronologically arranged and referred to as Mehta-I, II, III, IV etc.
on account of vehicular pollution. In *M.C.Mehta*-I\(^5\), a public interest litigation was filed in the Supreme Court against the pollution in Delhi\(^6\) caused by increasing number of petrol and diesel driven vehicles. The Supreme Court directed the Delhi Administration to furnish a complete list of prosecution launched against the heavy vehicles, for causing pollution by infringement of various requirements of law. It was also directed to furnish particulars of the vehicles, registration of which was suspended and to further indicate the follow-up action taken after suspension\(^7\).

**Mehta II—A Step Forward**

A step forward to combat the growing menace of vehicular pollution of the city of Delhi was seen projected in the approach adopted by the Supreme Court again in *Mehta-II case*\(^8\). In this case, the petitioner\(^9\) drew the attention of the Court to the problem of air pollution caused by automobiles and its serious health impacts, particularly on children and the chaotic traffic conditions in Delhi, and their impact on the bodily integrity of the citizens of Delhi. The chief argument advanced in the case was that the existing environmental laws obliged the government to take steps to reduce Delhi's air pollution in the interest of public health. The Court was asked to regulate the air pollution caused by automobiles in the area. The Court realized the necessity to pay immediate attention to the issue and found that "present norms for motor vehicle exhausts are


\(^6\) About 2,000 metric tons of pollutants are released into the atmosphere everyday in Delhi, with vehicular pollution accounting for 64% of the total pollution load. See, *Pollution Statistics, 1993-94*, Central Pollution Control Board, Delhi(1995).

\(^7\) The Court also suggested to the Ministry of Environment that it should carry out experiments with the aid of the device brought out by the National Environment Engineering Research Institute (NEERI), Nagpur, which would reduce the pollution content. If the device is found effective, steps should be taken to ensure that every vehicle manufactured after a particular date, is to have such device as an inbuilt mechanism to reduce the air pollution.

\(^8\) *M.C. Mehta v. Union of India*,(1991) 2 S.C.C.353, per Ranganath Misra, C.J. and M.H.Kania & Kuldip Singh, JJ.

\(^9\) The petitioner filed this case with the support of NEERI amidst reports that Delhi had the dubious distinction of being the fourth most polluted city in the world.
not adequate so as to achieve the necessary reductions in a rapid space of time”.

The Court pointed out that despite the legal and other restrictions mentioned above, which hamper the towns and cities involved in pursuing effective policies aimed at limiting motor vehicle exhausts, some interesting strategies have been thought of which have either led to improvements in themselves or at least stimulated attitudes towards environmental policies. The Court, therefore, constituted a High Power Committee with a retired Supreme Court Judge as Chairman and by including the petitioner also as a member, to make assessment of the technologies available for vehicular pollution control in the world and also the status of technologies available in India for controlling vehicular pollution, to look at the low cost alternatives for operating vehicles at reduced pollution levels in the metropolitan cities of India, to examine the feasibility of measures to reduce/eliminate pollution from motor vehicles both on short-term and long-term basis and to make specific recommendations on the administrative/legal regulations required for implementing the recommendations. The Committee was directed to furnish report once in two months as to the steps taken in the matter and it was further made known that the writ petition shall be deemed to be pending for the purpose of monitoring.

Thus, it can be seen that Mehta-II is one of the first fine attempt of the apex Court to embark upon a process of monitoring in relation to vehicular pollution and the judicial dynamism exhibited by the Court went to the extent of holding, even while disposing of the case, that for the purpose of monitoring, the writ petition will be deemed to be pending, which was certainly an attempt to compel the

50 Court referred to the relative position in Munich and Berlin which offered positive stimulus for the purchase of vehicles fitted with catalytic converters.
51 Justice Saikia.
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authorities to take honest efforts for implementation of the directions or in the alternative face stern action for non-compliance\textsuperscript{52}.

In \textit{Mehta-III}\textsuperscript{53} which is also known as \textit{Concert Yanni} case, the Supreme Court was considering the environmental impact on Taj Mahal due to movement of large number of vehicles in the vicinity during a concert programme called "Yani" which involved, \textit{inter alia}, movement of large number of visitors and vehicles in the 500m zone around the Taj Mahal\textsuperscript{54}. The Court approved the recommendations of the Monitoring Committee which placed severe restrictions on the movement of polluting vehicles in the area and issued directions to the authorities for its due implementation\textsuperscript{55}.

Declining air quality of Delhi arising from vehicular pollution and the chaotic traffic conditions once again drew the attention of the Apex Court in \textit{M.C. Mehta-IV}\textsuperscript{56}. The Court recalled that keeping in view the mandate of Articles 47 and 48A of the Constitution of India, it had issued directions from time to time with a view to tackling the problem arising out of chaotic traffic conditions and vehicular pollution in Delhi. Noting that the directions issued by the Court were not complied with by the authorities still, the Court cautioned and expressed its anguish in the following words:

\textsuperscript{52} The decision is criticized for having restricted the growth of a responsible and independent bureaucracy. See Divan, S., "A Mistake of Judgment", \textit{Down to Earth}, 30 April 1992, p.51. Whatever be the legal debate, it deserves to be noted that people in Delhi could no longer accept "billowing black smoke", a frequent sight, arising from vehicular emissions.


\textsuperscript{54} In this case the Committee constituted to monitor the environmental impact on Taj Mahal due to the \textit{Concert Yanni}, recommended that necessary steps should be taken to regulate the vehicular movement in the 500m zone around the Taj. For long term traffic planning of the area, it was recommended that all the tourist buses/cars/taxis should be parked at the Agra Bus stand, from where the shuttle service for mass transportation using non-polluting vehicles should be introduced. Movement of polluting vehicles should be prohibited and only non-pollution vehicles should be allowed in 500m. zone.

\textsuperscript{55} Taking similar view, in \textit{Ajay Singh Rawat v. Union of India} (1995) 3 S.C.C.266, the Supreme Court directed that the vehicular traffic on the Mall, Nainital has to be reduced and the plying of heavy vehicles should be stopped so that Nainital could regain unsullied beauty and attract tourists.(per A.M.Ahmadi, C.J. and Hansania, Sen, JJ.)

\textsuperscript{56} \textit{M.C. Mehta v. Union of India,} (1998) 6 S.C.C.60. The Bench consisted of Dr.A.S.Anand, B.N.Kirpal and V.N.Khare, JJ.
"When this Court gave those directions it treated it as a legal issue and proceeded to examine the impact of the right flowing from Article 21 of the Constitution of India vis-à-vis decline in environmental quality. Law casts an obligation on the State to improve public health and protect and improve the environment..."57

The Court was critical of the attitude of the Delhi Administration and Union of India for taking the plea of lack of manpower to deal with the growing menace of chaotic traffic and decline in the environmental quality. To ensure compliance with the directions, being an obligation of the State58, the Court considered the desirability of appointing Court Officers to assist the administration to ensure compliance of the court directions, as a supplementary measure for augmenting the efforts of the administration to deal with the acute problem59. The Court also expressed its dissatisfaction towards the non-evolution of policy to tackle the problem of vehicular pollution60.

