CHAPTER VIII

SUGGESTIONS FOR REFORMS FOR AIR POLLUTION CONTROL INCLUDING NOISE
8.1 INTRODUCTION

Air pollution from motor vehicles is one of the most serious and rapidly growing problems in urban centres in India, especially metropolitan cities. Many other cities like Pune, Kolhapur, Jaipur, Hyderabad, Vadodara, Ahmedabad. Industrial emissions and to it and lead to the formation of smog, acid rain and other problems. Common man is a victim of it without his mistakes. In fact, inadequate and insufficient public transport and population growth has led to dramatic growth in private vehicles. A recent report on Central Pollution Control Board (CPCB) showed that the vehicular activities in Delhi, contribute about 70% of total quantity of air emissions and remaining 20-30% is contributed by the industries and fossil fuel.

8.2 REGULATION AND ENCOURAGEMENT TO CONTROL POLLUTION

While regulatory measures remain essential for the effectiveness of the policy, new approach of considering market choices need to introduced with the aim to give industries and consumers clear signals of the cost of using environmental and natural resources. The expectation is that market-oriented price mechanism will influence the behaviour to avoid excessive use of natural resources. This may be legalized.

At present several fiscal incentives for installation of pollution control equipment and for shifting polluting industries from congested areas are the item for which excise and customs rebate are allowed, may be reviewed. This will stimulate the advancement of abatement technologies and create increased demand for the products. This may be done with suitable policy instead of only after insistence by court.
Economic instruments need to be investigated to encourage the shift from curative to prevent measures, internalize the cost of pollution and conserve resources, particularly water. A direct economic signal is offered by an effluent charge based on the cost of the treatment and flow discharged, in order to provide an incentive to set up treatment plants. The scope of charge will be extended to emission and solid waste. Charges provide a continuing incentive towards optimal releases. These instruments will also have a distributive effects as the revenues will be used for enforcement, collective treatment facilities, research and promoting new investment. The precise choice of economic investments adopted will be determined by the ease with which releases can be measured as well as prospective changes in technology and market structures. To deal with the range of pollution problems a mix of regulatory and economic measures should be adopted.

8.3 SUGGESTION ON ENVIRONMENTAL POLICY

Critical policy areas for control of pollution come under different departments and levels of the government. Sectoral Ministers, State Governments, local bodies and agencies responsible for planning and implementation of development project will be required to integrate environmental concern more effectively in all policy areas. Local authorities play a key role in abatement of pollution and environmental concerns need to be build into the way they operate. Steps will have to be taken to strengthen the governmental and institutional structure dealing with the environmental managements, especially within the Ministers dealing with the sectors of energy, industry, water, resources, transport and agriculture, and who would develop specific programmes in regard to pollution prevention. Policy making, legislation and law enforcement influence each other. The increase in the
number of regulations increase difficulties in enforcement. Legislation regulating particular activities will be amended to incorporate and eliminate clashes with environmental criteria. Traditional instruments for monitoring of compliance and investigations of offences are becoming over-burdened. An integrated overview and environmental law enforcement based on co-operation with local authorities will be sought. A long term policy would be formulated in collaboration with the concerned Minister and infrastructure involved for its effective implementation.

8.4 COMPREHENSIVE APPROACH AND FUTURE DIRECTION

It is not enough for the government to notify the laws which are to complied with. A positive attitude on the part of every one in society are essential for the prevention of pollution and wide consultation has been held with those who will ultimately implement the policy. This calls for awareness and public education.

A comprehensive approach in new policy has to take to integrate environmental and economic aspects in development planning; stress is laid on preventive aspects of pollution abatement and promotion of technological input to reduce industrial pollutants, and through reliance upon public co-operation in securing a clean environment to respond to the coming challenges.

The objective need to integrate environmental consideration into decision making at all levels. To achieve, this step have to be taken to:-

- Prevent pollution at source;
- Encourage, develop and apply the best available practicable technical solutions;
- Ensure that the polluter play for the pollution and arrangements;
• Focus protection on heavily polluted areas; and
• Involve the public in decision making.

