

# Air Pollution Control

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It is difficult to define Air Pollution as such, but the W.H.O. Expert Committee has adopted the following definition :

The term air pollution is limited to the situations in which the outdoor ambient atmosphere contains materials in concentrations which are harmful to man or his environment.

In the field of Air Pollution, the World Health Organization has done considerable amount of useful work, which must be adequately acknowledged.<sup>1</sup>

Air pollution is becoming an increasingly important aspect of environmental pollution in the wake of rapid industrialisation, and has assumed a stage of concern in many urban centres in India. Lack of adequate data, of technical personnel, equipment and laboratory facilities, has always left much to be desired in adopting environmental pollution control measures. The National Environmental Engineering Research Institute, Nagpur—NEERI—has made efforts for assessment of air pollution status in urban and industrial areas.

## Problem of air pollution in India

Principal growth in India is envisaged in the fields of power, petroche-

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  - 1. In particular, the W.H.O.'s contribution towards exploring this field can be seen from its following publications based on expert studies : 1. *Air Pollution*. W.H.O. Monograph Series No. 46, 1961. 2. *Measurement of Air Pollutants : Guide to the Selection of Methods* W.H.O. 1969. 3. *Health Hazards of Human Environment*. W.H.O. 1972. 4. *Research into Environmental Pollution*. W.H.O. Tech. Reports Series No. 406, 1968. 5. *Permissible Levels of Occupational Exposure to Air-borne Toxic Substances* : Report of W.H.O. Committee. W.H.O. Tech. Reports Series No. 415, 1969. 6. *Air Quality Control and Guides to Urban Air Pollutants* ; Report of W.H.O. Expert Committee. W.H.O. Tech. Reports Series No 506, 1972. 7. *Urban Air Pollution—With particular reference to Motor Vehicles* : Report of W.H.O. Expert Committee. W.H.O. Reports Tech. Series No. 410, 1969.

micals, fertilisers, synthetic fibres, metallurgy, sulphuric acid, nitric acid, pharmaceutical industries and various other chemicals and ceramic industries. In addition to industries, the other important source of air pollution in India is the domestic consumption of low grade fuels, resulting in intensely smoky atmosphere. Contribution of the fine dust by the deserts and other open dry fields and the unpaved streets is also considerable. These factors combined with human activities have caused heavy pollution of the urban air with the suspended particulate matter. Auto-exhaust is yet another contribution to the environmental pollution in the cities. Eighty per cent of the Indian automobiles are more than five years old. Because of this and because of improper maintenance they emit large quantities of carbon monoxide, hydrocarbons, oxides of nitrogen and other pollutants. Studies of two major cities show that automobile emissions alone account for 70% of carbon monoxide, 50% of hydrocarbons, 35% of particulates and oxides of nitrogen in the atmosphere.

Thus in India, air pollution is caused by industrial emissions, transport emissions, meteorological conditions and improper land use, without any planning for air pollution control. The industries in India have never considered pollution control equipment as an important component of their plant equipment or social obligation. This may have been due to ignorance about the pollution caused by the manufacturing processes.

#### **Slow awareness of the air pollution**

Though industrialisation has been going on at a rapid pace, the awareness regarding the effect of industrial discharge has been growing rather slowly. This ignorance has led to the following situation :

1. Industries have not provided for any controls on the emissions from the factories due to lack of understanding, resulting in an abnormal heavy discharge per unit capacity as compared to industrially developed countries in the world.
2. The location of the industry has been selected on several considerations such as availability of power, water and other services, man power, proximity of the residential areas and proximity of the market. This has resulted in the intermingling of industry and residential areas, leading to industrial emissions adversely affecting the residential areas.

#### **Lack of proper legislation**

The existing laws are not adequate to control air pollution. In India,

to-day, there is no specific legal provision for control of air pollution. The draft legislation submitted by the National Committee on Air Pollution appointed by the Government of India in 1971 is still pending for legislative action. In the absence of air pollution control laws, even new industries are being installed without adequate control which would not be permitted in other countries without proper air pollution controls. The location of industries without consideration of the pollution aspect is another great problem. Without proper legislation, no enforcement machinery can be established for air pollution control for existing industries as well as for those to be set up hereafter.

