

Vehicular air pollution and its Legislation control

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Abstract

Increasing traffic, rapid economic development industrialization, and higher levels of energy consumption. The high influx of population to urban areas, increase in consumption patterns and unplanned urban and industrial development have led to the problem of air pollution. Currently, in India, air pollution review also present legislative controls with judicial response to certain landmark judgments related to air pollution. The impact of vehicular pollution on human health in urban areas is at peak level as vehicle emission are near the ground level where people live and work . Atmospheric pollutants exist in both gaseous and pollutants forms This clearly points to a tremendous increase in the share of personal transport vehicles. In 1997, personal transport vehicles (two-wheeled vehicles and cars only) constituted 78.5% of the total number of registered vehicles. The Industrial (Development and Regulation) Act, 1957 and Atomic Energy Act, 1962 is function The Air (Prevention and Control of Pollution) Act, 1981 The Environment (Protection) act, 1986- Motor vehicle Act, 1988 The Ozone Depleting Substances (Regulation and Control) Rules, 2000 is implemented. Prevention based environmental policy needs to be strengthened. Issues such as cleaner technology and land use planning incorporating environmental considerations need to be given priority. Effectiveness and impact of various policy measures not assessed. No separate transport policy exists at the national and state levels. No well defined policy to promote private participation in public transport. Lack of coordination between various government agencies to improve.

Keywords Constitution Air pollution Acts Policy

Introduction- Air pollution has been aggravated by developments that typically occur as countries become industrialized: growing cities. Increasing traffic, rapid economic development and industrialization and higher levels of energy consumption. The high influx of population to urban areas, increase in consumption patterns and unplanned urban and industrial development have led to the problem of air pollution. Currently, in India, air pollution is widespread in urban areas where vehicles are the major contributors and in a few other areas with a high concentration of industries and thermal power plants. Vehicular emissions are of particular concern since these are ground level sources and thus have the maximum impact on the general population¹.

The presented review is an effort to discuss various aspects of air pollution and control legislation in India emphasizing on the history, present scenario, international treaties, gaps and drawbacks. The review also present legislative controls with judicial response to certain landmark judgments related to air pollution. The down sides related to enforcement mechanism

for the effective implementation of environmental laws for air pollution control have been highlighted.

Environmental pollution is a common problem in both developing and developed countries. Every year large quantities of toxic wastes are discharged into the environment from the ever increasing production of goods and from the burning of fossil fuels to generate the energy needed to sustain industrial and domestic activities. Sulphur dioxide, nitrogen dioxide and suspended particulate matter (SPM) are regarded as major air pollutants in India. In the developing countries, air quality crisis in cities is attributed to vehicular emission which contributes to 40-80% of total air pollution² The urban population is mainly exposed to high levels of air pollution including metals because of motor vehicle emissions, which is also the main source of fine and ultrafine particles³ which influence the air quality. These particles can penetrate deep into the respiratory system, and studies indicated that the smaller the particle more severe the health impacts⁴. The impact of vehicular pollution on human health in urban areas is at peak level as vehicle number increasing.

Emissions are near the ground level increase where people live and work. Atmospheric pollutants exist in both gaseous and particulate forms. Diesel exhaust, in addition to generating pollutants like hydrocarbons, oxides of nitrogen and carbon is a major contributor to particulate matter in most places of the world. Symptoms like chronic cough, wheezing and breathlessness have been reported on exposure to these pollutants⁵

India has 23 major cities of over 1 million people and ambient air pollution exceeds the WHO Standards in many of them. Suspended particulate matter in ambient air is a complex, multiphase consisting of particle sizes ranging from $<0.01\mu\text{m}$ to $>100\mu\text{m}$ Nanoparticles (Particles $<0.1\mu\text{m}$) in mass median aerodynamic diameter have been postulated to affect cardiopulmonary system³. Urban areas exhibit both the highest level of pollution and largest of impact on human health Diesel and Petroleum exhaust contain various substances, which are harmful to human beings⁶.