Mehta-V61 witnessed the changing role assumed by the court as constitutional governors to meet the problem of vehicular pollution. The case highlighted once again the Delhi pollution issue which compelled the Supreme Court to take certain steps and to implement the same within a time frame62. Those steps include restrictions on plying of 15 years old commercial vehicles, restrictions on plying of goods vehicles during the day time, to undertake expansion of

57 Id., p.61.
58 Article 144 of the Constitution provides: "All authorities, civil and judicial, in the territory of India shall, act in aid of the Supreme Court".
59 Counsel for the parties were directed to give a list of persons from every colony/area in each of the 9 Police Districts of Delhi for being considered for appointment as court officers entrusted with the task. The Court also directed the Environment Pollution (Prevention and Control) Authority for the National Capital Region (Bhure Lal Committee) to submit report on the action taken for controlling vehicular pollution and further directed the Ministry of Petroleum and Surface Transport to disclose the steps taken for supply of lead-free petrol and the use of catalytic converter on the new and existing vehicles so as to use lead-free petrol throughout the country.
60 Supra, n. 56 at p.63.
62 The directions were issued taking into account of the fact that in the White Paper published by the Government of India, it was stated that vehicular pollution contributes 70% of the air pollution as compared to 20% in 1970.
Chapter 6 Vehicular Pollution: Controls and Judicial Responses

premixed oil dispensers and to enforce the ban on the supply of loose 2T oils at petrol stations and service garages. The Court also ordered implementation of the measures proposed by Shri Bhure Lal Committee within the time frame fixed\(^{63}\). The directions issued by the Court were essentially in the nature of administrative measures. The Court also cautioned all concerned that failure to abide by any of the aforesaid directions would invite action under the Contempt of Courts Act, 1971 against the defaulters\(^{64}\).

However, when it was brought to the notice of the Court by the Delhi Administration that phasing out and banning all commercial vehicles which are more than 15 years' old by 02-10-1998 would lead to great hardships to the owners of those vehicles in particular and to the general public who makes use of those vehicles, the Court relaxed the rigour of the earlier order permitting the Administration to phase out all such vehicles gradually to ease the pollution level in the city\(^{65}\). The Court granted extension of time for phasing out old commercial/transport vehicles as a measure to mitigate the hardships caused to the vehicle owners and the general public, even while remaining bold in its stand to control chaotic urban traffic conditions and vehicular pollution. The Court became more practical and realistic in its approach than its earlier position.

\(^{63}\) They included augmentation of public transport/stage carriage to 10,000 buses; elimination of leaded petrol from NCT Delhi; supply of only premix petrol in all petrol-filling stations to two-stroke engine vehicles; replacement of all pre-1990 autos and taxis with new vehicles on clean fuels; financial incentives for replacement of all post-1990 autos and taxis with new vehicles on clean fuels; no eight-year old buses to ply except on CNG or other clean fuels; entire city bus fleet to be steadily converted to single-fuel mode on CNG; new ISBTs to be built at entry points in North and South-West to avoid pollution due to entry of inter-State buses; GAIL to expedite and expand from 9 to 80 CNG supply outlets; two independent fuel-testing labs to be established; automated inspection and maintenance facilities to be set up for commercial vehicles in the first phase; immediate comprehensive I/M programme to be started by transport department and private sector; CPCB/DPCC to set up new stations and strengthen existing air-quality monitoring stations for critical pollutants. See, supra, n.61 at p.65; Saikia Committee, 4th Bi-Monthly Report, 1991.

\(^{64}\) Id., p.66.


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Quality Control in Fuel and Miscellaneous Measures

M.C. Mehta-V\textsuperscript{66} evidences the role played by the apex Court towards ensuring quality control in petrol and diesel. In this case, the Court was confronted with the question of supply of lead-free petrol and reduction of sulphur content in diesel. As a measure to abate the hazards arising from lead component in petrol and sulphur content in diesel, the Court approved the three-phased programme of action for introduction of unleaded petrol in the country and use of four wheelers fitted with catalytic converters. To deal with the issue, Court even suggested for enactment of supportive rule or legislation for taking action against the driver/owner of the vehicle found without a catalytic converter and stressed on the necessity to warn the public against the removal of inbuilt catalytic converters from vehicles through awareness programmes by the use of media, television etc. As regards vehicles run on diesel, the Court also shared the view of the Administration that sulphur content reduction has to be observed for reducing it to 0.5%. At a later stage, the Court also constituted an agency for conducting random inspection regarding the quality of petrol and diesel available at the petrol pumps, oil depots and tanker lorries\textsuperscript{67}. It also directed the Governments to check by suitable methods the quality of diesel in the vehicles which are using diesel to ensure that it is with 0.05% sulphur content and directed to take strict action against the defaulters including cancellation of their licence/permits\textsuperscript{68}. Still further, it also directed the Environment Pollution (Prevention and Control) Authority (Bhure Lal Committee) to examine the possibility of use of LPG as an alternate fuel, and if feasible, a plan for its introduction; possibility of steps in the short term to contain the adulteration of fuel by use of kerosene or by any

\textsuperscript{67} M.C. Mehta v. Union of India, (2003) 10 S.C.C. 564, per B.N. Kirpal, V.N. Khare and Ashok Bhan, JJ.
other adulterant; time frame for improved diesel and for moving to Euro-III norms.

In Mehta-VII, also referred to as Delhi Transport Department (Re), the Supreme Court while showing its deep concern for the air pollution in Delhi, held again that "precautionary principle" which is a part of the concept of the "sustainable development", has to be followed by the State Government in controlling air pollution. The Court further reminded that State Government is under a constitutional obligation to control and if necessary to anticipate the causes of pollution and curb the same. The Court expressed the view that restrictions on plying of taxis, three wheelers and other vehicles in the city may be necessary in public interest.

Control of vehicular pollution and protection of the environment is primarily the function of the executive. The legitimacy for judicial interference arises in situations of inaction on the part of the executive. The Court highlighted the legitimacy for judicial interference in Mehta-VIII as follows:

"To control vehicular pollution and protect the environment is primarily the function of the executive. It is their obligation to device suitable measures and provide machinery for rigid enforcement of such measures as are necessary to curb the menace of chaotic traffic conditions and vehicular pollution with a view to ensure the welfare of the general public. The inaction on the part of the executive, however, impelled the Court to issue certain directions from time to time..."72

Proceeding on the above dimension, the Court in this case directed the Delhi and New Delhi Municipal Corporations as well as the Government, PWD and Transport Departments to take steps to ensure that bus-lanes are segregated and road markings are provided on all roads identified for the purpose by the police and transport

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72 Id., p.415, per A.S. Anand, C.J.
It also directed to take steps to construct bus-stops, markings printed and bus-bays built at appropriate places. It also gave series of directions for improving the traffic conditions. 

Diesel—Not a Safe Fuel

The adverse health effects of diesel exhaust particles are more than that of the petrol exhaust. Diesel emissions contain nitrogen oxide and respirable particulate matter. This is brought to light by research studies as well. The justification for alternate sources of fuel gains significance in this context and on consideration of the ill-effects of use of diesel as vehicle fuel.

