LEGAL RESPONSES TO ATMOSPHERIC POLLUTION —INTERNATIONAL PERSPECTIVE

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CERTIFICATE

This is to certify that dissertation entitled, "Legal Responses to Atmospheric Pollution - International Perspective" submitted by Mr.Jitendra Kumar for the award of degree of MASTER OF PHILOSOPHY of Jawaharlal Nehru University is his original work. This has not been published or submitted to any other University for any other degree.

(Satish Kumar)
Chairman

(R.P.Anand)
Supervisor

DEDICATED WITH MOST AFFECTIONATE GRATITUDE

TO MY DEAR MOTHER

WHO IS TO ME

a constant source of inspiration all through my academic pursuits and thus remains an important contributor in making me whatever I happen to be.

PREFACE

Quality of life is essentially a subjective concept. At best, it is based on the personal perception of the basic values which bind the members of a community. The familiar word of the day is "ecology" defined as that branch of science concerned with the interrelationships of organisms and their environment. The layman desires an improvement in that area of his environment which will allow him to breathe uncontaminated air; the naturalist is concerned with the spoilation of the forests and its effects on animal and plant life; and the sportsman decries the polluted conditions of his lakes and streams which deprive him of his fishing rights. These are problems of ecology, each dealing with a different facet of environment.

Conservation of the natural environment is a major human concern these days. The natural environment comprehends the planet earth, its sub-terranean space, its atmosphere and outer space. Ever since man left the primitive age, he started altering the natural environment in pursuit of creating an economic, social and cultural environment of his choice. It is only in recent decades that it was brought home to him that there are some limits, albeit not quite clearly perceivable, beyond which he should not press his activity of alteration. The setting and enforcement of these limits has become an important task for policy-makers. As such, focal theme of the recent Indian Science Congress session was environment.

The challenge is tough. At the first flush it appears that policy decisions have to be made with a full awareness of all the features of the natural environment and in the light of the social, economic and political needs of human communities. Nevertheless when one comes down to deal with specific issues, such as whether an industry may be located at a particular place or not, one is likely to be influenced less by consideration regarding natural environment than by benefits to be derived from the industry. It is for this reason that environmental issues turn out to be highly complex.

The deterioration of environmental quality, which began when man first flocked into villages and utilized fire, has existed as a serious problem under the ever-increasing impacts of exponentially increasing population and of industrializing society. Environmental contamination of air, water, soil and food has become a threat to the continued existence of many plant and animal communities of the ecosystem and may ultimately threaten the very survival of human race. It seems clear that if we are to preserve for future generations some semblance of the biological order of the world of the past and hope to improve on the deteriorating standards of urban health, environmental science and technology must come to play a dominant role in designing our social and industrial structure for tomorrow.

Present venture is concerned with atmospheric pollution aspects of global environment. Nonetheless it may be stated at the outset that attention is not given here to thermal, light, noise, and radioactive pollution which travel through air and to the possibilities of accidents, such as the Bhopal tragedy. Such accidents in chemical industries are in no way different qualitatively from big explosions in munition factories. Care has to be taken to avoid them and when they occur ameliorative measures must be taken to save the human beings and to clean up the environment. Indeed, they are not basically environmental protection problems. Conducted carefully, enterprises such as Union Carbide may not turn out to be harmful to the environment.

Science with its continuous quest for new knowledge, new understanding and a rational value system has emerged as the most humanising factor in human history. It has broken geographical barriers and brought the whole world together. What is required now is to evolve a new consensus on basic values which are in dynamic harmony with nature. Law has to come here in aid. Broadly viewed as a process of decision, law may be treated as a significant instrument both for clarifying objectives and for facilitating rational choices. Considering transboundary effects of air pollution, both science and law must join hands at the international plane meshed with the heritage of national legal systems. The collective experience of municipal laws may be relevant through

analogical reasoning or as the fund from which "general principles of law recognised by civilised nations" may be derived.

Hereinafter follows a modest exercise aimed at exploring possibilities of refinement of law in transnational context with special reference to India on the front of curbing atmospheric pollution. A survey of ecological aspects of air pollution, international responses, and municipal approaches thereto has been made. To facilitate an appraisal of municipal approaches and a critical assessment of Indian efforts in the direction, a comparative study of sample comprising two states viz., the US and the UK providing twin models, has been made. Criteria for selection of these states as sample were the reasons that both of them are heavily industrialised, face acute problem of air pollution, have fairly good experience in legal and administrative regulation of pollutants, and relevant information concerning them had easy access. Though the USSR and Japan also have good amount of experience in the field to their credit, the same could not be made use of by the present study chiefly due to language handicap. Most of the connected literature from these countries was available in Russian and Japanese languages respectively.

Various authors, official publications and periodicals have been consulted for facts and data. But analysis of the subject matter is the author's own. Limitations of the work, in main, pertain to the time factor.

Jitendra Kumar

May 5, 1986

Jitendra Kumar

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I am thankful to all the authors and publishers consulted during this work and the personnel manning various libraries for their untiring assistance.

Throughout this work my dear mother, brothers — Brijendra and Virendra, and sisters — Rajni and Usha have exercised lot of patience and supported my move. I owe to them admiration and gratitude beyond expression.

Jitendra Kumar.

JITENDRA KUMAR

New Delhi

May 5, 1986

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Chapter - I

INTRODUCTION

Background

Air is a natural bounty vital for human life on this planet earth. It is an integral part of the environment we live in and needs to be protected. Preservation and judicious use of this natural resource is, therefore, the prime responsibility of the mankind unto itself. Till recently, it was believed that air is an inexhaustible resource of nature. But of late, this illusion has been shattered and it has come to be realised that despite its ubiquitous presence, air, or clean air, is exhaustible and if not properly conserved, its quality may diminish or reservoirs of good air may deplete after a limit situation. Studies show that the life-supporting capacity of the earth, that is, the absorptive capacity of the environment and the supply of natural resources is finite. The exponential increases in population and in industrial production are the real causes of environmental deterioration and destruction. The truth is brought home in various studies revealing scientific investigations, like Only One Earth,[1] the M.I.T. study for the Club of Rome, called the Limits to Growth. The last study attempts to show mathematically that such growth

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1 Ward & Dubos, Only One Earth : The Care and Maintenance of A Small Planet (1972), p.111.

must inevitably lead to eventual collapse.[2] Though the findings of such studies as The Limits To Growth are hotly contested, the finiteness of the earth's life-supporting capacity as an incontestable fact is widely felt.[3]

The fundamental message of the environmentalist is that mankind inhabits a finite planet with finite resources. If the human race is to survive under the conditions that make life worthwhile, it must devise ways of maximising the productivity of this finite stock of resources and of sharing the product in some rational and equitable way.[4] But man has a homicidal tendency manifested unwittingly by pollution of the environment. The source of life is largely oxygen and this human planet will perish if by pollution we destroy that fountain.[5] Man's destruction of his environment is as old as the emergence of Homo sapiens on this planet. As early as about 2500 years back, Plato lamented that only the naked skeleton was left of his once so beautiful country.[6]

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2 D.Meadows, The Limits to Growth : A Report for the Club of Rome's Project on the Predicament of Mankind (1972), pp.124-27.

3 Ludwik A.Teclaff, "The Impact of Environment Concern on the Development of International Law", in International Environmental Law (ed.) (New York, 1974), pp.253-54.

4 See John Lawrence Hargrove, ed., Law, Institutions and the Global Environment (Leiden, 1972).

5 V.R.Krishna Iyer in C.K.Chaturvedi, Legal Controls of Marine Pollution (New Delhi, 1981), p.vii.

6 E.Hambro, "The Human Environment : Stockholm and After", Yearbook of World Affairs (1974), p.206.

Presence of alien substances in such quantity and for such duration as may prove to be injurious to human, plant, or animal life, or property, is termed as "pollution". Thus "atmospheric pollution/air pollution" is introduction by man, directly or indirectly, of substance or energy into the atmosphere which has deleterious effect of impairment of air quality for use. The factors which add to the problem are many. Air is an element which knows no boundaries and can carry pollutants far and wide. An oft-cited and well-documented example of such pollution is the acid rain of southern Scandinavia which, a Swedish study has demonstrated, results from the emission of sulphur from industrial sources hundreds of miles away in Western Europe.[7] Even more dramatically, the distance travelled by nuclear fall out from tests shows the extent to which pollutants can be carried around the world in the upper atmosphere. Realisation of the damage which nuclear pollution can cause led to the Nuclear Test Ban Treaty in 1963.[8] This was followed by the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction.

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7 Royal Ministry for Foreign Affairs, Air Pollution Across National Boundaries : The Impact of the Environment of Sulphur in Air and Precipitation (Sweden's Case Study for the UN Conference on the Human Environment, 1967), p.87.

8 Treaty Banning Nuclear Weapons Tests in the Atmosphere, Outerspace and Under Water, UN Treaty Series, 43, p.480.

Atmospheric pollution adversely affects man and his environment in many ways. It soils his home and interferes with the growth of plants and shrubs. It obscures his view and adds unpleasant smells to his environment. Most important, it endangers his health. Acute episodes of pollution in London, New York, and other cities like Bhopal have been marked by dramatic increase in death and illness rates, especially among those with pre-existing respiratory or cardiac conditions. It is difficult to assess damage, soiling and added maintenance to homes and furnishings or how air pollution acts on property values. The cost of fuels wasted into the air is also hard to count. It is still more difficult to determine the value of medical costs and time lost from work because of air pollution -- or to calculate the resulting fall in productivity of business and industry.[9] The effects of air pollution on other animate and inanimate things like plants, trees and crops are sometimes worse than on man.[10] Still worse is that the figures of pollution levels are continuously on the increase. A large scale study of atmospheric pollution caused by vehicles only, which was recently launched by the Delhi Administration has shown that pollution levels are far above the prescribed safe

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9 Irving J.Sloan, Environment and the Law (New York,1971), p.7.

10 J.M.Dave, "Air Pollution", World Focus, vol.4 (1983),p.10.

limit at major traffic intersections.[11]

The general question whether man's present conduct and behaviour put him "on a collision course with the laws of the nature" may be debatable.[12] Yet the desirability of preserving a clean, attractive and healthy environment is widely accepted and the need to achieve a long-term environmental balance undeniable. The point at issue is not the need for environmental protection. It is how much and how. Our present way of life is premised on geographical expansion, economic growth and rising expectations of wealth — processes that have been subject to little control. Today these very processes are most widely cited as the ultimate sources of environmental "crisis".[13] The political and legal systems that have legitimised and encouraged these processes in the past are now being asked to control them or, at least, to minimise their unwanted consequences. To accomplish such a transformation is clearly a difficult undertaking. Environmental goals often confront competing considerations — economic efficiency, income distribution, various special objectives, even national security.[14] The task of environmental protection is made even more difficult by its global dimensions. Pollution often ignores boundaries,

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11 See The Hindustan Times (New Delhi) April 23,1985.

12 R.Ehrlich Paul, Anne H.Ehrlich and John P.Holden, Human Ecology : Problems and Solutions (San Francisco,1973),p.3.

13 See Ezra Mishan, Technology and Growth = The Price We Pay (New York, 1969) and William R.Kinter, Technology and International Politics : The Crisis of Wishing (Lexington, 1975).