Increase in number of vehicles

The number of motor vehicles has increased from 0.3 million in 1951 to 37.2 million in 1997. Out of these, 32% are concentrated on 23 metropolitan cities. Delhi itself accounts for about

8% of the total registered vehicles and has more registered vehicles than those in the other three 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, and the share of buses declined from 11% to 1.3% during the same period⁷. This clearly points to a tremendous increase in the share of personal transport vehicles. In 1997, personal transport vehicles (two-wheeled vehicles and cars only) constituted 78.5% of the total number of registered vehicles.

There were some Articles (39,42,47,48 and 49) indirectly dealing with the subject of environmental pollution and protection in the former constitutional law of India. However, in the year 1976, 42nd constitutional amendment was adopted in response to the Stockholm International Conference on Human Environment in 1972 and came into effect on 3rd January, 1977. The Directive principles of State Policy (Article 48-A) 38 and Fundamental Duties (Article 51-Ag) 39 Under the Constitution of India explicitly announced the national commitment to protect and improve environment and preserve air quality.⁸ Nowadays through judicial interpretations, the right to clean air has been identified as elephant of right to life under Article 21 of the Constitution. The language of the Directive principles of State policy (Article 47) require not only a protectionist stance by the state to look for the improvement of the polluted environment. Policy statement for the amendment of pollution (1992) declares the objective of the government to integrate environment considerations into decision makings at all levels⁹.

Past act

- i- The Oriental Gas Company Act, 1857
- ii- Indian Penal Code, 1860
- iii- Indian Explosive Act, 1884
- iv- The Bengal Smoke Nuisance Act, 1905
- v- The Indian Boilers Act, 1905
- vi- The Indian Boilers Act, 1923
- vii- Indian Petroleum Act, 1934
- viii- The Motor Vehicles Act, 1939[5]

Present Status

1- **The Industrial (Development and Regulation) Act, 1957** This was the first act providing power to central government to cause investigation to be made into scheduled industries or industrial undertakings. The extent was limited to the purpose of conserving any resources of national importance which are utilized in the industry along with the regulation of production and industrial development¹⁰.

2- **The Atomic Energy Act, 1962**- The act was addressing only health impact and safety from the radioactive substances with the sole purpose of control over atomic energy and radioactive substances¹⁰.

3- **The Air (Prevention and Control of Pollution) Act, 1981**- This is the first act formulated with the sole purpose to provide for the prevention, control and abatement of air pollution. It was established to carry out the purpose, of boards powers and functions relating to the matters concerned. The decisions were taken at the United Nations Conference on the Human Environment held in Stockholm in June, 1972, in which India participated, to take appropriate steps for the preservation of natural resources of the earth which, among other things, include the preservation of the quality of air and control of air pollution¹¹.

4- **The Environment (Protection) act, 1986**- This act came into force on 23rd May, 1986 to provide for the protection and improvement of environment and for matters connected there with. This act is serving as an umbrella act for many other rules and laws. e.g. Notification on lead free petrol and catalytic convertors for vehicles in metropolitan cities, 1995 etc.

5- **Motor vehicle Act, 1988**- This act deals with control of automobiles emissions and specifies vehicular emission standards.

6- **The Ozone Depleting Substances (Regulation and Control) Rules, 2000** India is categorized as operating under Article 5 paragraph 1 of the Montreal Protocol Regulation of production and consumption of ozone depleting substances. This act deals with prohibition on new investments with ozone depleting substances, Regulation of import, export and sale of products made with or containing ozone depleting substances along with Monitoring and reporting requirements for the same. The ozone cell established by MoEF which has been given the responsibility for carrying out all tasks relating to phase out of ozone depleting substances¹⁰.

Vehicular emissions- The drastic increase in number of vehicles has also resulted in a significant increase in the emission load of various pollutants. The quantum of vehicular pollutants emitted is highest in Delhi followed by Mumbai, Bangalore, Calcutta and Ahmedabad. The daily pollution load generated due to automobiles in 12 metropolitan cities is shown in Table 10.1 Carbon monoxide (CO) and hydrocarbons (HC) account for 64% and 23%, respectively, of the total emission load due to vehicles in all these cities considered together ¹¹

A part from the concentration of vehicles in urban areas, other reasons for increasing vehicular pollution are the types of engines used, age of vehicles, congested traffic, poor road conditions, and outdated automotive technologies and traffic management systems. Vehicles are a major source of pollutants in metropolitan cities. In Delhi, the daily pollution load has increased from 1,450 tonnes in 1991 to 3,000 metric tonnes in 1997¹². The share of the transport sector has increased from 64% to 67% during the same period while that of the industrial sector (including power plants) has decreased from 29% to 25%¹³