In cities, private vehicles account for major portion of the vehicle population, majority of which are diesel vehicles. Considering the seriousness of the matter, the Supreme Court in Mehta—IX issued directions mandating all private non-commercial vehicles to

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73 They include, fitting of speed control devices in vehicles limiting the speed limit to 40km/ph, obligation to use the vehicle without offending public safety, buses to confine to the bus-lane, buses to halt only at bus stops designated within the marked area, vehicle to carry identity of the driver duly certified by the RTA, buses used by educational institutions to have drivers with a minimum of 5 years of driving experience of heavy vehicles and to be dressed in a distinctive uniform, etc.

74 The popularity of the diesel engine in heavy duty applications in trucking, railroad, marine transport, DG sets and construction industry is due to both its fuel efficiency and long service relative to the gasoline engine. Compared with gasoline engine, diesel emissions are lower in carbon monoxide, hydrocarbon and carbon dioxide, but higher in oxides of nitrogen and particulate matter. Diesel exhaust is a complex mixture of both particulate and gaseous phase. Diesel exhaust has particulate with mass median diameter of 0.05 to 1.00 micrometre, a size rendering them easily respirable and capable of depositing in the airways and alveoli. The particles consist of a carbonaceous core with a large surface area to which various hydrocarbons are absorbed, including carcinogenic polycyclic aromatic hydrocarbons and nitro—PAHs that have elicited the most concern with respect to human health. The gaseous phase contains various products of combustion and hydrocarbons including some of PAHs present in the particle phase. Once emitted, components of diesel exhaust undergo atmospheric transformation in ways that may be harmful to human health. For example, nitro—PAHs, created by the reaction of directly emitted PAHs with hydroxyl radicals in the atmosphere can be more potent mutagens and carcinogens and more bio-available than their precursors.

75 Research data reveal that 90% of nitrogen oxide and respirable particulate matter from vehicle exhausts is due to diesel emissions. For details, see Bhure Lal Committee Report, 1999.

76 A Study undertaken by a Swedish Consultancy, Ecotraffic(Peter Ahlvik and Ake Branberg) in 1999 shows that the cancer potency of diesel vehicles is two times more than that of petrol vehicles in India. But if only the most harmful of the exhaust emissions, i.e., particulate emission is considered, the carcinogenic effect of new diesel car is equivalent to 24 petrol cars and 84 new CNG cars on the road. See Parivesh, September, 2001, Central Pollution Control Board, New Delhi, as cited in M.C. Mehta v. Union of India, (2002) 4 S.C.C. 356 at p.369.

conform to Euro norms within a time frame and that new vehicles are registered only if they conform to Euro norms and further that ban on diesel-driven taxis be strictly enforced. The Court once again expressed its concern about the effects of vehicular pollution on the health of citizens and the continuing increase in the pollution level in cities. Court emphatically stated that continuing decline in the quality of the environment shows a failure on the part of the authorities to perform their obligations under the constitutional scheme and the mandate of the Environment (Protection) Act, 1986.  

Criticisms have not obstructed the judicial path to provide solace to the common man to abate the public health hazard of vehicular pollution. The Court having found that there is a direct relationship between the quality of fuel and the level of pollution, issued directions for ensuring quality of fuel by reducing the proportion of toxic substance in fuel like sulphur and benzene. Accordingly, the Court directed the Ministry of Petroleum and Natural Gas to provide diesel and petrol with 0.05% sulphur content and petrol with 1% benzene content within a time frame in the national capital region. The Court also called for report on the implementation of the measures mentioned in the White Paper on pollution in Delhi, namely, measures to ban registration of army disposal vehicles, government auctioned vehicles and commercial goods and passenger vehicles used beyond specified lifespan and ban alteration of vehicles by replacing petrol engines with diesel engines.

Towards Clean Fuel

The Supreme Court in *M.C. Mehta-X*, made yet another effort to check the rapid deterioration of air quality in Delhi. The Court while interpreting Section 3 of the Environment (Protection) Act 1986 and Article 21 of Indian Constitution opined that a blanket extension

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73 The Environment (Protection) Act 1986, Ss. 3 & 5.
of deadline cannot be given for conversion of CNG engine\textsuperscript{81}, as that would amount to putting premium on the lapses and inaction of the administration and private transport operators. The Court expressed its displeasure by saying that orders of the court cannot be treated lightly. They are meant to be complied with in letter and spirit. However, in public interest and with a view to mitigating suffering of the commuter in general and the school children in particular, some exemptions were made. The Court granted time extension up to 31-03-2001 to schools, DTC, contract carriage operators, other bus operators and owners of commercial vehicles for which steps for conversion was taken\textsuperscript{82}. It also passed a judgment in rem directing that buses operating in Delhi should not be allowed to ply after 31.03.2001 unless converted into CNG fuel mode\textsuperscript{83}.

Regarding the use of ultra low sulphur diesel (ULSD) in the country which is being used in some developed countries, the Court directed the Bhurelal Committee to examine the issue and submit a report indicating which fuel is a “clean fuel” and does not cause pollution or injury to health. Court declared that its directions earlier given meant to govern the issue has an overriding effect over other statutes occupying the field, as the directions were issued to

\textsuperscript{81} In its earlier order, the Court had ordered the conversion of the entire city bus fleet to CNG by 31\textsuperscript{st} March, 2001.

\textsuperscript{82} CNG is not a complete solution to the problem. Notwithstanding the introduction of CNG programme in Delhi, there is a 21.3\% increase in cases of lung disease, and more than 20\% increase in asthma attacks. According to Mashelkar Committee Report, although a CNG vehicle emits 80\% less particulate matter, 25\% less nitrous oxides and 35\% less hydrocarbons, the output of carbon monoxide, a precursor to green house gases, is over five times greater than that for diesel. And, a CNG vehicle driven for a mile emits 20\% more green house gases than driving a comparable diesel vehicle for a mile. It concludes that from the perspective of global warming, the decision to move from diesel to CNG is a harmful one. Nevertheless, air quality data indicates an increase of 15\% in the levels of NO\textsubscript{2} from 2002, which can be attributed in part to the introduction of CNG programme. For further information, see Leaping Factor: Cleaning the Air in Asian Cities, Centre for Science and Environment, New Delhi(2006).

\textsuperscript{83} It was estimated that the cost of conversion from a diesel to CNG system is Rs.4.5 lakhs, excluding 8\% local tax, see TK Rajalakshmi and V. Venkateswaran, “Commuter’s Crisis”, 18(8) Frontline, April 2001, pp.14-27. Although CNG is an inherently safe fuel, bulk/continuous releases from fuel systems can cause fire, and there is an increased likelihood of this occurring in converted and poorly maintained vehicles. In addition to this, since CNG vehicles are heavier, it attain higher temperatures and require more frequent gear changes than vehicles on conventional fuel and consequently it has worsened conditions for drivers, who suffer from musculo-skeletal, respiratory and neurological disorders. See “DTC drivers hit hard by CNG buses”, The Hindu, 9 January, 2007.
safeguard people's right to health under Article 21. Moreover, the emission norms fixed by the Motor Vehicles Act for diesel vehicles are in addition to and not in derogation of the requirements of Environment (Protection) Act, 1986. For that reason, bus operators complying with the norms fixed by Motor Vehicles Act could not merely for that reason bypass the directions given in the matter by the Court.