8.5 STEPS NEEDED TO REDUCE INDUSTRIAL AIR POLLUTION

8.5.1 Planning Techniques for Controlling Pollution

Numerous planning techniques exist to control Air, Land, Water, and Noise pollution. The siting of new development with respect to topography is an important technique for controlling air pollution. Another is the separation of industry from residential and other sensitive areas, since the particulate pollutants generated tend to fall out in a localized manner, and high chimneys for the disposal of gaseous pollutants may be employed with less aesthetic difficulty.

A buffer zone may be placed between industrial uses and sensitive receptors to supplement other controls and to provide some protection in the event of equipment breakdowns or adverse metrological conditions. Apart from producing a distancing effect, open spaces with trees, shrubs and grasses alter local climate, thus increasing dispersion of pollutants, and directly absorb pollutants on their foliage, thus reducing air pollution.

The design and arrangement of the buildings with respect to topography may have a considerable effect upon pollution since local temperature and winds, the two principal determinants of atmospheric diffusions, are affected. Pollution from residential and other type of area may be diminished by reducing the density of land-use activities.

Air pollution from road traffic can be reduced by segregating highways from adjoining structures either vertically or horizontally, using open
road ways configurations, and by improving traffic flow by synchronized traffic signals, longer blocks, limited access roads and higher traffic speeds. The zoning of land used to minimize trip journeys and lengths (e.g. by creating corridors of dense development) and the use of car restraint policies to encourage the patronage of public transport are also important techniques for reducing vehicular pollutant emissions. The greatest impact on air pollution can obviously be made in a overall design of a town, when all these control technique are brought together. A balance must be struck between stationary and moving source pollution, but there is no evidence that pollution concentrations automatically rise with the size of urban areas.

Recognition that the most effective control of pollution results from comprehensive action on the urban scale leads to a consideration of air use planning. The function of the air use plan is to optimize the use the air as a resource by limited emissions from particular individual sources, or even by refusing to allow new pollution sources in overburdened areas.

8.5.2 Suggestion For Critically Polluted Areas

Mechanism will be involved to reduce local concentration of pollutants in complex industrial sites. Strategies may be developed for areas with high pollution loads where the accumulative effect on the various types of pollutants would be taken into account through legal provisions. Existing units in these areas will be targeted for effective action. New units in these areas will be required to comply with location specific standards for stringent environmental quality objectives. These will be include matching waste generators with waste buyers, with the objectives of waste disposal. Setting up of industrial estates and clusters of small industrial units in rural areas will include pollution abetment measures as an essential components of
infrastructure. In the past, the absence of adequate provisions of spares for installing treatment facilities and arrangements for disposal of wastes has held to severe pollution of agricultural land and rivers. There have been steady increases in the amount of waste water produced from urban communities and industries. In the coming year due to rapid growth in population, urbanisation, industrial development and better water supply, the amount of waste water may increase manifold. Generally, these water are discharged into lagoons or dumped on low lying areas without any pre-treatment, thereby creating sewage pools, contaminating groundwaters, siltinising good quality lands around cities, acting as the source of foul smell and breeding grounds for mosquitoes and other pathogens. At many places waste water is discharged into drains and rivers causing serious water pollution. However, awareness has now grown and more attention is being paid to develop systems to treat sewage water. For a country like India, conservational treatment plants are costly. In fact these are beyond the financial means of any small towns. Biological waste water treatment, on land disposal using suitable vegetative cover and resource recovery technologies can not be an attractive alternative, but also economical, safe and socially acceptable. Mining operations will not ordinarily be taken up in ecologically fragile areas. Every mining project shall be accompanied by the mining plan, including an environmental management plan and time bound reclamation programme for controlling the environmental damage and for restoration of mined areas.

8.6 AUDITING OF AIR POLLUTION STATUS

Industrial concern and local bodies should feel that they have a responsibility for abatement of pollution. The procedure of an environmental statement will be introduced in the local bodies, statutory authorities and public
limited companies to evaluate the effect of their policies, operations and activities on the environment, particularly companies with standard and the generation and recycling of the wastes. An annual statement will help in identifying and focusing attention on area of concern, practices that need to be changed the plans to deal with adverse effects. This will be extended to an environmental audit. The measure will provide better information to the public.