SPM- Suspended particulate matter is one of the most critical air pollutants in most of the urban areas in the country and permissible standards are frequently violated several monitored locations. Its levels have been consistently high in various cities over the past several years. The annual average minimum and maximum SPM concentration in residential areas of various cities ranged from 60 $\mu\text{g}/\text{m}^3$ (at Bangalore during 2000) to 521 $\mu\text{g}/\text{m}^3$ (at Patna during 2000), while in industrial areas the annual average ranged between 53 $\mu\text{g}/\text{m}^3$ (Chennai during 2001) and 640 $\mu\text{g}/\text{m}^3$ (Calcutta during 2001). The mean of average values of SPM for nine years (2001 to 2010) ranged between 99 $\mu\text{g}/\text{m}^3$ and 390 $\mu\text{g}/\text{m}^3$ in residential areas and between 123 $\mu\text{g}/\text{m}^3$ and 457 $\mu\text{g}/\text{m}^3$ in industrial areas indicating that the annual average limit of suspended particulate matter for residential areas (140 $\mu\text{g}/\text{m}^3$) and for industrial areas (360 $\mu\text{g}/\text{m}^3$) had been frequently violated in most cities¹⁴.

SO₂- The annual average level fluctuation of SO₂ was highest in residential areas of Howrah (West Bengal) recording between 40.6 $\mu\text{g}/\text{m}^3$ and 103.8 $\mu\text{g}/\text{m}^3$ while it was quite low in residential areas of Nagpur, Chandigarh, and Jaipur (below 10 $\mu\text{g}/\text{m}^3$). Among the industrial areas, the recorded sulphur dioxide levels were high at Pondicherry, Calcutta, Mumbai, and Howrah, and low at Nagpur, Jaipur, and Chandigarh. Thus, based on the mean average sulphur

dioxide value, Nagpur, Chandigarh and Jaipur are cities with the least problems related to sulphur dioxide in the ambient air, While the problem is significant in Howrah, Calcutta, and Pondicherry, where annual average limits (60 and 80 $\mu\text{g}/\text{m}^3$ for residential and industrial areas) have been violated many times during the past several years¹⁵.

NO₂- The nitrogen dioxide non-attainment areas were at Vishakhapatnam (AP), Jabalpur (MP), Pondicherry, Alwar, Kota, Udaipur (Rajasthan) and Howrah (West Bengal). The criticality of problem was observed at Vishakhapatnam, Kota, and Howrah.

Air quality at traffic intersections- Air quality monitoring conducted at different traffic intersections in Delhi revealed the following:

- 1- Respirable particulate matter was excessively high at all the monitoring locations.
- 2- Sulphur dioxide was recorded within limits at all the locations.
- 3- Nitrogen dioxide was recorded well within the limits except a few locations.
- 4- The carbon monoxide levels at most locations was much higher than the prescribed permissible limit. This is because of high traffic density and large number of motor vehicles operating on the roads.

Measures such as stringent emission norms for vehicles, cleaner fuel quality, inspection and maintenance programmes are expected to make some contribution towards improvement in the air quality. However, in the absence of mass transport system, the tremendous increase in personal vehicles is a cause for concern¹⁶.

Judgments relating to air pollution issues have provided a great deal of momentum to improve air quality.

Delhi air pollution case:- Vehicular pollution in Delhi: writ petition (civil) no. 13029/1985 (M.C.Mehta vs UOI and ors.) This writ petition was files in the year of 1985 under Article 21 of the Constitution of India regarding air pollution in Delhi. The Petitioner challenged the inaction on the part of the Union of India, Delhi Administration (Government of National Capital Territory of Delhi) and other Authorities whereby smoke, highly toxic and other corrosive gases

were allowed to pass into the air due to which the people of were put to high risk. During the pendency of this Writ petition, the Honorable Supreme Court passed several orders/directions to deal with the situations arising from time-to-time and impressed upon the concerned authorities to take urgent steps to tackle the acute problem of vehicular pollution in Delhi on 26.07.1998 which include elimination of leaded petrol, replacement of old autos, taxies and buses, construction of new Interstate Bus Terminus at entry points, along with strengthening the air quality monitoring ^{14,17}.