This decision is a significant turning point towards protection of public health as it has categorically recognized that directions given by the Court to mitigate the hardships of vehicular pollution have legal sanction, as those directions are given for safeguarding the health of the people, a right provided and protected by Article 21 of the Constitution and therefore, it overrides provisions of every statute. Thus, the Court has articulated two important principles in the above case—(i) right of the public not to be exposed to the hazards of vehicular pollution by treating right to public health as part of the right under Article 21; (ii) orders issued by the Supreme Court for effectuating the right under Article 21 has an overriding effect over every statute. Thus, the Court has accorded supremacy to its directions issued to effectuate fundamental right under Article 21, over statutory legislation. This is an area wherein Supreme Court has utilized the opportunity to emerge as the watchdog of the Constitution and the protector of fundamental rights of the common man.

By such innovative approach, it has even eschewed the possibility of legislative interference to bypass judicial interdictions. Though it may appear to be disturbing the theory of separation of

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84 Justice Chandrachud in State of Rajasthan v. Union of India, (1977) 3 S.C.C. 592 at p.648 noted: "...it is an accepted fact of constitutional interpretation that the content of justiciability changes according to how the Judge's value preferences and respond to the multi-dimensional problems of the day...." The limits of the value preferences are largely self-imposed also.

85 It is pointed out that the decision made court registry to be reduced to perform the duties of a 'Regional Transport Office'. It is also claimed by some that political, social and economic questions are decided as a matter of course by the Indian Supreme Court. See Gadbois, G.H. Jr., "The Supreme Court of India as a Political Institution"; in Rajeev Dhavan et al., (Ed.), Judges and Judicial Power, N.M. Tripathi, Bombay (1985), 250 at p.257.
Chapter 6 Vehicular Pollution: Controls and Judicial Responses

powers\textsuperscript{86}, attempt has to be justified as permissible constitutional encroachment without distorting the source of judicial power. There have been some situations when the activism displayed by the court in arresting vehicular pollution was not seen positively by the Administration, enforcement agencies and the interested parties\textsuperscript{87}.

**Precautionary Approach Enforced as Divine Proclamations**

Judicial process of interpretation has gone to the extent of considering that Articles 39(e), 47 & 48A of the Constitution by themselves and collectively cast a duty on the State to secure the health of the people, improve public health and protect and improve the environment. It was due to the lack of effort on the part of the enforcement agencies, notwithstanding adequate laws being in place that the Supreme Court had been concerned with the problem of vehicular pollution. The quality of air was steadily decreasing and no effective steps were taken by the Administration to redress the malady which compelled the court to interfere in *Mehta-X133* for determining priority to transport sector in allocating CNG.

In the above case, the Court was considering the desirability to give priority to transport sector including private vehicles for allocation of CNG. Taking a positive outlook in the matter the Court reiterated that orders and directions of the court cannot be nullified, modified or altered in any manner by administrative action. Taking

\textsuperscript{86} It is pointed out that there is a persuasive distinction between principle that involves moral rights against the State and policy which involves utilitarian conclusions of public good. The former is the legislative domain of judges and the latter of the legislature and its agents. Therefore, judiciary should exercise caution while entering into policy making area. Dworkin, R., *Taking Rights Seriously*, Harvard University Press, Cambridge (1977), p.22.

\textsuperscript{87} Concerned by the defiant attitude taken by the Delhi Administration in complying with the court order insisting CNG or other clean fuel mode, emotional response was made in the Supreme Court by K.N. Ravel, the then Additional Solicitor General appearing in the case. He said: “As a law officer of the country, I will no longer appear for the Government of Delhi which has decided to act contrary to the orders of the highest court of the land. I will, however, continue to represent the Union of India”. See *M.C. Mehta v. Union of India*, (2001) 3 S.C.C.763 at p.765.

\textsuperscript{88} *M.C. Mehta v. Union of India*, (2002) 4 S.C.C.356 at p.362. Justifying the necessity for interference, the Court in this case observed: “…The concern of the Supreme Court in passing various orders since 1986 has only been one; namely, protect the health of the people of Delhi. It is only with these objectives in mind that directions had been issued in an effort to persuade the governmental authorities to take such steps as would reduce the air pollution…”

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the view that sustainable development is one of the underlying principles of environmental law, Court held that two essential features of such development are the precautionary principle and the polluter pays principle. The Court applied the precautionary principle to curb vehicular pollution and held that permission to use vehicles has environmental implications and thus any ‘auto policy’ framed by the Government must, therefore, of necessity conform to the constitutional principle as well as overriding statutory duties cast upon the Government under the Environment (Protection) Act.

It was also held that the ‘auto policy’ must, therefore, focus upon measures to anticipate, prevent and attack the cause of environmental degradation in the field; in the absence of adequate information, lean in favour of environmental protection by refusing rather than permitting activities likely to be detrimental; adopt the ‘precautionary principle’ and thereby ensure that unless an activity is proved to be environmentally benign in real and practical terms, it is to be presumed to be environmentally harmful; make informed recommendations which balance the needs of transportation with the need to protect the environment and reverse the large-scale degradation that has resulted over the years, priority being given to the environment over economic issues.

Court felt that the emission norms stipulated by the Government have failed to check air pollution, which has grown to dangerous levels across the country. Therefore, to recommend that the role of the Government be limited to specifying norms is a clear abdication of the constitutional and statutory duty cast upon the Government to protect and preserve the environment, and is in the

89 Also see Vellore Citizens’ Welfare Forum v. Union of India, (1996) 5 S.C.C.647, per Kuldip Singh, Faizanuddin and K.Venkataswami, JJ. wherein the Court explained ‘precautionary principle’ as meaning that State Government and the statutory authorities must anticipate, prevent and attack the causes of environmental degradation; where there are threats of serious and irreversible damage, lack of scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation; and that the ‘onus of proof’ is on the actor or the developer to show that his action is environmentally benign.

90 Supra, n.88 at p.365.
teeth of the "precautionary principle". Justifying the necessity for a precautionary approach, the court took stock of the prevailing statistics speaking in volumes of the potential health hazards arising from vehicular pollution91, and pinpointing the culprit as pollution in the ambient air. In the midst of above circumstances, the precautionary principle enshrined in the concept of sustainable development expects the Government and the health authorities to take appropriate action and arrest the growing air pollution. Expressing concern for the urban children exposed to the hazards of vehicular pollution, the Court observed:

"...children do not agitate or hold rallies and therefore, their sound is not heard and the only concern of the Government appears to be is to protect the financial health of the polluters, including the oil companies who by present international desirable standards produce low quality petrol and diesel at the cost of public health...."92

The Court opined that under these circumstances, it becomes the duty of the Court to direct such steps to be taken as are necessary for cleaning the air so that the future generations do not suffer from ill health. In taking the above stand, it was conscious of the fact that vehicular pollution is only one of the causes of air pollution, but at least in metropolitan towns, it is the major source of pollution. Accordingly, the Court directed the Union of India to give priority to the transport sector including private vehicles of the

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91 According to World Bank estimate, the annual health cost to India was up to Rs.5550 crores due to ambient air pollution. The increase in respiratory diseases especially amongst the children should normally be a cause of concern for any responsible Government. A Study conducted on children in Bangalore shows that the incidents of asthma in children rose from 9% in 1979 to 29.5% in 1999 and during the above period, corresponding increase in vehicles was 1.46 lakhs to 12.23 lakhs. Similarly, a Study by Chittaranjan Cancer Institute and Environmental Biological Laboratory of the Department of Zoology of Kolkata University done between November 1997 and May 1999, found that about 43% of the children in Kolkata are suffering from respiratory disorders compared to 14% among the rural children. Alarmingly 94-96% of the children were found producing sputum which would usually be reflective of habitual smokers though only 5.5% of the children were found to be smoking and that too occasionally. For details, see the Indian Journal of Medical Research, July 2000.