14 Supra, n.4, p.4.

but the political solutions necessary to control it can not. With the recent and rapid changes in the international political arena, accepted perceptions of the operation of the political system itself have been challenged. Some keen observers have been led to question the very ability of the traditional international structure of independent nation states to respond to them.[15] The entire setting of political activity has begun to change. Recent literature on international law and politics have been much concerned with these changes, particularly with the many new actors, issues, and strategies that have started to appear on the world stage.[16]

Globally, the question of air pollution is one of a series of very depressing problems we are addressing. We can't help but be impressed and concerned by the magnitude of environmental problems that cross boundaries and need international solutions.[17] Phenomenal growth in civil aviation has brought in its fold new problems associated with the environment. At any rate, until the middle of the twentieth century environmental concern made but a small contribution to the shaping of international law. Throughout most of history there was little

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15 See Richard A.Falk, "The Logic of State Sovereignty Versus the Requirements of World Order", Yearbook of World Affairs (1973), p.7.

16 R.Michael M., Gonigle and Mark W.Zacher, Pollution, Politics and International Law : Tankers at Sea (London, 1979), p.9.

17 Gus Speth, "Transnational Air Pollution", World Environment Report, vol.6 (Jan. 1, 1980), pp.13-14.

understanding of man's capacity to affect the environment on a large scale, and even when this capacity increased to global dimensions, its implications were only slowly realised. As population grows, and as technology advances, humans put great pressure on the air to accept the unwanted wastes.[18] Long dismissed as the ravings of "eccentric bird watchers, butterfly chasers, and overstrenuous hikers",[19] calls for an end to the reckless degradation of the natural environment have increased with the mounting evidence of man's ecological folly. Of late, this has begun to command worldwide attention. In 1968, UNESCO convened its Biosphere Conference, and scientists from around the world gathered to warn of the need to the proper use and conservation of the earth's resources. Even NATO entered the scene with Conferences and programmes organised by its Committee on the Challenges to the Modern Society. In 1972, world concern crystallised with the holding of the United Nations Conference on the Human Environment at Stockholm. The Stockholm Declaration affirmed "Both aspects of the man's environment, the natural and the man-made are essential to his well-being and to the enjoyment of basic human rights -- even the right to life itself ... In the developing countries

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18 Supra, n.3, p.229.

19 Richard A. Falk, This Endangered Planet : Prospects and Proposals for Human Survival (New York, 1971), p.183.

most of the environmental problems are caused by under-development... In industrialised countries, however, the environmental problems are generally related to industrialisation and technological development... It is necessary to avoid massive and irreversible harm to the earthly environment, and strive for achieving for ourselves and our posterity a better life in an environment more in keeping with human needs and hopes".

Principle 1 of the Declaration states, "Man has the fundamental right to freedom, equality and adequate conditions of life in an environment of a quality that permits a life in dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for future generations". The affirmation signals enough caution that environmental problems have to be viewed in broadest human context. The Conference, attended by India also, urged the states to initiate measures to maintain clean and wholesome environment, as also purity of air. It stimulated such vast public interest that governments were forced to consider a wide range of environmental issues that had long been neglected. It approved numerous principles to guide future international conduct. To see that these principles were implemented, the Conference initiated a new international environmental agency, the United Nations Environmental Programme (UNEP).

Though some scholars plead that the right to an adequate environment can be conceived of as a human right, it is difficult

to establish it as such. There is no express inclusion of environment protection either in theUniversal Declaration of Human Rights, 1948, or in the two International Covenants on Economic, Social and Cultural Rights; and Civil and Political Rights, 1976 respectively. "Right to life" is, however, stretched to cover this right.

Looking at municipal law, the legal theories which may be utilised by private parties in private litigation in air pollution cases are, generally speaking, the traditional torts — nuisance, trespass and negligence. The greatest difficulty facing private litigants seeking recovery or relief in air pollution lies in a situation wherein the pollution has not passed from a single identifiable source, such as a factory chimney, if a community-wide pollution results from the commingling of pollutants from various sources and spread over a wide area; it becomes difficult to establish causation in such cases and identify the tortfeasor.[20]

There appears to be a wide divergence among the national approaches of various states in this direction. Several national enactments have adopted the approach of setting emission standards, as well as air-quality standards. Laws aimed at controlling air pollution often prescribe regulations regarding fuel type, the chimney height, and type of control device to be used, in addition to emission standards. Some countries

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20 Supra n.6, pp.9-10.

such as the United Kingdom (UK), have no air quality standards for pollutants but operate on emission controls only.[21] But in the United States (US) a combinationof air quality and emission standards are employed. In India, Air (Prevention and Control of Pollution) Act, 1981 mainly regulates and controls emission from automobiles and industrial plants. The Act envisages a machinery of Central and State Boards. Apparently, the legal and institutional tools vary from country to country.

Law is a means to an end. The primary end is assurance of human survival and so the first charge on the legal system is elimination of pollution of those vital sources without which life on earth may be impossible. One of the imperatives for law, therefore, is the control of pollution. Natural resources, if wisely used, will promote human happiness for ever, but irresponsible pollution and indiscriminate exhaustion may leave mankind in peril of extinction. Modern technology can be Frankstein's monster and the legal system must interdict the trends towards unlimited pollution by a moral or immoral industrial activity without community welfare orientation.[22] International law, like any other branch of law, must draw its

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21 W.Strauss and S.J.Mainwaring, Air Pollution (London, 1984), p.117.

22 Supra n.5.

life and vitality from the facts of international life. International law is and ought to be a living discipline evolving continuously in the light of new situations.[23] As Professor Mc Dougal points out law is not some frozen set of pre-existing rules or arrangements but rather a dynamic and continuous process of authoritative decision making through which the members of a community clarify and implement their common interests. The value of these statements lies in accepting law as a kind of a social process.[24] But the task requires a systematic enquiry into international and municipal efforts already made in that direction, and examination of existing legal tools and review of institutions set up to serve that end. Many fundamental legal issues raised by the hazards of atmospheric pollution, need to be resolved for an orderly development of the law on the subject so that ill-effects of air pollution are checked and an atmosphere promising healthy human survival on earth is preserved. As a matter of fact the well-being of a country depends on the way in which it uses its natural resources. Hence this venture.

Scope of Study

This study concentrates on a critical examination of

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23 R.P.Anand, "Development and Environment : The Case of Developing Countries", Indian Journal of International Law, vol.20 (1980), p.16.

24 J.E.S.Fawcett and Andrey Parry, Law and International Resource Conflicts (Oxford, 1981).

legal norms and unresolved problems with a view to suggest some possible solutions. It seeks to take stock of air pollution risks, the factors responsible for the problem, international responses in the direction, the existing legal framework and outstanding issues, with an object to formulate possible solutions which could be suggested to overcome the situation.

Plan of Work

The review of introductory aspects of the subject matter made here is followed in the next chapter by a projection of the ecological facets of air pollution, its nature and ill-effects on life and property on the earth. After this, a round up of the international responses which have come forth from time to time, is made in the third chapter. This involves a review of the efforts made at international plane, including those under the auspices of the UN and the regional organisations. Domestic legislation and administrative efforts of a sample of states comprising of two highly industrialised countries viz., the US and the UK, are examined in the fourth chapter for a comparative scrutiny thereof. Natural resources are being eroded at an alarming rate in India and other developing countries. Administrators and the people need understanding of the causes of this process, and of the ways to remedy it so that development strikes a judicious balance between immediate and long-term requirements. On this premise, Indian case study of air pollution control measures has been undertaken in chapter fifth.

The analysis concludes in the last chapter with a critical appraisal of the discussions made in the preceding parts. An attempt is made to draw conclusions and explore possibilities for suggesting solution of outstanding issues and for further elaboration of legal norms and institutions with a view to check the air pollution hazards.

Chapter - II

ECOLOGY OF ATMOSPHERIC POLLUTION AND HAZARDS IT POSES

PLANET EARTH AND ATMOSPHERE: Physical and Chemical Fundamentals

Our earth is indeed a rich and fortunate planet, imbedded in the universe in such a way that its size, its position, its orbit, and its rotation combine to provide it with the optimum conditions of life; a protective atmosphere, life giving water, neither too much nor too little solar radiation.

The earth and the atmosphere which surrounds it form an almost closed system. Like an envelope which encompasses the earth, its atmosphere is finite, with 99 per cent of its mass within 20 miles of the earth's surface. This atmosphere keeps moving around the earth, and it has no beginning or end. The atmosphere's inner edge or boundary layer is always and everywhere in contact with the land and the waters and the living things that inhabit them. The atmosphere, as we know it and breathe it, was created in part, by living things; its present composition is maintained by them and, at the same time, all life is dependent upon the atmosphere.

Because of its oneness and intimate interrelationship with land, water, and life, a change in the atmosphere at any one point affects some aspect of the earth-atmosphere system at some other point. This effect may be a simple linear one on

some small part of the system or a multiplying effect with one interaction triggering another.

The earth is about 93 million miles from the sun and travels around it making a "life belt" far enough from the destructive radiation. The sun's radiation pours down day after day and month after month, with what finally reaches any part of the lower atmosphere and the earth's surface varying with the time of the day, the season, the latitude, the cloud cover, the changing contents of carbon dioxide, water vapour, and particulates in the air above, and the respective properties of the surface. After the sun goes down, the earth's radiation predominates. Now the water vapour and carbon dioxide protect the earth from cooling too rapidly by reflecting heat back to the earth.

Pure and clear air is composed of molecules of various gases of known ratio. This ratio is maintained by constant change, constant removal and replenishment, and constant interaction of gases. The energy for all this activity is supplied by the sun. Nitrogen dominates the atmosphere quantitatively, in dry air, about 78 per cent in volume. The second most abundant constituent of the earth's atmosphere is oxygen, about 21 per cent. The remaining one per cent is much more diversified. Most of this — about 0.9 per cent — is argon, a chemically inert gas. There are much smaller amounts of the other inert gases — krypton, xenon, helium, and radon. Methane, present

in the atmosphere in small amounts, is produced by bacteria which decompose organic carbon or carbon dioxide. Nitrous oxide, one of the many possible combinations of nitrogen and oxygen, is present in a similarly small amount as is hydrogen. But, more important than any of these constituents of the last one per cent of the atmosphere, both in atmospheric dynamics and in the interaction of the atmosphere with living things, are carbon dioxide and water vapour. Carbon dioxide comprises about 0.3 per cent by volume of the dry atmosphere.

AIR AND LIFE : Ecological Interrelationships

Among the rich contents of the air, oxygen is far more chemically reactive than nitrogen, combining much more with other molecules and playing a key role in almost all life processes. Life, in turn, is reported to have played a key role in the development of the oxygen-rich atmosphere. Although there was water vapour in the early atmosphere and each molecule of this gas contained an atom of oxygen and two atoms of hydrogen, there was no free oxygen gas consisting of molecules which united two oxygen atoms. Ammonia and methane were both components of the early atmosphere. With energy from the sun, everything necessary to create organic compounds — the food for every living being — was present.[1] As more and more of

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1 Laboratory experiments have demonstrated this.

these compounds developed, it has been suggested that the oceans became a kind of "organic soup".[2] It was within this organic soup that life first appeared and the long evolutionary process of natural selection began. The first forms of life were, perhaps, anaerobic, and the first metabolism was the anaerobic metabolism typified by fermentation. Some of these anaerobic life forms developed a form of photosynthesis, a mechanism for absorbing light and using it to split the oxygen atoms away from the hydrogen atom in water molecules, thus making free oxygen possible. This green-plant photosynthesis was responsible for our present oxygen rich atmosphere and still maintains it. At the same time the presence of free oxygen made possible the proliferation of myriad forms of aerobic forms of life that inhabit the earth today, including the man. Oxygen was -- and still is -- important in developing and maintaining the protection the atmosphere provides for the earth and its life below. Outer ozone layer of the atmosphere which is formed from oxygen because of energy of ultraviolet radiations from the sun, saves the life on this planet from destructive energy of this radiation.