8.7 PROMOTION MEAGERS TO CONTROL INDUSTRIAL AIR POLLUTION

Taxing the activities that pollute, deplete or otherwise degrade natural systems is a way of ensuring that environmental costs are taken into account at a personal level and accountability shifted to the polluting industries. Pollution taxes have been widely advocated for various technical and economic reasons. The most important arguments in their favour have been. The concept of pollution taxes have originated with the British Economist. A. C. Pigou, who recognized ‘a heavy uncharged loss on the community, in injury to buildings and vegetables, expanses for washing clothes and cleaning rooms, expanses for the provision of extra light, and in may other ways’. Pollution tax are to be payed by all polluters. It has an economic advantage when it is in the interests of a small polluter to pay pollution tax rather than indulge in any costly pollution abatement. The concept of imposition of a tax on the polluter, equivalent to the additional social costs imposed by the pollution, in principle leads to eliminate adverse effects. The crucial point about the tax approach is that it will reduce but not eliminate pollution.

A tax levied on the emission of pollutants give the industries an incentive to reduce all their output of pollutants, as they can save the tax on each unit eliminated. Secondly, the tax solution offers the advantage of atleast
potential compensation for losses incurred. Care should be taken not to encourage for taking the disadvantage by imposing pollution taxes. These disadvantage can be:

They give “license to pollute”.

They are rarely high enough to induce the desired pollution control

iii) Crude use of taxing powers always brings inequities and inefficiencies.

It may be appropriate to have environmental federalism in India by granting the States the powers to fix region-specific pollution standards and design instruments to promote and coordinate the activities of village and factors level institutions for controlling pollution of air and environmental degradation.

8.7.1 Subsidies

The widely accepted notion that industry must be encouraged at all costs was translated in practice into a prescription the industry must be subsidized in every possible fashion. In case of industrial pollution if the industry keeps total control on air pollutant emissions with all possible and suitable legal measures, it must be encouraged by giving subsidies in one or the other way like subsidies electricity supply for the operation of air pollution control equipments.14

8.7.2 Innovative Incentive

It is theoretically possible to levy a tax on pollution and thereby persuade the polluter to reduce his discharges to the optimum level. The tax induces the industry to innovate, for technical progress, reduces the social costs of pollution control, so as to reduce the industries costs and at the same time
leading to less pollution. The proponents of incentive policy argue that the sanction enforcing a law will be more affirmative and more effective, if it is by reward and economic incentive rather than by punishment.

Government of India have already taken many important steps to arouse awareness and concern as well as to provide incentives to industry to prevent and control pollution. These incentives include:

a) **Exemption from Income Tax:**

For this purpose a new section 35 CCB has been inserted in the Income Tax Act 1961 with effect from the June 1, 1982.

b) **Depreciation Allowance:**

Other scheme of incentive was announced in the budget from 1982-83 was depreciation allowance at 30 per cent on devices and systems installed by industrial units from minimising environmental pollution. A list of such devices and systems eligible for accelerated depreciation; has been notified by the Ministry of Finance Central Board of Director Taxes and published in Gazette of India Extraordinary Part II Section 3 Sub section (ii) No. 85 dated the 23rd February 1983. such steps may be taken to arrest air pollution.

c) **Investment Allowance**

From the financial year 1983-84 yet another incentive was available at a higher rate of 35 per cent (as against the general rate of 25%) of the actual cost of new machinery or plant which assists in control of pollution or protection of environment if the machinery or plant is notified by the Central Government for the purposes of the said
provision. For this purpose a new sub-section (2C) in Section 32A has been inserted in the income tax Act 1961. It needs to be continued.

d) Exemption from Tax to Capital Gains
To encourage industries to shift from overcrowded cities and for reducing pollution, capital gains arising from transfer of buildings or lands used for the purpose of businesses are exempt from tax if these are used for acquiring lands or constructing buildings for the purpose of business at the new place. From the financial year 1983-84 this exemption has been further extended to capital gains arising from transfer of machinery and plant also.

e) Concessional Rate of Excise Duty
Under notification number 78/79 Central Excise dated March 20, 1990 on 26 number of goods relevant to goods relevant to pollution control have been exempted from excise duty but leviable thereon as in excess to 5 per cent. It may be continued.

f) Custom Duty Exemption
Under notification number 68/69 Customers dated March 1, 1989 for 25 number of goods, relevant of pollution control and safety in Chemical industries custom duty have been exempted when imported in India.