92 Supra, n.88 at p.368.
country in the matter of allocation of CNG. In addition to dealing with CNG supply problems, the court is also considering issues related to the pricing of CNG, the next generation of reforms in air pollution control, safety, inspection and maintenance of CNG vehicles and parking policy in Delhi and is also monitoring implementation of the CNG policy in other critically polluted cities in India.

An analysis of the decisions rendered by the Supreme Court in the matter of vehicular pollution, against the benchmarks of participation, equity, effectiveness and sustainability of the outcome/solutions devised makes it palpably evident that the Indian judiciary has made a remarkable contribution by keeping its ear open for the good and noble cause of controlling vehicular pollution. As a result of the intervention by courts, measures have been seen taken in lowering of sulphur content in diesel, first to 0.50% and then to 0.05%; ensuring supply of only lead-free petrol; requiring the fitting of catalytic converters; directing the supply of pre-mix 2T oil for lubrication of engines of two-wheelers and three-wheelers; directing the phasing out of grossly polluting old vehicles; directing the lowering of the benzene content in petrol and in ensuring that new vehicles, petrol and diesel, meet Euro standards. It considered CNG, a fuel that could not be adulterated, as the best option for India. These measures have succeeded in controlling pollution at least to some extent. These were areas wherein legislative standards were absent. Courts have supplemented and augmented and in certain situations substituted for the legislative role. What could be achieved

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93 It also diverted CNG allocated to the industrial sector to the transport sector, for making all diesel city buses to get converted to CNG by the end of 2002, see Order dated 05-04-2002.
94 Order dated 09-03-02.
95 Order dated 11-03-05.
96 Orders dated 05-05-2006 and 29-04-05.
97 Order dated 05-05-06.
98 However, it requires to be pointed out that today, the gains from the court-ordered conversion to CNG are being offset by the increase in the number of private vehicles in Delhi as well as the increase in the dieselization of the private car fleet, leading to other problems like steady rise in nitrogen dioxide emissions.
99 Since fuel adulteration is rampant in India, but often difficult to detect.
through legislation in western countries to curb vehicular pollution have been achieved in our country through judicial contribution or rather by the magical wand of judicial activism by way of public interest litigation mostly through Mehta cases. Courts have also not allowed the statutory authorities to abdicate their functions and went after them through continuous monitoring to ensure discharge of the statutory duties. In a way the approach of the judiciary has been commendable and it has filled the gaps in the existing legislation. It is submitted that from the analysis of the above cases it becomes evident that the courts in India are not functioning merely as the agents of justice but also they are alive to the new socio-economic problems like vehicular pollution. The courts in India have been playing a pivotal role by chiseling new strategies towards development and environment planning and for protecting public health and they have been functioning on the guiding principle of sustainable development.

**Law Alone Cannot Offer Lasting Solutions**

Even though the monitoring task adverted to by the Court appears to be laudable, Court failed to consider that law alone cannot help in restoring a balance in the biospheric disturbance arising from vehicular pollution. For that matter, funds also cannot help effectively. The situation requires a clear perception and imaginative planning. It also requires sustained effort and result oriented strategic action. Campaign for general awakening of the people using vehicles of different classifications and among the people inhabiting the city regions is the indispensable preliminary. All persons using vehicles should have a fair knowledge of the baneful effect it produces on the community on account of the emission from such vehicles. Until that is done in an effective way the appropriate attitude would not develop and co-operation for reducing pollution

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would not emerge\textsuperscript{101}. However, unfortunately nothing was included in the judgments rendered in vehicular pollution cases for the governance of the authorities drawing the need for evolving a clear perception and imaginative planning striking a balance in the biosphere on the use of the vehicles and for creating awareness among the public of the hazardous effect of automobile exhausts on urban life. Considering the obligation arising from the Stockholm Declaration and the statutory provisions in force to control vehicular emissions, such a course should have been adopted by the Supreme Court to make its approach meaningful and effective and to solicit public co-operation for enforcement of statutory prescriptions.

**High Courts Also Take Activist Role**

The Kerala High Court in *Murali Purushothaman v. Union of India*\textsuperscript{102} appears to have responded to the clarion call of the people to be protected from the hazards of vehicular pollution. Court strikingly observed that vehicles are one of the chief sources of air pollution in the country. Vehicles pump out billows of carbon monoxide, hydrocarbons, and nitrogen oxides into the air by burning gasoline. Pointing out that the problem of air pollution through vehicles plying on the roads in Kerala has been gradually snowballing into a dimension of threat to life, the Court observed:

"Human life is far more important than vehicular traffic. The pristine adage that "Rules are for men and not men are for rules" assumes contemporary relevance particularly in the area of environmental cleanliness. No authority, not even the State can be permitted to bide time without enforcing whatever provision is available and without exercising whatever power is commandable to protect human life"\textsuperscript{103}.


\textsuperscript{102} A.I.R. 1993 Ker. 297.

\textsuperscript{103} *Id.*, p.300, *per* K.T. Thomas, J.
The High Court directed the authorities to make emission testing of vehicles compulsory for taking suitable action for abatement of air pollution at the earliest. The Court also directed the authorities to take suitable action against the drivers of the offending vehicles under Rule 116 of the Central Motor Vehicles Rules, 1989 without unnecessary delay. For effectively carrying out emission testing assignment, the Court directed the State to provide at least one smoke meter and gas analyzer for each major District Centres. Thus the Court has shown its deep concern in this arena.

In Madrasa Road Residents Association v. Lt. Governor,104 a public interest litigation was filed to stop the traffic of heavy vehicles creating pollution and endangering human life by passing through no entry silence zones, in spite of prohibitory orders. The Delhi High Court suggested that barricades at the appropriate points be put up to prevent the heavy vehicles coming to Madrasa Road. It also suggested putting up of speed breakers to control the speed of vehicles using the roads. The Court warned of stringent action against persons contravening the prohibitory orders.

The problem of air pollution due to vehicular traffic in big cities was also brought before the notice of Madhya Pradesh High Court in Santosh Kumar Gupta v. Secretary, Ministry of Environment, New Delhi105, and it was brought to the notice of the Court that necessary instructions were issued by the State Government to control air pollution due to vehicular traffic but the same were not being complied with by the concerned authorities and increase in pollution within the city of Gwaliar was causing health hazards to its inhabitants. The High Court issued series of directions in the case to bring out reduction in pollution. These directions included the installation of smoke meters and gas analyzer for measuring the carbon monoxide and other pollutants emitted by the automobiles in

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Gwalior; to provide the latest and the less time consuming instruments for checking the emission of carbon monoxide; instructions to the authorities to comply with the legislative mandate of Section 20 of the Air Pollution Act and Rule 116 of the Motor Vehicles Rules, 1989; and to identify the roads which could be declared one way for public vehicles in order to reduce the traffic load on such roads105.

