A Critical Study on Effectiveness of Legal Guidelines to fight vehicle Pollution Laws.

Introduction:

In almost all the large cities of the world, air and noise pollution from motor vehicles are, or are fast becoming, major problem in endangering human life. The industrialized countries, where 86 percent of the world’s vehicles are to be found, have a long standing and extensive experience of the problem. In the developing countries, rapid industrial growth and population increase coupled with rising standards of living are likely to lead to patterns of motorization that resemble those of the industrialized countries. Since the 1960s, the world’s motor vehicle fleet has been growing faster than its population. The problems are acute in certain cities in both the developing and the industrialized world and unless controls are applied or strengthened immediately, the damage to human life would become very serious. The World Health Organization [WHO] and the United Nations Environment Programme [UNEP] have had a long standing project within the Global Environment Monitoring System [GEMS] to monitor the air quality of urban areas of the world in this period of rapid change during which nations strive to achieve a sustainable economy without degradation of the environment.

Across the entire globe, motor vehicle traffic has increased tremendously. In 1950, there were about 53 million cars on the world’s roads; 60 years later, the global automotive fleet has grown to 500 million, a tenfold increase. If the approximately 200 million two–wheeled vehicles around the world are included [growing at about 5 million vehicles per year over the last decade], the global motor fleet is now about 900 million.

Most of the Indian Cities are also experiencing rapid urbanization and the majority of the country’s population is expected to be living in cities within a span of next two decades. The rapid urbanization in India has also resulted in a tremendous increase the number of motor vehicles. The vehicle fleets have even doubled in some cities in the last one decade. This increased mobility, however, come with a high price. As the number of vehicles continues to grow and the consequent congestion increases, vehicles are now becoming the main source of air pollution in urban India. Although, the air quality can be improved through a combination of technical and non–technical
measures, legislative reforms, institutional approaches and market–based instruments, there are certain unique challenges which the country has to face in tackling the problem of urban air pollution. These include, the transport features which are different from the developed countries particularly in terms of the types of vehicles commonly used, the manner in which the road network is operated and sharing of the limited space by pedestrians and non–motorized modes with modern vehicles in Indian cities. Vehicles in India are often much older and usually comprise technologies considered as out–dated in the developed world. The institutions responsible for managing urban air quality are also not as well developed as those in the developed countries. The country has however taken a number of measures for the improvement of the air quality in cities. These include, right from the improvement in the fuel quality, formulation of necessary legislation and enforcement of vehicle emission standards, improved traffic planning and management etc. The non–technical measures taken include, awareness raising regarding the possible economic and health impacts of air pollution and available measures for improving air quality, increasing use of cleaner fuels and purchase of vehicles with advance emission control devices, increasing institutional framework and capacity building for the monitoring of vehicle emissions.

Automotive vehicles emit several pollutants depending upon the type of quality of the fuel consumed by them. The release of pollutants from vehicles also include fugitive emissions of the fuel, the source and level of these emissions depending upon the vehicle type, its maintenance etc. The major pollutants released as vehicle/fuel emissions are, carbon monoxide, nitrogen oxides, photochemical oxidants, air toxics namely benzene, aldehydes, 1–3 butadiene, lead, particulate matter, hydrocarbon, oxides of sulphur and polycyclic aromatic hydrocarbons. While the predominant pollutants in petrol/gasoline driven vehicles are hydrocarbons and carbon monoxide, the predominant pollutants from the diesel based vehicles are Oxides of nitrogen and particulates.

India has a rural road network of over 30, 00,000 km, and urban roads total more than 2, 50,000 km. The national highways, with a total length of 65,569 km, serve as the arterial network across the country. Roads carry about 61 percent of the freight and 85 percent of the passenger traffic. While, the highways amount to only 2 percent of the roads, they carry 40 percent of the road traffic in the country.
Motor vehicles have been closely identified with increasing air pollution levels in urban centres of the world. Besides substantial CO\textsubscript{2} emissions, significant quantities of CO, HC, NO\textsubscript{x}, SPM and other air toxins are emitted from these motor vehicles in the atmosphere, causing serious environmental and health impacts. Like many other parts of the world, air pollution from motor vehicles is one of the most serious and rapidly growing problems in urban centres of India. The problem of air pollution has assumed serious proportions in some of the major metropolitan cities of India and vehicular emissions have been identified as one of the major contributors in the deteriorating air quality in these urban centres. The problem has further been compounded by the concentration of large number of vehicles and comparatively high motor vehicles to population ratios in these cities. Reasons for increasing vehicular pollution problems in urban India are as below:

- High vehicle density in Indian urban canters.
- Older vehicles predominant in vehicle vintage.
- Predominance of private vehicles especially cars and two wheelers, owing to unsatisfactory public transport system, thereby causing higher idling emissions and traffic congestion.
- Absence of adequate land use planning in development of urban areas, thereby causing more vehicle travel and fuel consumption.

The research study presents a review of the vehicular emission problems in Indian cities, the various developments that have taken place in the past including the studies conducted for assessment of the air quality in cities, the legislation and standards adopted for the control of vehicle emissions, the role of the various concerned agencies, the steps taken for improvement in the quality of the automotive fuel, the overall impact of these measures and the future strategy to be adopted for vehicular emission reduction and related issues in the subsequent chapters.