The nature of the fiscal incentives is indicated in the above account, to provide the general information in an easily understandable form. The details are included in the relevant provisions of the Income Tax Act and other concerned provisions.
8.8 NEED OF NEW LEGISLATION REGARDING AUTO POLLUTION CONTROL.

There are legal inadequacies in the existing provision. To overcome these there is a need to intact new laws or cover the following suggestion in the existing laws by amendments –

8.8.1 Air Double Standards

Air quality standard prescribe pollutant levels that should not be exceeded during a specific time in a specific geographical area. These standards criteria with added factors of safety. These should be of two types of air quality standards, namely, primary standards and secondary standards. Primary standards be prepared to provide pollution levels that will protect health, but not necessarily prevent their adverse effect on materials. Secondary standards be prepared to provide levels that will prevent all adverse effects of air pollution and hence these standards are more stringent.

8.8.2 Fuel Composition Specifications

In India, the phasing out of lead is already programmed. The unleaded regular has already been introduced in Delhi, Mumbai, Madras and Calcutta. In Pune, Kolhapur and other metro cities the decision should be applied and strictly implemented. There is no specific legislation in India imposing compositional constraints on automotive diesel fuels. It may be passed to reduce the sulphur content and lead content.

8.8.3 Technology Based Emission Limits

The main aim of air pollution abatement programme is to meet the air quality standards These are based on health effects as well as protection
of plant and animal life along with aesthetic and economic aspects. To meet objectives of clean air, the emission standards may be derived from air quality as well as the existing technology. Beside the all above, following are few steps necessary to check the increasing pollution from automobiles. These already exist in legal form and being implemented. This implementation should be strict to ensure the cleanliness of air, such steps may include.

a) Use of Unleaded petrol
b) Use of Catalytic converters with higher efficiency like platinum or catalyst.
c) Use of Alternative clean Fuels like CNG, alcohol, LPG, gasoline or rechargeable batteries. These fuel permit vehicles to attain legislated emission standards. All these can be made compulsory by incorporating in the act or by making rules and regulations.
d) Phasing out 3 wheelers or operating them on rechargeable batteries.
e) Conversion of public transport buses on natural gas.
f) Imposition of age limit on all commercial vehicles.
g) Modification in Transport policy
h) Strict Implementation of emission regulations and noise control provisions.

8.9 STEPS SUGGESTED TO REDUCE AUTOMOBILE POLLUTION

Law should enforce compulsory to take steps to control vehicular emissions. These Steps Needed to Reduce Automobile Pollution in Cities. To reduce the environmental pollution from automobiles in the cities, a number of steps are required to be taken. These steps are administrative, technical and legal in nature. If we are serious in tackling air pollution from this source it is
necessary to give utmost importance to these suggestions. These steps may be enforced through various legal provisions. These are indicated below:

1) ISI limits on individual vehicle emission should be strictly enforced in all of our megacities and towns. Welcome steps have already been taken by the concerned authorities in the cities of Bombay and Delhi. These steps should be enforced in our other cities too.

2) Non-leaded petrol should be introduced at the earliest in Pune and Kolhapur all of our cities, so that lead concentration in the ground level air is reduced, which will result in the reduction of lead load in the blood of city dwellers, particularly children.

3) It is time to introduce battery operated cars and buses in Pune and Kolhapur all of our major cities at least for the movement within the city limits. For inter city transport petrol driven vehicles can still be used. It should be noted that BHEL designed battery operated can be seen on the congested roads of old Delhi. Such buses should find greater use in our city transport needs, preferably in Pune.

4) The use of electricity driven vehicles should be intensified. For local transportation in the cities of Bombay and Calcutta. Now, only Calcutta has electric trams, and this vehicles has been phased out in the cities of Delhi and Bombay. It is unfortunate that this has happened. The decision may be revived.

5) Although a rickshaw is not a pleasant sight on our roads, it provides employment to many of our poor and unskilled labour. Rickshaw is environmentally compatible, and in consonance with the present day concern about the prevention of environment. It is desirable to improve the models of cycle driven rickshaw so that the physical burden on the
rickshaw driver is reduced. This work should be taken by our R & D institutions.