All this shows that atmosphere is a part of the larger ecosystem in which life emerges and nurtures. Atmospheric oxygen

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2 See A.I.Oparin, The Origin of Life (New York, 1938).

3 Virginia Brodine, Air Pollution (New York, 1973), pp.30-40.

plays an important role in the photocyclic chain which sustains life on earth. It is vital for all organic activities.

Burdening of Atmosphere

Air is a gift of nature which is bestowed free by God and we have always enjoyed this beneficence with gratitude. For several centuries we have known the importance of air for the survival of life, on this planet.

The earth's atmosphere has served man in two fundamental ways throughout his existance; it has provided him with life-sustaining air to breathe and it has acted as a medium for disposing off reasonable quantities of the wastes associated with human activity. Man's indiscriminate use of the atmosphere as a gigantic sewer, however, has led to isolated severe air pollution episodes and ultimately to a global deterioration of the quality of the ambient air.[4]

Till recently, it was believed that air is an inexhaustible resource of nature, firstly because of its expansive availability and secondly for the miracle of nature in cyclical purification of the air. But technological advancement, and man's constant striving for a higher standard of living — as measured in terms of the number and value of his material possessions — have all contributed to the atmospheric degradation.[5]

4 Wilfrid Bach, Atmospheric Pollution (New York, 1972), p.1.

5 See John S. Winder, Jr., "An Environmentalist's Critique", Natural Resources Lawyer, vol.5 (1972), pp.187-192; and P.B.Clark, "Environmental Destruction", Economic and Political Weekly, Sept. 4, 1976.

Air is required for growing crops, cooking food, generating power, driving automobiles, boats, etc. The used up air which is loaded with various pollutants generated in these processes, is discharged into the atmosphere. A huge amount of air is consumed in day-to-day activities. The figures are staggering. For instance, Delhi requires 65.6 cu Km. per day, Bombay takes 81.5 Cu km. per day, and Calcutta 86.0 Cu.km. per day on an average. Population growth, technological development and the resulting increase in living standards, and consumption habits associated with economic growth — all these trends have slowly been contributing to the increased spread of waste and the destruction of nature.[6]

Man-Made Atmospheric Pollution

Any atmospheric condition in which substances are present at concentrations high enough above their normal ambient levels to produce a measurable effect on man, animals, vegetation, or materials, is termed as "Air Pollution". "Substances" include any natural or man-made chemical elements or compounds

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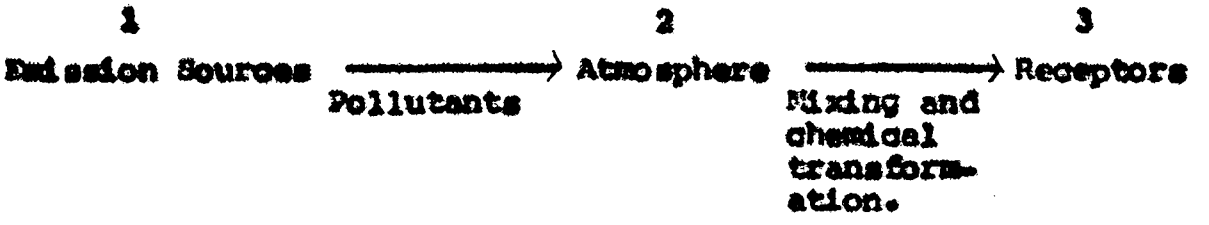
6 See generally B.H.Ackerman et al., The Uncertain Search for Environmental Quality (New York, 1975); S.L.Agarwal, ed., Legal Control of Environmental Pollution (Bombay, 1980); Arvill, Man and Environment (London, 1977); Eric Ashby, Reconciling Man with Environment (London, 1978); V.Bharadwaj and J.L.Bhat, ed., Managing the Environment (Delhi, 1978); Gopal Bhargava, Ecological Imbalances and Quality of Life (Bombay, 1982); and E.Fedrov, Man and Nature (Moscow, 1980).

capable of being airborne. These substances may exist in the atmosphere as gases, liquid drops, or solid particles. The air pollution problem can be described as a system consisting of three basic components[7]



Air pollution can be defined as the emission into the atmosphere of a waste gas stream consisting one or more contaminants such as dust, gases, mists, or fumes in concentrations sufficient to be injurious to human, animal or plant health, or to affect property values adversely.[8]

The atmosphere has always been polluted to some extent. Since the 1940s and early 1950s, however, our pollution disasters have become more frequent. Air pollution has lately been blanketing larger and larger portions of the globe, and on some occasions the problem has increased to hemispherical proportions.[9]

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7 John H.Seinfeld, Air Pollution : Physical and Chemical Fundamentals (New York, 1975), p.1.

8 James P.Tomany, Air Pollution, the Emissions, the Regulations and the Controls (New York, 1975), p.2.

9 See generally Charles M.Hasset, Air Pollution (New York, 1969); H.W.Parker, Air Pollution (New Jersey, 1977); R.D. Ross, Air Pollution and Industry (New York, 1972); A.C. Stern, Air Pollution, 3 vols. (New York, 1976); and S.P. Singh, "How Polluted Is the Air Around US?", National Herald, June 18, 1971.

Man-made pollution has existed as a local problem since man invented fire for cooking and for warming his ill-ventillated caves. Historians report crude oil combustion in Persian shrines as early as 900 B.C. In his poems Horace deplored the smoke-blackened temples of Rome in 100 B.C. In medieval times man-made pollution became such a menace that British Kings decreed that fouling of the London air by smoke was an offence which was punishable by the death penalty through hanging.[10]

Man-made air pollution produced at relatively small urban and industrial agglomerations has within the past century developed into a real threat to life.[11] Today, the air we breathe, is hardly pure enough to assure reasonable longevity of life with basic health. Of late, it has been discovered that despite its ubiquitous presence, air is exhaustible.

Sources of Air Pollution

Man-made air pollution can be classified source-wise as under:[12]

1. Motor Vehicles - Hydrocarbons and nitrogen oxide emanating from motor vehicles are the major ingredients of photochemical

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10 Bach, n.4, pp.xi-3.

11 See Robert U.Ayres, "Air Pollution in Cities", Natural Resources Journal, vol.9 (1969), pp.1-22.

12 n.4, pp.4-7.

smog. It is now a fact that down-town areas of big cities have a smog problem. Automobiles also emit sizeable quantities of such poisions as lead, arsenic, and aldehydes.

2. Industry - A good percentage of air pollution is produced by such industrial contributors as metallurgical plants and smelters, chemical plants and petroleum refineries, fertilizers and synthetic rubber manufacturers, pulp and paper mills etc.

3. Power Plants - Power plants are the greatest contributors to sulphur dioxide pollution.[13] Power consumption increases twice as fast as the population. Coal and oil are mostly used for power production.

4. Refuse Disposal - Burning of waste material in open dumps also adds considerably to air pollution.

5. Transportation Services - The general policy with railroad diesel engines is not to shut them off, but to put them on a side track even when not in use. Ships are equally potential contributors of smoke and sulphur dioxide to the pollution level of port cities. Expansion of civil aviation[14] is another addition to the atmospheric pollution.

6. Commercial and Agricultural Activities - Demolition, construction, and spray painting are the most common sources of pollution

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13 See D.K.Biswas and G.K.Pandey, "Air Pollution Problems in Thermal Power Plants", Bhagirath, vol.30 (1983),pp.111-14.

14 See generally S.Bhatt, Aviation Environment and World Order (New Delhi, 1980).

within this category. Field burning, and dusting and spraying of the crops fields with pesticides are some of the methods farmers use to contribute their share to the general pollution problem.

7. Domestic Fuel Burning - Domestic fire generates a good amount of atmospheric pollutants every day. The common man thus puts in his own share to the misery.[15]

Pollutants' Chemistry

The variety of airborne matter is such that it is difficult to construct tidy classifications.[16] However, the substances usually considered air pollutants can be classified as follows:

1. Sulphur containing compounds,
2. Nitrogen containing compounds,
3. Carbon containing compounds,
4. Halogen compounds i.e., Chlorine, Flourine and Iodine compounds,
5. Particulate matter, and
6. Radio-active compounds.

Sulphur is an impurity in coal and in fuel oil. Through

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15 See T.P.S.Rajan, "Smoking Nuisance and Domestic Sector", Journal of the Indian Merchants Chamber (Feb.1977); and S.Sharma and T.S.Kumar, "The Hazards of Burning Firewood", The Times of India, Sept. 29, 1981.

16 See generally S.J.Williamson, Fundamentals of Air Pollution (Massachussets, 1973).

combustions it enters the atmosphere as sulphur dioxide, hydrogen sulphide, sulphurous and sulphuric acids, and various other sulphates.

Nitric oxide, a relatively harmless gas, turns into a pungent, yellow-brown, harmful gas when oxidised to nitrogen dioxide. Man-made nitrogen dioxide originates from stationary sources like fertilizer and explosives industries, and from mobile sources, such as automobiles.

Carbon monoxide, a colourless, odourless, and lethal gas, results from incomplete combustion of carbonaceous fuels. Of the world's total carbon monoxide production, 80 per cent is produced by automobiles alone.

Hydrocarbons originate from the combustion of gasoline, coal, oil, natural gas, and wood, from evaporation of gasoline and industrial solvents, and from natural resources, mainly the decomposition of vegetation.[17]

By "particulate matter" scientists refer to any substance, except pure water, that exists as a liquid or solid in the atmosphere under normal conditions and is of microscopic or semimicroscopic size but larger than molecular dimensions. They may include dusts, smokes, mists and aerosol.[18]

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17 n.4, pp.9-12.

18 Seinfeld, n.7, p.7.

Impact on Weather, Property and Life

Polluted air does not affect man alone, but all other animate beings such as plants, animals and even inanimate things like buildings and properties. It influences the meteorological phenomena. The foreign substances in the air do not stay in the form they are released from the polluting sources. They undergo numerous chemical and physical reactions and change in form. Damages to public health and property are many. Most of the common materials are adversely affected by air pollution. Fabrics weaken and fade, leather weakens and becomes brittle, paints discolour, concrete and building stones discolour and erode, glass is etched and paper becomes brittle. All these, in turn, greatly increase expenditure on up-keep, maintenance and replacement.[19]

Substantial evidence exists to indicate that air pollution affects health of human beings and animals, damages vegetation, soils and deteriorates materials, affects climate, reduces visibility and solar radiation, impairs production processes, contributes to safety hazards, and sometimes leads to catastrophe.[20]

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19 J.M.Dave, "Air Pollution", World Focus, vol.4(1983), pp.10-11.

20 See J.B.Anderson, "Damages from Pollution of Air and Surface and Subterranean Waters", Idaho Law Review, vol.10 (1973), C.G.Hurlbutt, "Air Pollution:Causes, Effects and Control" South Carolina Law Review, vol.25 (1974), pp.737-63; R.S. Mehta, "Air Pollution Causes, Consequences and Control", Journal of Indian Public Administration, vol.2, (1981), pp.47-55; and S.C.Tayal, "Air Pollution : Causes and Consequences", Civic Affairs, vol. 29 (Aug. 1981), pp.113-19.

A. Meteorological Aspects

There is hardly any weather element that is not influenced by air pollution. Atmospheric pollutants considerably reduce solar radiation, cause reduced visibility and fog. It may result into cloudiness, fog formation and increase in precipitation over the affected areas. Snowfall also seems to be triggered off more easily over a polluted complex.