#### **Non-implementation of existing laws and regulations**

Advanced industrial cities like Calcutta, Kanpur, Bombay and Ahmedabad have Smoke Nuisance Acts, enacted long ago. Unfortunately, the enforcement of these provisions is extremely slack. Many State Municipal Acts also have provisions to deal with non-complying industries, public nuisance prevention etc., but these are hardly invoked. Central and State Health Laws also have clauses for prevention of hazard to public health in general. Due to various reasons, such as non-availability of properly equipped staff and lack of public awareness, these legal provisions to protect urban air remain unimplemented.

Developed countries have classified industries causing air pollution and it has been recommended that such industries should not be located within a certain vicinity of the residential areas. These industries are not allowed to be located without prior assessment of air pollution impact. Not much can be done as regards the old industries, but new industries can certainly be located carefully.

#### **Practical problems**

1. There is improper maintenance and operation of the control equipment already existing. Since non-operation of the control equipment does not affect production generally no attention is paid to maintenance; some times even regular attention paid to the control equipment is considered unnecessary.
2. In licensing a new industry, low priority in foreign exchange is given for selecting the control equipment. The procurement of control equipment is often delayed or even cancelled, thus resulting in a new industry coming up without proper control or monitoring facilities.
3. There is also a dearth of trained persons in the field of operating air pollution control equipments. Unfortunately, there is no systematic effort to

organize and provide the necessary training for maintaining and operating the control equipments.

#### **Immediate practical measures : legal and others**

In Western countries, there are exhaustive legal provisions to control pollution of environment by motor exhausts. These include stringent controls, construction of vehicles in such a way that no visible smoke vapour is emitted. Also they are controlled in such a way that they are not allowed to emit smoke, fumes, cinders, oily substances etc., if such emissions are likely to cause damage to property or cause injury to or endanger life of a person. Regulations also provide powers of inspection in relation to faults, including excess smoke emissions in vehicle and for systems of approval of specifications. Japan, Germany and U.S.A. have introduced regulations to regulate emission of carbon monoxide.

In developing countries like India, where there are urgent problems awaiting solutions, where there is lack of proper data and enforcing agencies are poorly equipped, control by legal means will take time. Till then, the bigger cities shall have to arrange for the local air pollution prevention measures. These measures may include diversion of long distance traffic from outside the cities, regulating traffic arrangement at busy intersections at peak hours, providing the wider roads at outskirts and wherever possible, providing for limiting the height of buildings thus limiting the density of population, provision for proper parking places and totally restricting vehicles in certain areas are some of the practical measures. Controlling the speed of vehicles in such a way that there is minimal idling at the intersections reduces carbon monoxide produced by idling cars.

Municipal Corporation, Universities, Industries and the Government should pull their resources to arrange for either continuous or periodical monitoring of the atmosphere to assess the pollution level at different times of the day or to check the seasonal variations. Education of the people at large, the motorists and other groups in the society should also be undertaken.

The air pollution problem in India is principally of particulate pollution. The levels observed in almost all the cities are more than the recommended standards in other developed countries. Sulphur dioxide levels have reached limits in certain areas. Specific pollutants in local areas from industrial discharge have already created difficult situation. The following measures may improve the situation and control air pollution in urban centres:

1. Air pollution legislation should be enacted without further delay to

enable legal measures to be taken against avoidable emissions both from the old and new industries. This is under active consideration of the Government.

2. Pending the enactment of air pollution legislation, the existing legal provisions like Smoke Nuisance Act, Municipal Acts and other health regulations should be enforced strictly with proper staff and equipment.

3. Existing control equipments in industries should be set right and it should be made obligatory for industries to maintain and operate them properly.

4. Industries should be classified with reference to air pollution potential, and new industries should be licensed only on installation of adequate pollution control equipment. They should be zoned suitably.

5. There should be emission standards for industries so that they are useful as guides and goals to be achieved also by industries.

6. There should be emission standards for automobiles. The Regional Transport Authority should be authorised to withdraw licenses where necessary.

7. There should be financial incentives to industries in the form of tax rebates, concessions etc., for control equipment costs where necessary.

8. There should be adequate facilities for proper in-plant and theoretical training of personnel required for operation and maintenance of the equipment.