6) It is desirable to reintroduce the use of animal driven vehicles, whose use are gradually been reduced over the last forty years. These vehicles are environmentally compatible. One remember in this connection the horse driven tongas in Delhi and the horse driven victorias in Bombay. A few roads in congested localities of our major cities should be extensively reserved for such vehicles.

7) In all of our large cities it is desirable to introduce appropriate road use measures which are conducive to easy and safe movements of cyclist and cycle operated vehicles. At least to start with in the colonies or localities within big cities like Delhi, all the internal roads should be accessible only to cyclist and cycle driven vehicles, and the use of these roads by petrol and diesel vehicles be discouraged.

8) The production of scooters be gradually reduced for the reasons already advance, and the sale of cycle be encouraged by subsiding their sales.

9) It is necessary to carry out intensive reach in developing control technique to reduce the emission on pollution from petrol driven vehicles as well as diesel driven vehicles the indigenous research already done in this area needs to be updated and improved.

10) It is indeed most important to do intensive research in development of high capacity, small sized, and rechargeable batteries, for high duty use on long distance and heavy vehicles.

8.10 RECOMMENDATIONS FOR VEHICULAR POLLUTIONS

One of the essential components of modern livings is, transportation. Current transport policies should undertake an integrated study of the causes and consequences of the connected projects in the urban areas. in
this regard, it is necessary to bring together planners, engineers, environmental health personnel, expert air quality and environmental academics and the regional health authority to address the environmental issues arising out of transport induced air quality problems in the various heavily populated cities and towns.\textsuperscript{15}

Recently, a consortium of U.K. local authorities from North West England and other agencies undertook an integral study of the causes and consequences for urban areas of continuing current transport policies. The interdisciplinary team working on the report made some recommendations. Most of the above are applicable to our counting also. Only authorities at the helm of these issues know best and they should take appropriate steps to improve the situation. The recommendations are as follows.\textsuperscript{16}

1) A well-resourced, integrated and sustainable public transport system is prerequisite of a civilized society. Such a system must be optimized to meet the needs of the traveling public without irreparable damaging the environment.

2) Models of transport that are best suited to meeting these needs should be encouraged and other forms of environmentally damaging surface transport discouraged.

3) The encouragement of a modal shift from private to public transport should be a priority of central and local government.

4) Land use, pollution and other impacts of transport should be better integrated into the environmental assessment process applied to a new development. Comparative environmental assessments should be
required to demonstrate that the road, rail or other mode of transport proposed is actually environmentally acceptable and is effective at delivering the level of transport provision required.

5) Road pricing should not be relied upon as an interventionist strategy until a through analysis has been performed on its benefits and the distribution of costs in comparison to the cost and benefits of using road fund licensing and road fuel pricing strategies to restrain traffic.

6) The majority of additional income from road restrain initiatives, (Pricing, license or fuel tax) should be used to improve public transportation systems and not be directed at new road building schemes.

7) Urban congestion problems are best solved by improving public transport and by implementation of appropriate restraints of private vehicle use. It is imperative that the enhancement of public transport services is provided prior to the implementation of traffic restraint mechanisms, if the latter are to command political and public support.

8) Education and public information campaigns are required to encourage public transport patronage, to discourage single occupancy trips and to reduce the number of short trips undertaken by private cars.

9) Central government and the EEC must provide the regulatory framework which encourages the manufacture of fuel efficient, low-emission vehicles.

10) Central government should support research and development programmes for alternative transport systems and alternative fuels.
11) A regulatory framework should be established which provides specific encouragement for the shift of freight to the railway systems. Such a framework of control will cost transport according to the level of its environmental impact. The above recommendations from a study abroad and a study in India are adequate to give suggestions to improve the situation. Will those concerned do the needful?