In a monumental judgment in the case of Namit Kumar v. U.T. Chandigarh107, the Punjab and Haryana High Court has also dealt with, inter alia, the problem of environmental pollution resulting from vehicular traffic. The High Court issued various directions to the concerned authorities to comply with the statutory provisions of the Air Act, Motor Vehicles Act and Motor Vehicles Rules so that the air pollution due to vehicular traffic could be reduced and the residents could breathe clean and fresh air.

Judicial Adjudication in Vehicular Pollution Cases: Myths and Realities

In the efforts to find tangible solutions for controlling vehicular pollution, judges in their activist avatar have reached out to numerous parties and stake-holders, from fact finding, monitoring or policy-evolution committees, and arrived at constructive solutions to the problems flagged for their attention by public-spirited citizens. Judges have also used their tremendous power to design innovative solutions, direct policy changes, catalyze law-making, reprimand officials and enforce orders on the accepted principle that where there is perceived ‘vacuum in governance, it is the duty of the courts to fill it’108.

105 Id., p.45, per Shacheendra Dwivedi and Tripathi, JJ.
106 C.W.P. No.7639/95 decided on 9th July 1993.
The constitutionally protected right under Article 21 has been extended by courts though judicial creativity to cover unarticulated but implicit right such as the right to a wholesome environment, which also means ‘right of enjoyment of pollution-free air’. 

The right to wholesome environment was recognized as part of the fundamental right under Article 21 and, within an interval of seven years time, the court was faced with PILs and the Court was moved to note, ‘at this point of time, the effect of the quality of the environment on the life of the inhabitants is much too obvious to require any emphasis or elaboration’.

The Court has since fleshed out the right to a wholesome environment by integrating into Indian environmental jurisprudence not just established but even nascent principles of international environmental law. This expansive judicial role is welcomed by some as ‘chemotherapy for the carcinogenic body politic’. The ability of public spirited individuals to use the court as a fulcrum to leverage public policy is perceived as a testament to the Indian democracy, as judicial intervention has led to changes in policy, rules and discernible improvements in environment. Such an approach is seen discernible in vehicular pollution cases.

However, the role played by the court has raised questions of equity and fairness, effectiveness, sustainability and has put a big question mark on the role of the court as a Policy Evolution Forum. It is the accepted rule that policy making is the exclusive domain of the democratically elected legislature and that it does not fall within the

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111 Rio Declaration, Principle 3 (Inter-generational Equity); Principle 4 (Sustainable Development); Principle 15 (Precautionary); Principle 16 (Polluter Pays) and the Doctrine of Public Trust. The decisions wherein these principles were applied by the courts have been dealt with in Chapter-IV, supra.

province of the judiciary. In fact judicial activism is excessivism when a court undertakes responsibilities normally discharged by other co-ordinate organs of the government. The danger of judiciary dabbling in policy making was stressed time and again by the apex court itself. That being so, court should have directed the central government to use its statutory powers to control air pollution, instead of establishing itself as the protector of government, by continuously issuing orders and directions, which is, ‘creeping jurisdiction’. Judiciary resolved polycentric issues, and moved from first generation to second generation reforms in air quality. Some decisions have destabilized institutions, governance and trust in systems. It also failed to invoke its jurisdiction in few deserving situations, though circumstances existed warranting court’s intervention. Nevertheless, judicial intervention has

113 Justice Chandrachud in _Indira Nehru Gandhi v. Raj Narain_ (1975) Suppl. S.C.C 1 noted with precision the approach of the Indian courts in the following words: “... the concentration of power in any one of organ may... by upsetting the fine balance between the three organs, destroy the fundamental premises of a democratic government to which we are pledged....”


115 In _Bandhua Mukti Morcha v. Union of India_, (1984)3 S.C.C.161, Justice Pathak observed as follows: “In the process of correcting executive error or removing legislative omission, the Court can so easily find itself involved in policy making of a quality and degree characteristic of political authority, and indeed run the risk of being mistaken for one. An excessively political role identifiable with political governance betrays the court into functions alien to its fundamental character, and tends to destroy the delicate balance envisaged in our constitutional system between its three basic institutions”. _Id._, p.232.


117 ‘Polycentric disputes’ according to Fuller, involve many affected parties and a some what ‘fluid state of affairs’. He therefore advocates delimiting adjudication in such cases. For details, see Fuller, L.L., “The Forms and Limits of Adjudication” 92 _Harward Law Review_ (1978)353, 395, 397; see also, Allison, J.W.F., “Fuller’s Analysis of Polycentric Disputes and the Limits of Adjudication” 53 _C.L.J._ (1994)367.

118 On the limits of PIL, Court itself has sounded caution by stating that PIL jurisdiction is ballooning, but the balloon should not be inflated so much that it bursts. See _Narmada Bachao Andolan v. Union of India_ (2000) 10 S.C.C. 664 at p.762.

119 For instance, in _M.C. Mehta v. Union of India_ (1998)5 S.C.C.610, the approach taken by the Supreme Court vindicates the neutralized outlook. The case pertained to the shifting of a petrol-filling station located at Karol Bagh, New Delhi, constructed at a site adjacent to, but not part of, Ridge area on one side and abutting on the road on the other. The vehicular traffic using the road was emitting smoke. The Ridge Management Board passed an order to shift the petrol-filling station on the ground that the site was to be developed having attributes of the Ridge, its environment and ecology. In the facts and circumstances of the case, the Supreme Court held that such an order was bad. The Court pointed out that if air pollution can be allowed on the road then why the filling station, which was an adjunct to the road, cannot be allowed to bear the pollution of the vehicles visiting the filling station.
resulted in improved governance, delivery of public services and enhanced the accountability of enforcement authorities to meet the problems arising from vehicular pollution.

Control of Vehicular Pollution: A Brief Comparative Outlook

(a) U.S.A: The Federal Clean Air Act

Legal measures provide an effective tool in all legal systems to keep vehicular pollution under control. In United States, Clean Air Act describes legislation enacted by Congress to control air pollution on a national level. The first Clean Air Act was the Air Pollution Control Act of 1955, followed by the Clean Air Act of 1963 that resulted in the formation of the Environment Protection Agency which has set some standards for restricting the amount of pollution produced by new vehicles. Each State is given the primary responsibility for assuring that emission sources from within their borders conform to National Air Quality Standard. This was followed by the Air Quality Act of 1967. The Federal Clean Air Amendment Act was passed in 1970 requiring reduction of the carbon monoxide emission. In 1976 United States achieved reduction in carbon monoxide saturation in the air by a substantial degree. Automakers were compelled to install catalytic converters on the exhaust system of new cars for converting gases to harmless carbon dioxide and water. This was later adopted by the European Automakers also. The Clean Air Act of 1963 was further amended in 1977 and 1990. The 1990 Amendment proposed emissions trading for addressing the problems of acid rain, ozone depletion and toxic air pollution and established a national permit programme.