Union Carbide Corporation vs. Union of India (Bhopal CASE-III) AIR 1992 SC 248 - Ranganath Misra C.J., K.N. Singh, M.N. Venkatachalliah, A.M. Ahmadi and N.D. Ojha, JJ. In Union Carbide vs. Union of India, review petitions under Article 137 and writ petitions under Article 32 of the Constitution of India, raised certain fundamental issues as to the constitutionality, legal validity, propriety, fairness and conceivability of the settlement of the claims of the victims in a mass-tort action relating to what is known as the “Bhopal Gas Leak Disaster,” Considered as the world;s worst industrial disaster, Unprecedented to its nature and magnitude ¹⁵.

Control of vehicular pollution- The various measures taken by government to mitigate emissions from transport sector are as follows:

Stringent emission norms- The mass emission standards for new vehicles had been first notified in the year 1991 in India. Stringent emission norms along with fuel quality specifications were laid down in 2000 and 2004 and Euro II norms will be applicable all over India from 1 April 2005. However, in the case of the NCR, the norms were brought forward to 1 June 1999 and 1 April 2000 for Euro I and Euro II, respectively ^{16,17}.

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 (Bureau of Indian Standards) for gasoline and diesel for the period 2000-2005 and beyond 2005 for the country ¹⁷.

Inspection and maintenance (I&M)- The first and most important step towards emission control for the large in-use fleet of vehicles is the formulation of an inspection and maintenance system. It is possible to reduce 30-40% pollution loads generated by vehicles through proper periodical inspections and maintenance of vehicles¹⁸. I&M measures for in-use vehicles are an essential complement to emission standards for new vehicles. In India, the existing mechanism of I&M is inadequate. Thus, there is a great need to establish effective periodic I&M programmes.

Other stringent measures in certain areas- On 1st April 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 Delhi¹⁸. Other measures include bans on commercial vehicles more than 15 years old, a ban on the registration of new auto-rickshaws with front engine, replacement of all pre-1990 autos and taxis with new vehicles using clean fuels; and the removal of 8 year old buses from the roads unless they use CNG or some other clean fuel. It is also planned that all buses in Delhi are to switch over to CNG instead of diesel by 31 March 2001

Role of the judiciary- In recent years, the judiciary has played a prominent role in environmental protection. A number of judgements relating to stringent vehicle emission norms, fuel quality, introduction of cleaner fuels, phasing-out of older vehicles, and shifting of hazardous industries have provided a great deal of momentum to the efforts for improvement of air quality¹⁹.

Policy gaps

*Prevention based environmental policy needs to be strengthened. Issues such as cleaner technology and land use planning incorporating environmental considerations need to be given priority.

*Effectiveness and impact of various policy measures not assessed.

*No separate transport policy exists at the national and state levels.

*No well defined policy to promote private participation in public transport.

* Lack of coordination between various government agencies to improve **Transport services-**

1- Laboratory facilities are inadequate- (e.g. Dioxins and furans) CPCB is addressing some of the industries to monitor dioxins and furans (e.g. cement industries) as a compliance condition through the consent in India.

2-National air monitoring plan -CPCB is executing a nation-wide program of ambient air quality monitoring known as National Air Quality Monitoring Program (NAMP).

3-Unavailability of proper and efficient technology- for vehicular emissions As the available technology is not that much efficient and economic is is very difficult to prevent and control the automobile pollution²⁰.

4-Economic loss due to air pollution is not considered in policy formation. No policy developed on the basis of economic loss due to air pollution.

5-Top to down approach of policy formation Some of the policies are developed with top to down approach without considering the root level situation or they are enforced by considering only some of the part of whole area. So, it fails to achieve objectives of the policy or generates some other environmental issues²¹.

6_Implementaion of enforced policy, law, rules The history shows that the Acts, laws, rules prepared are theoretically paramount but fails in implemenatation.

7-Need of composite law Environmental legislation in India is not a composite one. It means, It is limited in scope and deals with only one aspect of environmental protection at a time.