8.11 RECOMMENDATIONS FOR NOISE POLLUTION CONTROL

- The conclusions show that there is significant increase in noise pollution throughout Kolhapur city. However, no proper legal action seems to have been initiated so far.
- Proper monitoring of noise polluting needs to be done at identified sites throughout the year for better understanding of the problem and its mitigation measures.
- Since people are directly or indirectly involved with the causes of pollution, proper and timely awareness about the problem can help reduce the menace.
- There should be meetings prior to Diwali and Ganesh festival, arranged between the representatives of Ganesh Mandals, youth clubs, trade associations, citizens groups, NGOs with municipal administration and concerned Government agencies.
- In future proper planning of the city, viz. the location of educational institutions, hospitals, industries and the traffic system, needs to be done in order to demarcate the zones with maximum permissible sound levels.
- A specific integrated and time bound plan for reduction of noise levels, ambient and seasonal, in the city to be prepared and implemented by the concerned authorities like Kolhapur Municipal Corporation, MPCB, Police with the help of University and other research institutions.
Strict legal action should be taken against those who violate the legislation on noise pollution. Few such cases will discourage other potential violators from

8.12 GENERAL SUGGESTIONS TO CONTROL NOISE:

Some of the general suggestions for control of noise pollution:

1. The present law can sufficiently protect the victims of noise pollution, provided the courts interpret the rules liberally in favour of the claimants in the light of changing circumstances. Noise pollution as such has not been considered to be a wrongful act so far. The courts may now have no difficulty in treating noise pollution as such as a breach of legal duty actionable under the law in view of the fundamental duty of every citizen to protect and improve the natural environment enshrined in Act. 51-A(g) of the Constitution.

2. Whenever some noise pollution could have been avoided or lessened and the same has not been done, and therefore, disturbances, annoyance or other suffering is caused the same should be actionable.

3. In cases of excessive noise, physical damage affecting the health and the nervous system may be no less than that is there in cases of assault and battery. Excessive noise may be treated as a form of assault and battery and actionable as such.

4. There is an urgent need for the control of noise pollution through legislation also, so that the miseries which are being caused through such pollution can be minimised. There is Central Legislation on the control of water and air pollution in the form of The Water (Prevention and Control of Pollution) Act, 1981, but there is none so far as noise pollution is concerned. In England, Noise Abatement Act, 1960 and now
Control of Pollution Act, 1974 takes care of noise pollution there. Thus in India also there is an urgent need for a similar legislation on noise control.

5. Noise free zones should be introduced in noisy streets around all schools, colleges, hospitals, telephone exchanges, etc.

6. Maximum restrictions should be imposed on the use of loudspeakers.

7. Specific measures should be incorporated under the Factories Act for the control on noise in industries. It can be done in two ways:
   a) Reduction of noise at source, i.e., reduction of such source by proper machine design, proper maintenance, lubrication, use of sound proving materials, ear plugs, etc.
   b) Providing of protection for ears under the Factories Act, 1948. Section 35 of the Act provides protection for eyes unfortunately there is no provision for the protection of ears which can be impaired by noise at place of work. A provision should be included for such protection.

8. Public awareness of noise menace should be aroused so that people should use things like radios, two-in-one, etc. at such a volume which may not cause nuisance to the neighbours.

9. Persons causing pollution should be declared social criminals and must be deprived of certain civil and constitutional rights, e.g., right to vote.

10. Punishment should be in the form of fine and attachment of the source of noise pollution.

8.13 FUTURE SCENARIO OF AIR POLLUTION

The air pollution levels are expected to increase in the next century if the present conditions prevail in the cities. Therefore, there is an
urgency to find way and means to plan our cities and their transportation system in a way that sustainability is restored to the best of it in the next millennium.

As a result of urbanisation in India pressure on urban transport is likely to increase substantially in the next millennium. It becomes inevitable to evaluate the future transport scenario to forecast the vehicle air pollution levels. Following are some of the points of due considerations.\textsuperscript{17}

India is expected to have 31 metro cities by 2001 and 51 by 2021.

The number of vehicles on Indian roads are estimated to increase by nine times by the turn of the century out of which 65\% to 70\% shall be two wheelers or three wheelers. Urban transport demand is expected to grow by 2.6 times by 2016 at the existing model split in the large and medium sized cities.

At the existing model split the urban air quality is expected to deteriorate faster in the 21\textsuperscript{st} century as two wheeler population would be as high as 86.13\% of the total vehicles used of passenger transportation.

It is estimated that daily vehicular emissions would become about three times of the present levels in cities with population ranging between 20-50 lakhs if the existing model split level continues. In mega cities situation will be still worse where it will be seven times. Each mega city is expected to have four times the emission level in 2021 to that of 1994.