In United States, though there was a recent attempt to introduce Clear Skies Act, 2003, the same was not materialized. The Act was

intended to amend the Clean Air Act to reduce air pollution through expansion of cap-and-trade programs, to provide an alternative regulatory classification for units subject to the cap and trade programs. The Act was based on Clear Skies Initiative, 2002 which projected the idea that economic growth is key to environmental progress, because it is growth that provides the resources for investment in clean technologies. It is pointed out that the Initiative would reduce the cost and complexity of compliance and the need for litigation. Benefits expected of the Initiative include reduction of respiratory and cardiovascular diseases by dramatically reducing smog, fine particles and regional haze; protecting the health of wildlife, habitat and ecosystem from acid rain, nitrogen and mercury deposition; cutting pollution further, faster and cheaper, and with more certainty with improvements in air quality; encouraging the use of new and cleaner pollution control strategies. Thus, moving beyond the command-and-control mandates of the past, US Clear Skies cap and trade system harnesses the power of technology and innovation to bring about significant reductions in harmful pollutants.\textsuperscript{121}

(b) France: The Air and Rational Use of Energy Act, 1996

French legal system presents a model regulatory mechanism in controlling vehicular pollution. As part of its legal policy, the Air and Rational Use of Energy Act, 1996 has made urban transport plans compulsory for all metros with a population of more than 1,00,000\textsuperscript{122} to ensure equilibrium between the needs of mobility and ease of access, and the protection of environment and health. Similar provisions are also included in the Solidarity and Urban Renewal Act, 2000 and in the Domestic Transport Orientation Act.


\textsuperscript{122} Article 14 of the Air and Rational Use of Energy Act, 1996 provides: "The urban transport plan is intended to assure a sustainable equilibrium between the needs of mobility and ease of access, and the protection of environment and health. Its objective is the promotion of the least polluting and least energy consuming modes of transportation".

In France, everyone is held responsible to guarantee urban air quality. In order to attain this objective, Environmental Code places responsibility on the police authorities to establish such measures necessary to reduce emissions from sources of atmospheric pollution. The General Code of Local Governments empowers the Mayor to prohibit access to roads or portions of it to protect air quality. Similarly, National Traffic Code envisages incentives in the form of circulation and parking privileges to least polluting types of vehicles. Formulation of atmospheric protection plans have to be compatible with Regional Air Quality plans. These novel provisions show that the responsibilities of urban administration in the fight against atmospheric pollution are quite substantial.

(c) European Union: Laws and Policies

In Europe, the movement of goods in cities is a major contributor to local emissions caused by mobile sources. Trucks are identified as major sources of vehicular pollution adversely affecting the urban air quality. In response to concern over health issues and to European Standards for urban air quality, some European cities have engaged in a more environmentally oriented urban freight strategy reserving access to city centers to new, clean or fully loaded...

123 Article L 220-1 of the Environmental Code reads: "The State and its public establishments, the local administration and their public establishments, as well as private persons shall contribute, each within the domain of its rights and the limit of its responsibilities, to a policy of which the objective is to put into effect the recognized right of everyone to breathe air which is not damaging to health. This action in the public interest consists of the prevention, surveillance and reduction or elimination of atmospheric pollution, the preservation of air quality and, to this end, the saving and rational use of energy".

124 Article L 222-6 of the Environmental Code.

125 Article L 2213-4 of the General Code of Local Governments states: "The Mayor may prohibit access to certain roads or certain portions of roads to vehicles whose circulation compromises either the public peace, or the air quality, or the protection of animal or plant species".

126 Article L 318-1 of the National Traffic Code.

127 It is found that trucks emit many pollutants notably NOx and particulate matter because they mostly use diesel and because there is a high proportion of old trucks and vans circulating in cities.
trucks. Euro standards are also insisted for vehicles plying through urban centres.

European Commission predicts that in 2020, if the current trend continues, very fine particulate matter will be responsible for '272000 premature deaths' in the European Union, even if current limits are enforced. Hence, new initiatives and policies are evolving to improve the air quality. Clean Air for Europe (CAFÉ), a global programme for long term technical analysis and policy development was launched in 2001 bearing in mind this situation. Shortly thereafter, the European Commission adopted a Thematic Strategy on Air pollution in 2005. This strategy envisages legislation to reduce emissions of new passenger cars and vans and to tighten the emissions from heavy goods vehicles. Commission's Thematic Strategy on the Urban Environment targets sustainable transport as one its four priorities.

For sustainable freight transport in Europe, European Council has proposed 'Freight Transport Logistic Action plan' emphasizing the need for improving the integration of freight into town planning, by setting benchmarks and best practices for urban transport logistics. Apart from the measures already taken, there is also a proposal to simplify legislations by merging all air quality directives into one and to introduce measures related to particulate matter by setting its binding limit value for 2015. However, this is

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129 Euro standards are European Union requirements defining the limits for exhaust emissions of new vehicles sold.
being criticized as timid. The Commission as part of the future strategy also intends to draw guidelines for differentiated charging according to air pollution and to evolve a common framework for designating low emission zones.

In UK, pollution from vehicle emissions is controlled by the use of product standards regulating the emission equipment installed in vehicles. The emission of pollutants is controlled by the Road Traffic Act, 1988 and regulations relating to the construction of use of vehicles and type approval for vehicles. These regulations are altered regularly to take into account EC Directives which impose new limits on carbon monoxide, hydrocarbon and nitrogen oxide for new vehicles and the emission limits differ in relation to the engine size of vehicles.

**Measures to Control Vehicular Pollution: Some Suggestions**

It is true that vehicular pollution cannot be completely avoided or eliminated, but the injurious effect of vehicular pollution can be controlled by adopting improved technologies, careful planning and thoughtful strategies. Such a management approach should include general, short term and long term measures.

General measures must include requiring the automobile manufactures to adopt advanced technology by which vehicles will be more eco-friendly. Diesel engines can be got rid of by phasing them out. It also requires that roads should be maintained properly, and road congestion to be tackled properly by taking suitable remedial measures. To take an overall view of the problems and the remedies,

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135 PM2.5 limit values of 25µg/m³ in urban areas in the new Directive stands far above the WHO recommendations of 10µg/m³.
136 In Britain, all cars are required to be capable of running on unleaded petrol and new models had to comply with the above standard as required by Road Vehicles (Construction and Use) Amendment Regulations, 1988. That apart, new regulations are also timely introduced in Britain to implement various EC Directives on emission limits.
a suitable organization at the central level should be constituted and
similar bodies should also be created at the State level. Equally
desirable is that public transport system should be made comfortable
and punctual for reducing vehicular emission and incentives should
be given for good vehicle maintenance and use of public transport.
Ensuring unimpeded vehicular movement by way of widening of
roads, construction of flyovers and subways and introduction of
underground rails are also worth consideration for reducing vehicle
emission as part of the general strategies.

Short term measures include phasing out old vehicles from
urban areas; use of catalytic converters for vehicles; effective
monitoring of vehicular emissions; strict emission testing,
replacement of older vehicles, taxing of vehicles for differential
pollution; proper maintenance of engines; introducing free
environment awareness courses in different cities; schemes of penalty
and rewards; people’s participation; strict implementation of licensing
and pollution control rules; constituting visionary authority with
political will to implement relevant measures; promoting walking and
cycling and giving preference to bicycles in parking near bus stand,
railway station, etc.

Long term measures must include introduction of four stroke
engines (both for fuel efficiency and low emissions); improvement of
fuel quality; introduction of flow-sulphur fuel; improvement of road
quality for smoother flow of traffic; development of intensive
plantation to reduce dust, smoke and other pollution; encouraging
and grant of incentives for the use of electric, propane, battery
operated vehicles or LPG or CNG based transport means\textsuperscript{137}, etc.