On a global scale the effects of pollution on modifying the climate are less obvious.[21] It is reported that since the 1940s the mean world temperature has decreased by about 0.5°F. Also since 1880s, the carbon dioxide content of the atmosphere has gone up.

B. Effects on Property

Air pollutants affect materials by soiling or chemical deterioration. High smoke and particulate levels are associated with soiling of clothing and structures, and acid or alkaline particles, especially those containing sulphur, corrode materials, such as paint, masonry, electrical contacts, and textiles. Ozone is particularly effective in deteriorating rubber.

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21 See V.P.Nanda, "Symposium : Global Climatic Change Introductions", Denver Journal of International Law and Policy, vol. 21 (1981), pp.857-94.

C. Effects on Vegetation:

The effects of air pollution on vegetation are still worse. The incidence of damages due to discharge from various chemical processes are well known. The gaseous pollutants enter the plant with air through the stomata in the course of the normal respiration of the plant. They destroy the chlorophyll and disrupt the photosynthesis. Damage may range from a reduction in growth rate to complete death of the plant.[22] Cases are not rare where large tracts of forests are rendered barren due to heavy discharges of toxic pollutants. Even minute concentrations may ruin food crops and flower plants which are sensitive to these particular chemicals. The delicate species like algae and mosses etc. are easier prey.

D. Effects on Human Health:

Sulphur dioxide and particulates are stated to be responsible for numerous respiratory diseases such as bronchitis, constrictive ventillatory disease, emphysema, and bronchial asthma etc.[23] Hydrocarbons discharged from the bituminous processes

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22 Seinfeld, n.7, pp.11-16; See also T.N.Khoshoo, "Air Pollution and Plants" Society and Science, vol.4 (April-June, 1981), pp.23-33.

23 See generally Stewart, Air Pollution, Human Health and Public Policy (Lexington Books, 1974); E.J.Cassell, The Health Effects of Air Pollution and Their Implication for Control (New York, 1969), pp.1-20; and D.N.Singh, "Effect of Air Pollutants on Human Health and Vegetation", Bombay Civic Journal, vol.30 (1984), pp.12-13.

and automobile exhaust have been reported to boost up the rate of incidence of lung cancer in many communities. Added to these are additives in petrol such as lead, barium and manganese, etc., which are discharged by motor vehicles continuously. Air pollution has been found to be associated with higher mortality rates. It may also develop heart and circulatory problems. The worst victims are the infants, children, sick and the aged. Physiologically, an infant and child are likely to be more susceptible to air pollution than an adult. It may result in a decline in their growth rate, vital capacity and general health. People with pre-existing respiratory or cardiac conditions also have graver risks. Occupational and personal (by smoking) air pollution are further addicts.

Air Pollution Episodes

It is very difficult to demonstrate chronic effects caused by continued exposure to air pollution. However, air pollution episodes with extremely high concentrations have been found to cause acute sickness and death. An account of major air pollution disasters[24] which occured in modern times is a testimony to this facts

(i) Meuse Valley, Belgium, 1930 - Trapped by an invasion, pollutants (sulphur dioxide) accumulated in this steep-sided valley of 15 miles length. Within a few days more than 600

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24 Bach, n.4, pp.43-47.

people fell ill, and 63 died.

(ii) Donora Pennsylvania, 1948 - Effluents from a number of industries such as a sulphuric acid plant, a steel mill and a zinc production plant became trapped in a shallow valley inversion to produce an unbreathable mixture of fog and pollution. About 6,000 people suffered various degrees of illness, such as sore throats, irritation of the eyes, nose, and respiratory tracts, headaches, breathlessness, vomitting and nausea. The episode claimed 20 deaths.

(iii) Poza Rica, Mexico, 1950 - The release of hydrogen sulphide and its spread under a shallow inversion with foggy and calm conditions killed 22 people and hospitalised 320.

(iv) London, 1952 - Sulphur dioxide peak in adverse dispersion conditions reached five times the normal concentration in the atmosphere. About 4,000 people were affected. Pollution disasters with similarly high concentrations occured in 1957-58 and again in 1962-63 without great number of casualties.

(v) Cincinnati, Ohio, 1968 - A similar accident with a fortunately less tragic ending without any casualty was experienced by two lower middle-class communities when about 2,500 pounds of sulphur dioxide escaped into the air from a burst pipe at a chemical plant.

(vi) New York, 1953, 1962-63, 1966 - High sulphur dioxide and smoke concentrations on all three occasions caused hundreds of excess deaths.

(vii) Bhopal, 1984 - It was shortly after midnight on Dec. 2, 1984 that a large quantity of the lethal methyl isocyanide gas leaked out from the Union Carbide plant causing deaths and destruction. This is, perhaps, the world's most disastrous pollution accident so far witnessed. About 2,500 people died and over a lac were affected. Bhopal is still reeling under the effects of the toxic gas. Medical experts say that effects of the gas will continue to be felt for a long time to come. Evidence of a long-term damage to the natural immune system of those affected by the lethal leakage, has been found by a team of medical experts recently.[25]

(viii) New Delhi, 1985 - About 350 persons were admitted to various hospitals after a cloud of thick, pungent oleum gas engulfed a large area on December 3, 1985 following leak from a storage tank at the Shriram Food and Fertilisers Plant on Old Rohtak Road.[26]

Major air pollution disasters resulting in hundreds and thousands of casualties have periodically occurred since the Industrial Revolution. They have proved exceedingly detrimental to the health of the people in general and in particular, to susceptible group of people such as the sick, the aged, and the very young.

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25 The Times of India (New Delhi) Nov. 30, 1985, p.3.

26 Ibid., December 5, 1985, p.1.

Economic Repercussions

Air pollution places a great burden upon the national economy as well as upon the economy of individual families. Analysis of the economic aspects of air pollution generally discuss only the cost of damages caused by pollution and the amounts spent by polluters for control equipment. A true assessment of the economic impact of air pollution, however, can be obtained only if the cost of damage and control efforts are related to the value of the benefits to be gained by control. It is now generally acknowledged that polluting the nation's atmosphere is a luxury with neither the national economy nor the economy of the individual family can afford any longer. Economists have developed cost-benefit models which show how economic air pollution control is to the polluter and the nation.[27]

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27 Bach, n.4, p.61; See also Robert C.Anderson and Ostro Bart, "Benefits Analysis and Air Quality Standards", Natural Resources Journal, vol.23 (1983), pp.565-76; D.W.Barnes, "Backdoor Cost - Benefit Analysis Under A Safety - First Clean Air Act", Natural Resources Journal vol.23 (1983), pp.827-58; Peter Bird, "The Benefits of Environmental Improvement : Theory and Practice ", Natural Resources Journal, vol.20 (1980), pp.706-7; Thomas D. Crocker, "Some Economics of Air Pollution Control", Natural Resources Journal, vol.9 (1969), pp.23-58; V.V.Desai, "Social Cost of Pollution", Chartered Accountant, vol. 26 (1977), pp.295-96; H.Gerhardt, "Incentives to Air Pollution Control", in Havinghurst ed., Air Pollution Control (New York, 1969), pp.162-72; A.C.Vakil, "Economics of Air Pollution Control", Financial Express, June 7 and 8, 1977; and Harold Wolozin, "The Economics of Air Pollution : Central Problems", Law and Contemporary Problems, vol.33 (1968), p.227.

Air is a natural bounty and an integral part of our ecosystem. Preservation and judicious use of this natural resource is, therefore, the prime responsibility of mankind unto itself. Illusion about inexhaustibility of the air has since been shattered. The human race inhabits a finite planet with finite resources. The source of life is largely oxygen and it will be suicidal if we destroy that fountain by pollution of atmosphere through introduction of harmful substances into it. Not only life, the air pollution effects adversely even inanimate things including materials and property. Pollution episodes are further disastrous. Acute episodes world over have been marked by dramatic increase in death and illness rates in general and proved fatal to the infants, children and the sick. Prevention and control of atmospheric pollution is an economically more sound and advisable approach than bearing it. Fortunately, the man has appreciated this by now and there has been an international awareness and municipal initiative in this direction during the past few decades.

Chapter - III

INTERNATIONAL RESPONSE - EFFORTS UNDER THE AUSPICES OF THE UNITED NATIONS

International Environmental Responsibility & Customary Law

Although the principles of international law are not primitive or archaic yet their adequacy for the treatment of environmental problems is seriously in question. Though the position, to be optimistic, may soon change, customary international law contains no rules or standards related to the protection of environment. The customary law provides limited means of social engineering, and, therefore, there is a particular need for the development of new institutions, standards and localised regimes to deal with the protection of the environment.

It is commonly asserted that the international law of pollution is still at the embryonic stage of development. Legal development in this area has not yet been evidenced by any growing acceptance of general principles of state responsibility for environmental injury beyond territorial limits. International legal principles of environmental responsibility have so far emerged chiefly from two sources: from international declarations and resolutions that lack the effect of law making treaties.

The doctrine of international responsibility under traditional international law has rather restrictive application.

Primarily it deals with the responsibility of a state for injuries to aliens in its territory and only marginally with state responsibility for direct injury to the rights of other states. The doctrine of strict liability is, however, limited to a few areas designated by treaty or otherwise for the allocation of risks associated with extremely dangerous activities. Earlier approaches to the question of state responsibility may be found in the applications of the principle of non-interference established by customary international law and described in the vague maxim sic utere tuo ut alienum non ledas (use your property in such a manner as not to injure that of another). Obviously, this maxim is of minimal utility in the assessment of international environmental responsibility without the provision of specific criteria. It belongs to an even more nebulous order of vagueness than the civil law doctrine of abuse of rights. The observations in the Trail Smelter Arbitration[1] and the Corfu Channel case[2], belong essentially to this

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1 In Trail Smelter Arbitration Canada was held responsible for the injury and damage resulting in the US from fumes and deleterious matter emitted from a smelter located in British Columbia and deposited over an area of the State of Washington. It was obliged to pay damages on the theory that a nation incurs liability under international law when it permits or causes injury in the territory of another state. Future operations of the smelter were to conform to a specific set of restrictions designed to prevent injury as much as possible. Thus, as the UN Charter confirms, every state is entitled to maintain its national territory free of external interferences and to protect the lives, property and interests of its nationals when threatened from any quarter, including presumably, deleterious cross-border airborne pollution. See American Journal of International Law, vol.35 (1941), p.684; See also UN Charter, Articles 2(7) and 51.

2 See L.Oppenheim, International Law, H.Lauterpacht, ed., (London, 1955), pp.290-91; See also ICJ Reports, vol.4, (f/n. cont...n/page)

category.

Another source of general principles of state responsibility for extraterritorial injury might be traced by analogy to the doctrine of equitable utilisation applied to international rivers and lakes - enunciated in the unofficial Helsinki Rules adopted by the International Law Association in 1966.

The famous Trail Smelter decision has been interpreted in many ways. Some, for example, have argued that it introduced the concept of strict liability into international law; others maintain that it merely invokes the rudimentary principle of sic utere tuo. A few scholars have suggested that it hints at an acceptance of the doctrine of equitable utilization.[3]

Conventional Law for Protection of Airspace

Theoretically, international conventional law can deal with air pollution problems in three ways. First, treaties may be concluded either imposing obligations upon parties directly or authorizing an institution to create rules binding upon the

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(previous f/n. cont...)
(1949), p.22; International Court of Justice placed in this case Albania's liability to Great Britain for failure to notify Britishships about mines in the Albanian waters of the Corfu Channel, which exploded and damaged the ships, on "certain general and well-recognised principles", including "every state's obligation not to allow knowingly its territory to be used for acts contrary to the rights of other states".