8- Time consumption in Judiciary responses Judiciary responses on Environmental issues discussed above concludes that the time required is a key concern in such PILs. Many of the Environmental laws and regulation in India are the result of reactive approach to the public interest litigations, international treaties and pressure groups being another cause of time consumption. There is a crucial need of proactive, participatory; time bound decisions making system to deal with environmental issues in India²².

References

- 1- Agrawal, M. and J. Singh (2000) Impact of coal power plant emission on the foliar elemental concentrations in plants in a low rainfall tropical region. Environ. Monit. Assess, 60, 261-282.
- 2- Ghose, M.K., Paul and R.K. Banerjee: (2005) Assessment of the status of urban air pollution and its impact on human health in the city of Kolkata. Environ. Monit. Assess, 108, 151-167.
- 3- Sharma, K., R. Singh S.C. Barman, D. Mishra, R. Kumar and M.P.S. Negi: (2006) Comparison of trace metals concentration in PM 10 of different location of Lucknow city. Bull. Environ. Contam. Toxicol., 77, 419-426.
- 4- Pope, A., M. Thun and M. Namboodiri: (1995) Particulate air pollution as a predictor of mortality in a prospective study of US adults. Am. J. Respir Crit. Care Med., 151, 669-674.
- 5- Chhabra, S.K., P. Chhabra, S. Rajpal and R.K Gupta (2001) Ambient air pollution and chronic respiratory morbidity in Delhi. Arch. Environ. Hlth., 56, 58-64.

- 6- Gupta H.K., V.B Gupta, C.V.C. Rao, D.G. Gajghate and M.Z. Hasan(2002) Urban air quality and its management strategy for a metropolitan city of India. Bull. Environ. Contam. Toxicol.,68, 347-354.
- 7- Nel, A :(2005) Atmosphere. Air pollution- Related illness: Effects of particles. Sci., 308, 801-806.
- 8- Gurjar, B.R., J.A. Aadenne, J. Van Lelieveld and M. Mohan:(2004) Emission estimates and trends for megacity Delhi and implications. Atmospheric Environ., 38, 5663-5681.
- 9- MoST (2000) Handbook on transport statistics in India (1999). New Delhi: Transport research wing, Ministry of Surface Transport .
- 10- <http://lawmin.nic.in/olwing/coi/coi-english/coiindexenglish.htm>. Accessed December 2013.
- 11- CPCB (1995) “Air pollution and its control”. Parivesh Newsletter 2(1), June 1995. Delhi: Central Pollution Control Board. 50 pp. CPCB (1998) Annual report (1997-98). Delhi: Central Pollution Control Board.
- 12- MoEF (1997) White paper on pollution in Delhi with an action plan. New Delhi: Ministry of Environment and forests. 67pp.
- 13- MoEF(2000a) Annual report (1999-2000), [http:// envfor.nic.in/report](http://envfor.nic.in/report), june 2000. New Delhi: Ministry of Environment and forests.
- 14- <http://cpcbenvs.nic.in/newsletter/legislation/ch4dec02a.htm>. Accessed January 2013.
- 15- <http://www.unescap.org/drpad/vc/document/compendium/in6.htm> Accessed February 2013.
- 16- CPCB(1999) “Auto emissions”. Parivesh Newsletter 6(1), June 1999. New Delhi: Central Pollution Control Board.
- 17- BIS (1997a) Gasoline fuels-specification. New Delhi: Bureau of Indian Standards.
- 18- CPCB (2000c) Air Quality status and trends in India, National Ambient Air Quality Monitoring Series: NAAQMS/14/1999-2000. Delhi: Central Pollution Control Board.
- 19- <http://cpcbenvs.nic.in/newsletter/legislation/ch10dec02a.htm>. Accessed January 2013.
- 20- http://judis.nic.in/Supremecourt/imgs_1.aspx?filename=15202. Accessed December 2014.
- 21- Central Pollution control Board, Pollution control acts, rules and notifications issued thereunder, Pollution control law, series: PCLS/02/2010.
- 22- The Energy and Resources Institute, Environmental justice:Scope and access workshop on sustainable development for the subordinate judiciary (19th-21st Aug 2006.) (The Energy and Resources Institute, New Delhi, 2006)