It is found that diesel particulates are more hazardous and
harmful to human beings than petrol emissions. The way out is by

\textsuperscript{137} Singapore has introduced rebates to encourage the use of natural gas (CNG) vehicles from 1999
and the rebate allowed ranges from 5-20\% of the vehicle’s open market value and the rebate can be
used to offset fees and taxes payable on registration. This method can be followed in India also.
creating disincentives for heavier, bigger, and diesel cars. Delhi decided to introduce an Environment Cess on diesel at the rate of 25 paise per litre. With the money collected as cess, the Government intended to set up Environment Cess Fund to help the introduction of clean air policy. Such measures can be adopted by other States as well. To reduce the accumulation of carbon dioxide and other greenhouse gases in the atmosphere, low carbon economy should be introduced by the Government as part of vehicular and transport policy. Compressed air-engine car is an innovative system for low carbon economy. Its advantage is that there are no fossil fuel emissions from this type of vehicles. Such approaches and policies also appear to be consistent with judicial mandate.

A practical strategy should be devised that reduces both emissions and congestion, using a mixed set of instruments, which are dictated by command and control, and also by the market based principles. To contain pollution from auto exhausts, there is the need to assess the vehicular emissions and fuel quality periodically. It is found that pollution load contributed by the city public transport vehicles is higher than the private vehicles, which warrants adoption of strategies to keep pollution load under control.

Entry of goods traffic should be controlled by restricted entry timings and by building by-passes. Similarly, it is as much important that all road side encroachments and activities like hawking, parking, etc., in the entire major net works of roads should be removed, grade separation should be provided at all the crossings of the major roads, traffic signal systems should be synchronized to achieve continuous

139 Low carbon economy refers to an economy which has a minimal output of greenhouse gas emissions into the biosphere.
141 In V.S.Damodaran Nair v. State of Kerala, 1996 K.H.C.538, the State Government was directed by the High Court to take immediate steps to implement the rules regarding automobile exhaust fumes causing air pollution.
greenways for effecting non-stop movement of vehicles along major corridors, along with reduction in idling, stopped time and number and the frequency of speed changes. Strategies should also be evolved to discourage use of private individual vehicles by such ways like levying of parking fee, road pricing, restriction on entry during the part or whole of the day depending on the class of vehicles, giving priorities to high occupancy vehicles during peak hours by encouraging the formulation of car pools and constructing bus ways for exclusive operation of buses to increase their productivity and to induce people to change their modes of travel.

**European Union’s Auto Oil Programme**

In Europe, under the European Union’s Auto Oil Programme, elaborate studies were undertaken, spread over to several years and which include detailed pollution source inventory surveys, to assess the contribution of each source to the total pollution load and to suggest measures for improvement before finalizing auto emission norms. However, in India, after 1995, no pollution source inventory studies have been undertaken even in major cities. In the absence of such pollution source inventory data, assessment of contribution of different sources to pollution load in different cities is not known. That apart, contribution of different categories of vehicles to the total vehicular pollution load varies from city to city and hence measures taken in this regard must be city-specific. Therefore, it requires identification of the critical pollutants in the city and the polluting sources, assessment of pollution load from various sources and contribution of auto exhaust thereto, contribution of different categories of vehicles- inter-city and intra-city to the pollution load of critical pollutants and cost benefit analysis of the alternative solutions based on different combinations of fuel and vehicle technology options. Based on such analysis, higher emission norms and auto fuel quality should be introduced in cities that have very high vehicle population or ambient air pollutants concentration.
Improvements should be brought in the vehicular emission norms and auto fuel quality throughout the country and in cities that have high vehicular pollution, city-specific measures should be taken to reduce pollution from old in-use vehicles\(^{142}\).

**Need for a Clean Air Act**

With a view to preventing pollution by vehicles and to maintain the health of the people against the hazards generated by the motor vehicles, measures like enactment of legislation in the form of Clean Air Act should also be considered. Such an enactment should confer power on the State Government to issue a notification declaring that all the motor vehicles in use within the State shall use only CNG or Petrol, LPG or electricity as fuel in a phased manner as directed in the notification. Time frame should be fixed in respect of the existing vehicles including State owned buses to convert as to make them fit for using CNG, LPG or electricity. After the above cut off date, no diesel vehicle should be allowed to be used in the State. Persons who act in contravention of the above provision should be punished with imprisonment up to one month or fine up to Rs. 5000/-, apart from recording the punishment in the registration certificate of the vehicle and the driving license of the driver. If the offence is repeated, the user should be punished with imprisonment up to 3 months and fine up to Rs.1,00,000/-.

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\(^{142}\) In this regard, the Government of India had set up an expert body consisting of Central Road Research Institute, National Environmental Engineering Research Institute and Indian Institute of Petroleum as per Letter No.R-29011/63/2001-OR-I dated 28-12-2001 of the Ministry of Petroleum and Natural Gas, to gather primary data on road traffic in nine major cities. Some of the considerations of the Committee included projections in respect of ambient air quality in future, road map for vehicular emission norms and auto fuel quality, necessity for inspection and maintenance system, introduction of vehicular emission norms of Euro-IV from 2010, status of air quality modeling in India, studies for determining pollution loads from different sources and predication of future ambient air quality, status of goods vehicles passing or entering the cities, impact of road traffic and congestion on air pollution. Even though report was submitted by the expert body so constituted containing concrete proposals, nothing further materialized due to lack of political will for the administrators.
Thus, it is submitted that to keep vehicular pollution under control, it requires combined regulation through legislative, administrative and judicial participation and processes.

**Conclusion**

On a comparison with the American, French and European practices to curb vehicular pollution, the progress achieved in India remains by and large poor. One of the reasons is that legislative control in India is only piecemeal and therefore it is unsatisfactory and unsuccessful in meeting the problem of air pollution from vehicular traffic.

Law is a regulator of human conduct, but no law can indeed effectively work unless there is an element of acceptance by the people in society. No law works out smoothly unless the interaction is voluntary. To enforce the laws and to keep pollution under control, it is necessary that the people should be made aware of the vice of the pollution and its evil consequences. The Indian judiciary has made a remarkable contribution in this regard. Consequent upon the directions of the Supreme Court, the subject of environment has been made as a compulsory subject in school, colleges and universities for general growth of awareness. Therefore, pollution control measures should be considered as social responsibility, not only of the concerned departments, but also of all those who have faith in the need for preserving the valuable natural environmental resources for the survival of mankind. There is an increasing tendency nowadays

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144 Id., p.361. In this case the Supreme Court also issued directions to: (a) enforce as a condition of licence on all cinema halls, touring cinemas and video parlours the duty to exhibit free of cost at least two slides/messages on environment in each show undertaken by them; (b) show everyday by cinema halls information films of short duration on environment and pollution; (c) telecast and broadcast interesting programmes of 5 to 7 minutes duration every day and a longer programme once a week by Doordarshan and All India Radio in the matter of environment and pollution.

by NGOs\textsuperscript{146} and public spirited citizens to use courts as the forum for raising the grievances of the community. As the executive is 'not maturing' it is not the appropriate moment for the judiciary to end its involvement with air quality.