3 James Barros and Douglas M.Johnston, The International Law of the Air Pollution (New York, 1974), pp.69-76.

parties. So far, the treaty form has been used for providing the basic constitutional power of the international institutions concerned with these problems.

A second approach would be to empower constitutionally created institutions to make regulations which would become directly binding within the Member States without the intermediate intervention of the municipal legislative process.

Third, international conventional law may take the form of resolutions, recommendations, guidance manuals, codes and directives, prepared and adopted by international institutions. They all have one purpose viz to pursuade states to adopt legislation or to harmonise existing legislation along the lines proposed in these various acts.

The conventional law for the protection of the airspace environment may be considered under two heads:

A. Aviation threat to the environment,

B. Other forms of air pollution.

A. Aviation Threat to the Environment - Aviation presents a threat to the environment in a number of ways. The most obvious hazards are aircraft noise, aircraft engine emissions and the effect of the airport on the ecology of the surrounding area.

A good example of conventional law in this field is the Airport Master Planning Manual, published by the International Civil Aviation Organisation (ICAO) in 1969, which stresses

the need for long-term planning for airports to include an assessment of the plan's potential impact on the airport environment.

B. Other Forms of Air Pollution - Conventional law to deal with air pollution caused by factors other than aviation is being created on three levels of integration. First, there are bilateral agreements concluded to deal with essentially local problems such as the protection of frontier areas. Second, there is the work done by various intergovernmental organisations, regional, universalist or sectional, whose convention based constitutions empower them to deal with air pollution problems. Finally, there is contribution of the European supranational communities.[4]

Treaties Regarding Air Pollutions

The Netherlands has concluded agreements with Belgium and the Federal Republic of Germany respectively, providing for consultation on air pollution problems. In Eastern Europe, similar bilateral agreements are planned between Poland, Czechoslovakia and the German Democratic Republic. The Polish-Czech Agreement is reported to envisage wide ranging collaboration

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4 See Armin Rosencranz, "The ECE Convention of 1979 on Long Range Transboundary Air Pollution", American Journal of International Law, vol.75 (1981), pp.975-82.

in economic, scientific and technical matters, especially on the protection of frontier areas on pollution. Another type of treaty is illustrated by the three Agreements signed in Brussels in November, 1971 between a number of European states on the Implementation of Various European Projects on Pollution.[5]

Recent Responses - Efforts Under the Aegis of United Nations

The attention given by the international community to environmental concerns in recent times has proceeded from a number of premises.[6] The first, and most general, has been the conviction that the time had come when some degree of concerted, international action was required in order to deal with the problem or problems of maintaining the quality of the environment. The premise that something should be done led to preparations for the Stockholm Conference on the Human Environment which ultimately took place from June 5 to June 16 in 1972. The work achieved at this Conference largely determined the nature of the organisational arrangements for the purposes which together form "the United Nations Environment Programme" (UNEP).

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5 E.D.Brown, "The Conventional Law of the Environment" in Ludwik A. Teclaff, ed., International Environmental Law (New York, 1974), pp.36-40.

6 See Howard J.Taubenfeld, "The Atmosphere : Change, Politics and World Law", Denver Journal of International Law and Policy, vol. 10 (1981), pp.469-86.

By resolution 2997 (XXVII)[7] of December 15, 1972, the General Assembly established four bodies : the Governing Council of the UNEP; the Environment Secretariat headed by the Executive Director of the UNEP; the Environment Fund; and the Environment Co-ordination Board. This institutional machinery is responsible for the implementation of the Action Plan adopted at Stockholm and for such other environmental activities as may be undertaken in the near future by the UN. The UNEP Governing Council, an intergovernmental body, provides overall policy guidance as regards the steps to be taken to deal with environmental concerns of international significance. The Executive-Director of the UNEP acts as "a focal point for environmental action and co-ordination within the UN system."[8] The Environment Fund is used to finance new environmental initiatives, including those envisaged in the Action Plan. The Environmental Co-ordinating Board, chaired by the Executive Director, ensures cooperation and co-ordination among the UN bodies concerned with the implementation of environmental programmes.

The organizational arrangements eventually agreed upon constitute a modest innovation. In addition to the Declaration on Human Environment,[9] the Conference adopted an extensive Action

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7 UN Doc.A/890.

8 Ibid.

9 For relevant extracts from the Text of the Declaration See Appendix.I.

Plan consisting of 109 recommendations directed to the governments, the Secretary-General, the new environmental organs, the specialised agencies, and regional and non-governmental organisations. The recommendations, which were the outcome of over two years long intensive discussions, constitute a detailed programme of endeavours. The Action Plan, some fifty pages in length, testified, together with the Declaration, the acceptance by the international community of the need to adopt more conscious policies towards the use of environment.[10]

The main provisions of resolution 2997 (XXVII) establishing, as its title states, "Institutional and Financial Arrangements for international Environmental Co-operation", are set out below:

1. Governing Council of the UNEP - Paragraph 1 of Section I of the resolution provides for the establishment of the UNEP governing Council composed of fifty-eight members elected by the General Assembly for a term of three years. The distribution of membership is specified as follows: African states, sixteen seats; Asian states, thirteen seats; Western European and other states, thirteen seats; Latin-American states, ten seats; Eastern European states, six seats.

The Governing Council is entrusted in section 1, paragraph 2, with the following functions and responsibilities:

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10 Michael Hardy, "The United Nations Environment Programme" in Ludwik A. Teclaff, ed., International Environmental Law (New York, 1974), pp.57-58.

"(a) To promote international cooperation in the field of the environment and to recommend, as appropriate, policies to this, and;

(b) To provide general policy guidance for the direction and coordination of environmental programmes within the United Nations system;

(c) To receive and review the periodic reports of the Executive Director, referred to in section II, paragraph 2, below, on the implementation of environmental programmes within the United Nations system;

(d) To keep under review the world environmental situation in order to ensure that emerging environmental problems of wide international significance receive adequate consideration by Governments;

(e) To promote the contribution of the relevant international scientific and other professional communities to the acquisition, assessment and exchange of environmental knowledge and information and, as approximate, to the technical aspects of the formulation and implementation of environmental programmes within the United Nations system;

(f) To maintain under continuing review the impact of national and international environmental policies and measures on developing countries, as well as problem of additional costs that may be incurred by developing countries in the implementation of environmental programmes and projects, and to ensure that such programmes and projects shall be compatible with the development plans and priorities of those countries;

(g) To review and approve annually the programme of utilization of resources of the Environment Fund referred to in section III below.(11)

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11 See n.7, Section I, paragraph 2.

The Governing Council reports annually to the General Assembly through the Economic and Social Council (ECOSOC) which transmits its comments "particularly" with regard to questions of co-ordination of policies and programmes within the UN system to overall economic and social policies and priorities."

2. Environment Secretariat - The Secretariat is headed by the Executive Director of the UNEP elected by the General Assembly on the nomination of the Secretary-General for a term of four years. The Executive Director is responsible:

> (a) To provide substantive support to the Governing Council of the United Nations Environment Programme;
>
> (b) To co-ordinate under the guidance of the Governing Council, environment programmes within the United Nations system, to keep their implementation under review and to assess their effectiveness;
>
> (c) To advise, as appropriate and under the guidance of the Governing Council, intergovernmental bodies of the United Nations system on the formation and implementation of environmental programmes;
>
> (d) To secure the effectiveness and operation of and contribution from the relevant scientific and other professional communities in all parts of the world;
>
> (e) To provide, at the request of all parties concerned, advisory services for the promotion of international co-operation in the field of environment;
>
> (f) To submit to the Governing Council, on his own initiative or upon request, proposals embodying medium-range and long-range planning for United Nations programmes in the field of environment;

(g) To bring to the attention of the Governing Council any matter which he deems to require consideration by it;

(h) To administer, under the authority and policy guidance of the Governing Council, the Environment Fund referred to in section III below;

(i) To report on environment matters to the Governing Council;

(j) To perform such other functions as may be entrusted to him by the Governing Council(12)

3. Environment Fund - It is stated in section III, paragraph 1 that, "to provide for additional financing for environmental programmes", a voluntary fund is established with effect from Jan.1, 1973.

4. Co-ordinating Board - The Board, chaired by the Executive Director is established "in order to provide for the most efficient co-ordination of the United Nations Environment Programmes".[13] The Board reports annually to the Governing Council.

Task Assigned to the UN Environment Machinery

Resolution 2997 (XXVII) reveals the nature of tasks bestowed upon the UNEP. The feature common to the various proposals contained in the Action Plan was that they related

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12 Ibid., Section II, paragraph 2.

13 Ibid., Section IV, paragraph 1.

to the acquisition of knowledge and the assembly of data, on the basis of which more informed decisions of social and economic policy could be taken.

In the case of pollutants, a series of proposals were put forward for examining and monitoring various actual or potential contaminants. The Secretary-General was required to take steps "to ensure proper collection, measurement and analysis of data relating to the environmental effects of energy use and production within appropriate monitoring systems", particular reference being made to the need to monitor "the environmental levels resulting from emission of carbon dioxide, sulphur dioxide, oxidants, nitrogen oxide, heat and particulates as well as those from releases of oil and radioactivity."[14]

In regard to man-made pollutants, the Secretary-General "drawing on the resources of the entire United Nations system, and with the active support of the Governments and appropriate scientific and other international bodies", was asked to increase the capability of the UN system to provide "awareness and advance warning" of the deleterious effects involved, in a form which is useful to policy-makers at the national level.[15] To achieve these ends, the Secretary-General was to improve testing procedures on an international basis. International testing schedules were to be developed, together with an agreed system of international intercalibration, which would permit

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14 See Recommendation 57, UN Doc.A/CONF.48/14. Here and subsequent references are to the Recommendations of the Action Plan.

15 See Recommendation 74.

more meaningful comparisons of national data. Plans were to be drawn for the establishment of an "International Registry of Data on Chemicals in the Environment", based on available scientific data with respect to the major man-made chemicals and "containing production figures of the potentially most harmful chemicals."[16] The environmental mechanism was required to include among its functions the development of an internationally accepted procedure "for the identification of pollutants of international significance and for the definition of the degree and scope of international concern". The appointment of intergovernmental expert bodies "to assess quantitatively the exposures, risks, pathways and sources of pollutants of international significance" was also requested.[17] Activities within the framework of the Man and the Biosphere Programme were to be strengthened, so as to "facilitate intensive analysis of the structure and functioning of ecosystems", and to monitor the accumulation of hazardous compounds in biological and abiotic material and the effect of such accumulations on the reproduction and population size of selected species.[18]

United Nations Environment Programme Contribution and Achievements:

UNEP's programmes include "Earthwatch", an international surveillance network with three main components: a Global

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16 Ibid.

17 See Recommendation 85; see also Principles 21 and 22 of the Stockholm Declaration, n.9.

18 See n.10.

Environment Monitoring System, which monitors selected environmental parameters to provide governments with the information necessary to understand, anticipate and combat adverse environmental changes, whether man-made or natural; computerised referral service to 20,000 sources in 100 countries for environmental information and expertise; and the International Register of Potentially Toxic Chemicals, which works through a network of national correspondents to provide scientific and regulatory information on chemicals that may be dangerous to health and the environment.