By the year 2001, carbon monoxide emission levels are likely to rise seven times and that of hydrocarbons by 9 times. The level of other major pollutants are expected to go up five fold.
8.14 LEGAL AND ADMINISTRATIVE MEASURES

Following measures are suggested

1) Single pollution controlling authority should be there in large city.

2) The oil companies should be asked through government notifications at regular intervals to supply better quality oils and lubricants which improves the engine performance and reduce tail-pipe emissions.

3) Time bound replacement of old buses with new buses (usually 10 years) to encourage the use of bus transport. The same should be true for cars and 2-wheelers.

4) Cancellation of licences for the operation of old vehicles to discourage their use in the large cities.

8.15 CONCLUDIVE REMARKS ON AIR POLLUTION CONTROL

From the above discussion it is clear that prevention and control of air pollution has been given primary importance in the Air (Prevention and Control Pollution) Act, 1981 and the Environment (Protection) Act, 1986. Some of the provisions provided in the Air Pollution Control Act already exist in the local Municipal Acts in a slightly different form, of prevention or suppression of nuisance with the aim of combating pollution at the local level. The 1981 Act covers all sources of pollution such as industries, transport, automobiles, domestic fuel and is directed against highly polluting industries like those of textile, power plants, iron and steel, cement, engineering, coal, chemical, fertilizer, etc.
In the light of sources and effects of air pollution and prevention and controlling provisions of various enactments following suggestions have been stipulated for its effective control:

A) Air pollution caused by domestic source can be controlled the use of smokeless fuel. For this purpose high-efficiency wood-stoves, gobar gas plants and solar cookers can be used in place of fire wood.

B) Air pollution caused by second and third source, i.e., mobile vehicles and industry can be controlled by two methods.

I) Control on generation of pollutants: Generation of pollutants can be controlled in three ways:

a) Temporary changes in the use of raw materials, e.g., use of leaf free gasoline which can reduce the lead pollution from automobile exhausts, substitution of bituminous coal with coke;

b) Operational control; and

c) Change in the equipment for a better one for example replacement of carburetter by fuel injection system in the petrol engine.

II) Arrest of emissions can be achieved by using methods to reduce the concentrations of a pollutant by destroying or collecting the pollutant before it is emitted from the stack, e.g., burning destroys organic vapours, hydrogen sulphide, etc., use of after burners for automobile exhausts, filters, training devices, etc.

The control of pollution at source is preferable to Natural Dilution Method under which appropriate heights for the chimney are used in order to keep the ground level concentrations within the prescribed limits. Short-term pollution in an isolated industrial unit can be solved through the latter method.
C) The Central Board as such does not include a person who has a special or practical knowledge on the prevention and control of air pollution. For tacking the environmental problems relating to air pollution it is desirable that person having special knowledge in matters relating to air pollution be added in the Central Board. The same can be suggested for the State Boards constituted under the Water Pollution Act.

D) Moreover, the members in the Board represent the Government, local authorities, industries, government undertakings, State Boards, etc. At present the composition of the Boards does not include persons having special knowledge of law. In this connection it is suggested that legally trained persons should be appointed in the Air Pollution Control Boards so that the machinery can be brought into action.

E) At present there are no arrangements to orient and train the existing staff in the municipal bodies for the purpose of undertaking conscious pollution control measures. Failure of Smoke Nuisance Inspectors to achieve much is a pointer to this direction. There is a need to equip the personal suitably to enable them to take in time the effective decisions.

F) In India, the energy sources should be increased to meet the emerging demand of the nation. For this purpose Hydro-electric plants, nuclear plants, natural energy sources like sun, tide of sea may be increased. In future these energy producing sources will provide the cheapest and pollutant free fuel.

G) To meet the pollution problem sufficient amount is required in the annual budget of the governments. For all the suggested measures heavy amount is needed. Money is required to improve our environment because pollution is directly connected with the energy.
H) Without the backing of the public opinion laws are of little avail. An aware and informed people can play a positive role in promoting environment pollution programmes and also help supplement official efforts to check the dangerous increase in the level of air pollution. In this direction, common man should be given education so that he can make his individual contribution towards control of pollution. Therefore, it is very important to arouse civic consciousness by introducing the subject of environmental issues in educational institutions; through newspapers, periodicals, radio, television, etc.