In the area of environmental law, UNEP's efforts have included the development of guidelines or principles regarding the harmonious utilization by states of shared natural resources and the preparation of an international convention on Ozone layer. UNEP is also concerned with promoting technical assistance, education and training for management and environment.

At a session of a Special chapter of UNEP's Governing Council, held at UNEP Headquarters at Nairobi in May, 1982, over 100 Governments reviewed the environmental achievements and shortcomings of the international community since Stockholm and charted the main lines of action for UNEP in 1980s. The session adopted the Declaration of Nairobi, which sets out the major problems to be addressed in the future by Governments, international agencies and the public at large, and reaffirms

the commitment of Governments to the objectives of the Stockholm Plan of Action and the principles of the Stockholm Declaration on Environment which they considered to be "an environmental code as valid today as it was in 1972" when it was adopted initially.[19]

Other Institutions in Fields

A bewildering number of organisations including the World Health Organisations (WHO), and the Food and Agricultural Organisation (FAO) are working on air pollution problems. Regional organizations like the Nordic Council, Benelux, the European Communities and the UN Economic Commission for Europe; sectional organizations like NATO, COMECON and OECD, and universalist organizations like the specialized agencies of the UN all have something to contribute. While, it is true that overlap and duplication of work has to be avoided and discouraged, the Governing Council and Environment Secretariat recommended and established by the Stockholm Conference are assisting in this respect. It is also true that many of these institutions are following different but complimentary approaches dictated by their field of interest and expertise.[20]

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19 See, Basic Facts About the United Nations (New York, 1984), A UN Publication, Chapter XII, Sections 13-14.

20 Brown, n.5, p.40.

International Legal Responses
An Appraisal

From the point of view of general international law there is a basis for norms controlling cross-border air pollution, the unwanted effects of atmospheric experiments, international weather modification, etc. While it is clear that no more than rudimentary basic rules exist, and that, in matters considered by the states vital to their well-being (such as the developing states' demand to industrialise), it may well be difficult in a given case to gain compliance; it does appear that international law already imposes the duty on a state "not to allow knowingly its territory to be used for acts contrary to the rights of other states. A state has been held internationally responsible when its acts or those of its citizens, while not intended to be harmful, in fact caused damage in another state. The Lotus Case and the Trail Smelter Arbitration between Canada and the US support this conclusion.

The problem with general principles like good neighbourliness and abuse of rights is, however, that they lack sufficient precision to permit their application with any degree of confidence in concrete cases; and such as modern fluvial law in which more or less concrete rules are developed.

In any case, the Trail Smelter heritage has now been appropriated by the international community in the Stockholm

Declaration on the Human Environment.

The primitiveness of environment protection, however, is evident in the stage of evolutionary machinery to implement it. The Environment Council and Secretariat, envisaged at the Stockholm Conference and established by the General Assembly are confined to information gathering, co-ordination of the UN programmes, and the issuance of non-binding guidelines. But this is understandable because the Stockholm Declaration and Recommendations are not international agreements and do not impose binding obligations on states. However, environmental organs of the UN could have been given powers similar to those of the Economic, Social and Cultural Rights Committee to study and comment on reports submitted by states[21] since the right to a good environment is similar and partakes of all the difficulties and drawbacks of social and economic rights.[22]

It is a common knowledge that the existing international strategies aiming at the global environmental protection awfully lack the necessary teeth.[23] It is also a matter of common international concern that as long as the nation states continue

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21 See International Covenant on Economic, Social and Cultural Rights, Articles 16-22.

22 Ludwik A.Teclaff, "The Impact of Environmental Concerns on the Development of International Law", in International Environmental Law, ed., (New York, 1974), p.252; see also Abel Wolman, "Global Pollution and Human Rights", Natural Resources Journal, vol.12 (1972), pp.195-210.

23 See Ralph C. d' Arge and Allen V.Kneese, "State Liability for International Environmental Degradation : An Economic Perspective", Natural Resources Journal, vol.20 (1980), pp.427-50.

to occupy the focal point in the scheme of international law and relations, international efforts to develop an effective international legal framework for environmental protection are bound to encounter formidable problems. It is time now that the focus of international law should shift from 'nation states' to 'individuals'. A welcome beginning in this direction has already been made with the adoption of various international covenants on human rights. The international human rights movement, it is submitted, should inspire the nation states to shed their extravagant claims to unbridled sovereignty and to forge an international understanding and co-operation to ensure to the humanity an internationally guaranteed and protected hygienic global environment. This calls for an effective and an assertive system of accountability of all the states in all matters pertaining to the global environment.[24] This, in turn, is possible only when the states are induced to enter into a multilateral covenant providing for an express guarantee of hygienic environment in favour of individuals. However, one shall be unrealistic to forget the problems in obtaining international consensus on actual approaches for maintaining a clear environment while permitting national development. Problems are many and great, and are inherent in the present international political system, which stresses self-help as the primary source for development

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24 See K.Ramakrishna, "UNEP : An Assessment of its Impact", Indian Journal of International Law, vol.24, (1984)

as well as security, while relying primarily on self-policed rules and norms. In this context, it must be recalled that the now classic traditional economic development strategy has always been to allow pollution of social resources, which can be thought of as a type of subsidy to development.[25]

The 150 odd nation states in the world are subject to varied social, economic and political pressures. The poor countries place primary emphasis on intensive use of technology for growth of agriculture and industry to alleviate poverty. Truly, poverty is the worst pollution. Thus the UN Conference on Human Settlements, 1976, in its Declaration, reaffirmed the right to food, shelter and clean water into a human right. The rich states place emphasis on minimisation of pollution at reasonable cost. Some of them are preoccupied with weapon development and testing of nuclear weapons. For the underdeveloped, the development has not been at the speed they desire. For these reasons, it is difficult for nations to arrive at a common policy regarding environmental protection.[26] They

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25 Howard J.Taubenfeld, "International Environmental Law : Air and Outer Space" in Ludwik A.Teclaff ed., International Law (New York, 1974), p.197; See also K.Ramakrishna, "Environmental Concerns of the Developing Countries : A Case Study of India" Ecology Law Quarterly, vol.12 (1985); S.D.Phukan, "Environmental Problems in Developing Countries", Assam Tribune, June 5, 1978; see also generally R.R.Rao, Environment : Problems of Developed and Developing Countries (New Delhi, 1976).

26 See Moorie Neiburger, "International Aspects of Air Pollution", Stanford Journal of International Studies, vol.8 (1973), pp.16-30; Ingovon Muench, "International Environmental Law : Some Remarks", Indian Journal of International Law, vol.23 (1983), pp.210-24. Jim W.

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might agree on generalities but not specific issues.

Unfortunately, it is not often appreciated that implicit in mitigation is the appraisal of relative equities. It may be argued that it would be in keeping with the principles asserted by international bodies to seek solutions which would satisfy the basic human needs of the most deprived groups and impose sacrifices on those relatively well-off. But a less drastic measure of mitigation would be to reduce those conveniences and consumption habits in the developed countries which provide relatively minor benefits and present potential threats. This relatively easy course, however, does not carry us very far toward an answer for the more pervasive and difficult problems of coping with the cumulative effects of industrialization. They call for an increased awareness of the common interest in a habitable world and of the priority of that interest over local and short-range benefits.[27]

(previous f/n. continues...)
Mac Neill, "Transfrontier Pollution : Some Problems in the 70s and 80s", Environmental Policy and Law, vol.8 (1982), pp.17-21. E.G.Lee, "International Legal Aspects of Pollution of the Atmosphere", University of Toronto Law Journal, vol.21 (1971), pp.203-10; and Rahmatullah Khan, "Environmental Pollution and International Law", Indian Journal of International Law, vol.11 (1971), pp.106-11.

27 Oscar Schachter, Sharing of World's Resources (New York, 1977), pp.82-83; see also S.K.Gajendragadkar, " The World Environment Day : 5th June, 1978", Civic Affairs, July 1978.

Chapter - IV

MUNICIPAL MEASURES : TWIN MODELS OF REGULATION

Smoke pollution in cities formerly was regarded as a symbol of progress and prosperity; eventually the danger to public health emerged as a concrete issue. Public indignation led to abatement requirements and regulations in some cities. Technological developments, such as change over from coal to petroleum and gas as principal fuels, together with suburbanisation based on expanded transportation facilities, reduced smoke volume and spread the sources of pollution geographically, but continuing industrial growth and increasing dependence on motor vehicle transport produced the problem of air pollution today confronting all large cities and industrial areas.[1] Traditionally, the problem has been tackled through a new orientation to common law doctrines.[2] It is not, however, surprising that the swell in the public outcry against air pollution has resulted in a myriad of laws and regulations across the earth that are aimed at reversing the pollution trend. States have written air quality standards into their laws. Even within those states, numerous individual cities and regions have adopted and formulated their own local

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1 The Human Environment, vol.2 (Summaries of National Reports, New York, 1972), p.97.

2 See F.E.Maloney, "Judicial Protection of Environments A New Role for Common Law Remedies", Vanderbilt Law Review, vol.25 (1972), p.144.

ordinances.[3]

The problem is being regulated in all developed countries on an emergency basis. They have adopted, in general, four types of approaches[4]

(i) The Best Available Means Approach emphasises upon control of emissions from industrial plants through the 'best available means';

(ii) Setting of Emission Standards which shall not allow emission from the chimneys or stacks beyond certain specified concentrations with a threat of exorbitant penalty if it is exceeded ;

(iii) Air Quality Criteria Provision by which the amount of permissible concentration of the pollutant in the area is first decided and then the available dilution for that particular discharge is calculated and the emission restraints are arrived at for that particular source ;

(iv) The Zoning of the Industries By Classification with specific sanitary belt around the air polluting industries

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3. Dermot A.O.'Sullivan, "Air Pollution-Jeopardising Our Life-Support System" Chemical & Engineering News vol.48 (June 8,1970),p.38.

4. J.M.Dave, "Air Pollution" World Focus vol.4(1983), p.13.

and sources which do not have economical engineering feasibility for controlling pollution are classified.

The Common Law

The three main heads of air pollution related doctrine in the common law are negligence, strict or absolute liability, and nuisance.[5]

Negligence is the basis of liability for wrongful conduct that causes an injury and gives rise to a claim for damages. The plaintiff suing for pollution damage on the basis of negligence would have to show that the defendant, the alleged polluter, had fallen short of the standard of conduct imputed to a hypothetical 'reasonable man' and could have foreseen that his conduct might result in damage like that which has occurred. In pollution cases based on negligence it is often difficult for the plaintiff to show what standard should be expected of a prudent operator, and he will have to contend with the usual difficulties of providing negligence, such as establishing cause and effect and applying the test of foreseeability. In some cases, however, the court has lightened the plaintiff's burden of proof by applying the doctrine res ipsa loquitur, which

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5. James Barros and Douglas M.Johnston, The International Law of Pollution (New York,1974), pp.19-20. See also Frank L.Seaman, "Tort Liability for Pollution of Air and Water" Natural Resources Journal vol.4 (1970),pp. 146-53; and Benedict A.Jaherak III Air Pollution As A Prirate Nuisance" Natural Resources Lawyer vol.4(1970), pp.475-90.

permits an inference of negligence, that the injury was caused by an instrumentality within the defendant's exclusive control, and that the injury was not due to the voluntary action of the plaintiff.

The doctrine of strict or absolute liability has evolved in modern times in certain kinds of situations where injury has been caused by an activity that is not wrongful but gives rise to liability even in the absence of an allegation of negligence or fault. A familiar example is the situation where the defendant has created a peril on his own property or has engaged in a lawful but hazardous activity that results in an injury to the plaintiff. In these circumstances, under the doctrine of strict liability, the defendant is obliged to compensate the plaintiff for all damage that is the natural result of the peril of activity, regardless of a finding that the defendant exercised due care.

Nuisance may be defined as substantial and unreasonable interference with the use and enjoyment of another's property. To be a nuisance, the pollution complained of would have to be regarded as offensive to a reasonable person of ordinary sensitivities. On the question of proof, the court looks primarily to the effect, rather than the nature of the act complained of, in determining whether a nuisance exists.

Statutory Regulations

Public concern about atmospheric pollution has led to enactment and adoption of a plethora of municipal laws in the industrialised countries throughout the world. It may be instructive to have a glance through experiences of a few such nations who have to their credit a good amount of efforts aimed at combating air pollution. For instance, the problem has been severe in the US and the UK. They have strived hard to curb it legally and represent two different models of municipal regulation of pollution of air. As distinguished from common law, they are prevention and deterence oriented rather than reparation oriented.

The United States of America.

In the US, the first federal air pollution control programme was introduced in 1955. The major components of the act stipulated that the Federal Government would provide research and technical assistance, but that states and local governments would be responsible for pollution control at the source. Since 1960, federal technical assistance has been provided under the auspices of the Department of Health, Education and Welfare (HEW) through the Division of Air Pollution, later renamed as the Center for Air Pollution Control and National Air Pollution Control Administration. In December, 1963, the Clean Air Act was enacted to provide for legal action that states, municipalities and the Federal

Government could take to end interstate and intrastate air pollution. Another Clean Air Act enacted in 1965 directed the Secretary of the HEW to establish emission standards for new motor vehicles. In 1970, the agency was renamed as Air Pollution Control Office (APCO), but operating now within the newly established Environmental Protection Agency (EPA).

In part echoing the 1955 Clean Air Act, the Air Quality Act of November, 1967 promulgated for the first time the acceptance of responsibility by the Federal Government if local control agencies failed to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population, and "to insure that air pollution problems will in the future be controlled in a systematic way". On December 30, 1970, the President of the US signed into law the Clean Air Amendments to "amend the Clean Air Act of 1967 and to provide for a more effective program to improve the quality of the Nation's air". The Act contained the following major provisions:

A. Air Quality Standards

The Act required the Administration to publish national primary and secondary ambient air quality standards for each agent already cited as a pollutant. For other pollution agents, the Administration had to publish national standards at the time the pollutants were designated. Primary standards specified the minimum air quality needed to protect public health and secondary standards were to promote public health.

The former were to be promulgated by the EPA Administrator and for the latter, the states were to devise plans. The Administrator was authorised to specify and set emission standards for hazardous air pollutants - those having a proven relationship to increased human death rates or serious illness. States had the primary responsibility for enforcing the regulations. The Administrator was also required to emphasise research on the effects of air pollution agents, singly and in combinations, on public health and welfare.

B. State Implementation Plans

The Clean Air Amendments of 1970 required each state, after public hearings, to adopt plans for implementing, maintaining and enforcing the standards and goals promulgated for each air control region, or portion of a region, within that state. Such plans were to be submitted to the Federal Government within nine months after the standards and goals were promulgated and were to be approved or disapproved within four months. The Administrator, however, could grant extensions upto eighteen months for submission of plans and upto three years for implementation thereof.

The Amendments authorised the Administrator to formulate plans for states that did not submit plans or that submitted plans which were not approved; the Administrator could also provide for hearings if the states made no such provisions and he could require the revision of already approved plans if he later found them to be inadequate. Each state was declared responsible for air quality within its boundaries.

The Administrator was authorised to set emission standards for all potentially dangerous pollutants from new motor vehicles and engines.[6] He could seek injunctions to stop pollution sources that endangered public health if the local or state authorities had not acted to seek abatement. Citizens or groups could also bring suits in Federal Courts against either the Administrator for failure to perform specified duties, or alleged violators, including the government agencies. The Act set punishments too for violations of implementation plans. A person who knowingly violated an implementation plan or an abatement order could be punished by a fine of upto $25,000 for each day of violation and a year in prison, or upto $50,000 per day and two years in prison for persons with previous violations.

Legal authority to control local air pollution problems is usually vested, therefore, in municipal, county, and state agencies.[7] The Federal Government, however, has often

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6. See Howard P. Willens, "The Regulation of Motor Vehicle Emissions" Natural Resources Lawyer vol.4(1970),pp.120-30; and Evelyn N.Angeletti", Transmogifications State and Federal Regulation of Automotive Air Pollution" Natural Resources Journal vol.13 (1973), pp.448-79.

7. See Doyle J.Borchers, "The Practice of Regional Regulation Under the Clean Air Act" Natural Resources Lawyer vol.4 (1970), pp.59-65.

found itself compelled to take action when either a local agency failed to act, or when the local authority was non-existent. The test of "knowingly violating the standards" is a loophole easily available to persons tried by injunctive court action. It is interesting to note that the Federal law forbids the sale or import of cars without proper control devices, but not the actual driving of such vehicles. The Federal law controls only emissions from new vehicles. In order to be effective, control should be coupled with the regulation of fuels and fuel additives, and maintenance supervision.

The national energy crisis and the Government's decision to strive for reduced dependence on foreign energy sources prompted the Congress in 1974 to postpone air pollution control deadlines for both auto manufacturers and industrial polluters. The law was again amended in 1977 to "protect public health by cleaning the air". New standards were set to protect clean air areas and the EPA was directed to review criteria for ambient air quality standards before 1981 and every five years thereafter. A National Commission on Air Quality, a thirteen-member bi-partisan panel drawn from the Government and the industry- was established which submitted its report in 1981 after study of the Clean Air Acts. The structure of the Act - as it was enacted in 1970 and modified in 1977 - provided the framework for the Commission's research activities. It released its findings on March 2,1981, in

a report entitled "To Breathe Clean Air" which reflect a general conclusion that the structure of the Clean Air Act is sound and needs refinement instead of fundamental changes.

The Act had set December 31,1982 as the deadline for the nation to meet the primary standards. Five-year extensions were available for regions with severe automobile related pollution. No specific deadline was set, however, for meeting the secondary standards.

The Act has resulted in cleaner air, but progress has been slower than sponsors had hoped[8], partly because some industries have resisted compliance, often in court, and partly because the EPA has been slow in implementing the Act. In 1981, the EPA had estimated that 3 per cent of industry was in compliance. The non-complying companies primarily were power plants, steel plants and heavy metal industries. Millions of Americans are still breathing air that is dirtier than the national standards call for.

The United Kingdom :

Early British legislation in environmental control is lost in the mists of time. During the reign of Julius Caesar a law was passed which stated that "Currus Noctu Vitenur" -

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8. See Joseph E.Moody, "Air Quality Improvement - A Look Ahead" Natural Resources Lawyer vol.3 (1969), pp.7-14.

let chariot driving be banned at night - presumably for the disturbance it caused. In 1306, during the reign of Edward I, the first smoke abatement law prohibited the use of 'sea coal' because of its deleterious effects on health. Then we are told of the man in London in the fourteenth centry who was hanged for causing a nuisance to his neighbours by burning coal. For centuries, the common law protected individuals in the UK from specific nuisances due to polluted air. In their book, The Politics of Clean Air, Lord Asby and Mary Anderson refer to the case in 1691 when Thomas Legg of London, complained of the smoke from his neighbour's bake house; the baker was ordered to put up a chimney "soe high as to convey the smoake clear of the topps of the houses". But common law is made to protect people, not air. If air is to be protected, whether or not it is causing a nuisance, the state has to intervene.[9] However, it has not always been easy to have legislation on pollution control. Legislation about air pollution has always been emotive.[10]

A. Standards :

The UK air pollution control system can be said to have developed over some six hundred years being at times

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9. Eric Ashby and Mary Anderson, The Politics of Clean Air (Clarendon Press, Oxford, 1981), p.1.

10. F.E.Ireland, "Legislation and the Control of Air Pollution" in Roy M.Harrison ed., Pollution: Causes, Effects and Control (The Royal Society of Chemistry, London, 1982), p.208. See also generally C.H.Enloe, The Politics of Pollution in a Comparative Perspective (London, 1975), R.J.Scorer, Pollution in the Air: Problems, Policies and Priorities (London, 1973); and S.K.Sharma, "Politics of Pollution: Who's to Blame for the Foul Air We Breathe?" The Hindustan Times (New Delhi, Nov.,12,1971).

somewhat sporadic and local in nature and with little concerted effort.[11] The first real attempt to control smoke came in 1875 with the Public Health Act of which introduced the concept of smoke abatement whilst as early as 1863 the Alkali Act of that year had recognised the special problems associated with certain industrial non-combustion process and introduced the new accepted concept of "best practicable means". In fact, the development of Industrial Revolution in the nineteenth century, and the use of steam engine and furnaces, had caused the Parliament Select Committees to study air pollutionin 1843 and 1845.[12]

The Clean Air Acts of 1956 and 1968 (the Acts) have since replaced and extended the parts of the Public Health Act, that dealt with smoke nuisances. The two Acts include provisions to cover the emission[13] of dark smoke, grit, dust, and fumes emitted from boilers and furnaces in domestic, commercial, and non-registered industrial premises. The main objectives of these two Acts are :-

(i) The control of smoke emissions from any chimney or industrial and trade premises other than from a chimney subject to certain exemptions ;

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11. H.M.Dix, Environmental Pollution (John Wiley & Sons, New York, 1981), p.235.

12. For details see supra n.7,pp.2-15.

13. Sections 1,19 and 20, Clean Air Act,1956.

(ii) the control of new furnace installations by compulsory notification to the local authority with a system of prior approval where necessary ;

(iii) the control of unacceptable ground-level concentrations of effluent gases, particularly sulphur dioxide, by a system of approval of chimney height ;

(iv) the control of emissions of particulate matter from chimneys ; and

(v) the control of low-level smoke emissions from domestic sources by empowering local authorities to make smoke-control areas.

Under the 1956 Act, Local Authorities can make smoke control orders, subject to confirmation by the Secretary of State, whereby it is an offence to permit smoke emissions, unless they are caused by the use of authorised fuel or smokeless fuel, in an authorised fireplace i.e., furnace, grate or stove. The Acts cover domestic premises, colliery spoil banks, railway engines, ships and vessels in inland waters and estuaries, and the burning of waste in the open. The Acts are administered by the Environmental Health Officers (EHOs) of the Local Authorities. There are no standard permitted emission limits prescribed under the Acts, but the Department of Environment (DOE) issues guidelines for the use of EHOs.

Industrial air pollution is partly controlled by the Alkali etc. Works Regulation Act, 1906 which applies to certain

chemical and industrial processes that may cause pollution hazards. The term 'best practicable means' is crucial to the implementation of the act, and is interpreted to mean reasonably practicable having regard amongst other things to local conditions and circumstances, to the current state of technical knowledge, and to financial implic. .ations.[14] Her Majestey's Alkali and Clean Air Inspectorate (HMACI) collaborates closely with industry, and carries out a policy of confidential cooperation and joint investigation aimed at improving emission standards. The control of Pollution Act, 1974 further extended the powers of the Local Authorities beyond the Acts, and enables them to carry out air pollution investigations and obtain emission data from any premises other than private residences.

Pollution from automotives is covered by the Motor Vehicles (Construction and Use) Regulations, 1973 made under the Road Traffic Act,1972. These regulations embody the principle that exhaust emissions should be partly controlled by the design and manufacture of vehicles. They require new vehicles to be so constructed that no avoidable smoke or visible vapour is emitted. The regulations also provide that no person shall "use a motor vehicle on the road from which any smoke, dust, grit, ashes, sparks, cinders, or oily substance is emitted if the emission causes or is likely to cause damage

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14. Section 34, Clean Air Act,1956.

to any property, or injury, or danger to any person who is actually or reasonably expected to be on the road." The vehicle user is, therefore, required to maintain and operate the vehicle efficiently to reduce exhaust pollution. However, it only applies to new vehicles made after 1973, and not those produced before that date.

B. Implementation

The control of statutory legislation is the responsibility of four government departments, and implementation is carried out by various agencies. The control of noxious fumes, grit, and dust discharged into the atmosphere from registered premises is carried out by the HMACI. Atmospheric pollution from non-registered industries, and domestic and commercial premises is controlled by the Local Authorities EHOs. This local type of control produces considerable variation in standards, despite advice provided from the Central Government and liaison with the HMACI. There are no national standards for air quality. Department of Transport controls the emission of exhaust fumes from some road vehicles. The emission of lead into the atmosphere as a result of using petrol with lead additives is being controlled by Department of Energy regulations. There is no control exercised over the smoke trails from airgraft that usually occur on take off, or the exhaust fumes from railway diesel traction units.

To assist in the formulation and administration of legislation, government departments receive advice from

statutory bodies, and they promote research. Under the Act of 1956, the Government established the Clean Air Council with a responsibility for keeping under review the progress made in abating air pollution. Many of the recommendations produced by this body were incorporated in Part 4 of the Control of Pollution Act,1974. However, the DOE announced, in September,1979, that the Council was to be abolished in order to reduce public expenditure.

Thus control of atmospheric pollutants in the UK is now a days based on two sets of legislation. The first demands reduction of "noxious or offensive gases" from fifty nine different types of industrial operations. These must be registered under the Alkali etc. Work Regulations Act of 1906. Revised in 1966 and again in 1971, these regulations require :

(i) scheduled processes involving the production or utilisation of sulphuric acid, chlorine, arsenic, zinc, fluorine, aluminium, copper, and electricity etc. must be registered annually ;

(ii) prior to initial registration, the processes must be equipped with "best practicable means" for preventing the escape of noxious or offensive gases ;

(iii) the "best practicable means" must be continuously operated and maintained in good and efficient working order ; and

(iv) in the case of certain processes, upper emission limits are specified for the concentration of total acidity in effluent gases.

Emissions from processes or plants not covered by the Alkali etc. Works Regulation Act and those from domestic and commercial furnaces are controlled by the second set of legislation, the Clean Air Acts of 1956 and 1968. The Acts essentially,

(i) set smoke emission limits for both domestic and industrial fuel usage ;

(ii) limit grit and dust emissions for all non-domestic sized furnaces ;

(iii) specify chimney heights at two and one half times that of nearest buildings or a minimum of 120 ft[15], and

(iv) arrange to set up smoke control areas subject to approval of the Housing Ministry.

The application of the provisions of the Clean Air Acts is largely the responsibility of Local Authorities. If, in their opinion, a problem does not exist, then there is no

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15. The philosophy behind the control ofchimney height is that at whatever height smoke and flue gases are discharged, gravity will eventually bring the larger particles of grit, dust and soot to the ground and because of atmospheric turbulance some of the smaller suspended particles will reach the ground. The higher the point of discharge, the more dilute will be the effluent gases and particles by the time they reach ground level where concentrations will not become dangerous. See A.R.Meetham et al., Atmospheric Pollution-Its History, Origins and Prevention (Pergamon Press, Oxford, 1981), p.211.

need to take action. However, efforts of these Authorities have been significant contribution in solving many tough situations involving atmospheric pollution. For example, the London smog of 1952 prompted the Local Authorities to make daily observation of smoke and sulphur dioxide as well as monthly measurements of dust fall. These investigations were coupled with enforcement of emission standards. As a result, the air over the city of London today is free from pollution.[16] At any rate, it has been recognised in the UK that there exists a gap in Local Authority control over air pollution from non-combustion sources. Reliance is placed upon the nuisance provisions of the Public Health Act,1936 but the Government has appreciated a need for a more positive approach by giving powers at an appropriate time for prior approval of industrial plant and regular inspection by the EHOs.[17]

Surveys have shown that response to the Clean Air Act has been uneven. Still there are certain 'black' areas as polluted as they were twenty five years ago. But the overall improvement is impressive. The Clean Air Act has been 'swimming with the tide of industrial development'. Most of the 'black spots' are the result of pollution from domestic fires where the Local Authorities could not bring in orders to control smoke.[18]

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16. James P.Tomany, Air Pollution: The Emissions,The Regulations and the Controls (New York,1975),p.95.

17. Barros et al., Supra n.10,p.221.

18. Supra n.9, p.142.

Synoptic Deductions

The common law doctrines of negligence, strict or absolute liability, and nuisance serve as bases for compensation to the injured obviously as the common law is made to protect the people. State intervention has been necessary for protection of the domestic atmosphere. Analysis of air pollution control systems developed by the US and the UK shows that the pollution hazards are being dealt with by them through different instrumentalities at different levels. But necessity of pollution control is perceived with equal seriousness. An action for damages under the common law is no more considered adequate. Modern legislative enactments coupled with administrative measures have adopted the approaches which may be classified as air quality standards prescription, and emission standards setting. Besides, careful planning is an important element common to municipal approaches towards atmospheric pollution control. The US and the UK atmospheric pollution regulations illustrate two different models of checks and control.[19]

The US scenario involves a combination of air quality standards which are employed at various levels of the government. Pollution control has moved from being a purely state matter to come increasingly under Federal jurisdiction. Air quality

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19. See K.Sreeram, V.Batra & A.Kumar, "Air Pollution Control: Legal Aspects in USA and UK" Journal of Indian Public Administration vol.2(1981).

standards set under the Federal legislation serve as the minimum standards for the states to meet. However, the states enjoy freedom and carry responsibility as regards preparation of implementation plans to achieve these goals subject to ultimate Federal approval. States have also the power to delegate the authority futher to the local bodies. Emission standards too are laid down by the Federal legislation in certain areas such as automobile exhausts and hazardous pollutants.[20] States are at liberty, however, to introduce more stringent requirements as the local conditions may call for. Enforcing environmental laws and regulations often calls for close cooperation among the EPA, its regional offices, the Justice Department, and myriad state and local agencies. In recent years, the US has seen a steady improvement in air quality. There is a growing social awareness against atmospheric pollution and in most cases, the regulated community complies with prescribed standards. However, the test "knowingly violating the standards" renders the injunctive court action against the delinquent difficult.

Distinctively, in the UK the Clean Air Acts operate on te "best practicable means" principle taken as meaning what is "reasonably practicable having regard among other things to

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20. See A.K.Ganbred, "Clean Air Act and Mobile Source Pollution Control" Ecology Law Quarterly vol4.(1975), p.523.

local conditions and circumstances, to the financial implications and to the current state of technical knowledge". The law does not prescribe any air quality standards but operates through emission controls only. However, detailed emission standards are not specified in the legislation. The job of administration and regulation for the listed processes is undertaken on the national level. Other regulations are administered at the local level. Control of smoke, dust and grit regulation of chimney heights, and identification of smokeless zones are the matters within the jurisdiction of local governments. The legislative arrangements in Britain for cleaning air to an acceptable limit are sufficient, and public opinion is well disposed toward measures to abate pollution. The principal constraints are technical and financial. Still there is no argument about the evidence for the improvement. In London, the change is dramatic. It is indeed difficult to realise that air may be so clean over a major manufacturing city. There exists yet a gap in the Local Authority control over air pollution caused by non-combustion sources.

Chapter - V

INDIAN MOVES - A CASE STUDY

Magnitude of Problem

India is a rapidly industrialising country and almost all the manifestations of air pollution are noticeable in most of the industrial complexes.[1] We are going through a typical pattern of all air pollution hazards which the developed countries underwent in their early periods of growth and to rectify which they are now paying a heavy cost. Our cities have permitted growth of industries haphazardly through their important areas with utter disregard for the consequences. The chemical industries, petrochemical complexes, heavy chemicals manufacture, textile mills, thermal power stations, and such major sources of pollution are intervined with residential areas. The unplanned and uncontrolled industrial discharges have already vitiated our urban atmosphere, with pockets of severe air pollution enveloping communities.

The notion that we are underdeveloped and that industrial pollution problem is not very imminent is no

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1. See Generally Desh Bandhu et al., Current Trends of Indian Environment (New Delhi, 1977).

longer valid. The industrial growth, though small on per capita basis, is comparable to developed countries when we consider the few limited areas where industries are concentrated.[2]

In planning our cities and industrial complexes, no consideration whatsoever is given to the aspects of air pollution. A few examples from the metropolis are cited below:

(i) the Trombay area in Bombay is a typical situation where large air pollution causing industries are mixed with residential colonies. As a result, we have these colonies being fumigated with sulphur dioxide, sulphur trioxide, hydrocarbons and oxides etc.,

(ii) even for current planning, this vital aspect is being ignored in twin city of Bombay across the Bay from Trombay which is proposed to be an industrial town. This will be surrounded by hills on two sides and will not have any advantage of cross-sea breeze.

(iii) in New Delhi, our national monuments of Rajghat, Vijayghat, Shantivana and Shaktisthal, where large parks are planned around them, are located just under the plume of a thermal power station discharging approximately 20 tons of sulphur dioxide per day.

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2. See generally Alfred A.De Souza ed., Indian City Poverty, Ecology and Urban Development (New Delhi, 1978).

These are a few examples of numerous other such illustrations which can be cited. Pockets of quite severe air pollution are found throughout India.[3] The advance of industrialisation will increase it materially. Other factors of air pollution are ash and smoke from domestic low-sulphur coal used to generate power, refuge incineration, and motor vehicles. A peculiar problem in Indian cities, particularly in poor quarters, is the smothering smoke from burning cow-dung cakes, raw coal and wood. Thermal power plants are a major source of air pollution; central regulations have been directed at reduction of black smoke but not other gaseous emissions. Electrostatic precipitators cost about 10% of the boiler plant cost, since there is no legislation to force them. Economic damage from air pollution is showing in the excessive corrosion of electric transmission systems in Bombay, where sulphuric acid factories are located. Damage to agricultural fields and natural vegetation has occured in many areas, especially in the vicinity of fertiliser and aluminium plants, brick and lime kilns.[4]

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3. There are report of imminent damage to our national monuments and rivers from constant industrialisation. For example, Oil Refinery at Mathura was reported to pose threat to the Taj at Agra as well as the river Yamuna. See N.Aasarabrahmachari,"Impending Danger to Taj" Deccan Chronicle (Sept.24,1978); "Should the Nation Win at Destruction of Taj Mahal and Yamuna?" Organiser(June 18, 1978); S.N.Chib,"Taj Mahal: Act Before It Is Too Late", Statesman (Aug.,1,1978); R.R.Asad, "Threat to Taj",Patriot (Feb.1,1978); and S.Sharma,"Will The Taj Survive?" Youth Times (Feb.28,1978).

4. See the Human Environment vol.II (Environmental Series 201, Summaries of National Reports, Woodrow Wilson International Center for Scholars, Washington D.C.,March 1972), p.38.

According to a report of the International Institute for Applied Systems Analysis, growth in traffic densities comparable to the West and concentration of industries in small areas have led to high air pollution levels in India. Today, about 80 per cent of the total industrial production in the country is accounted for by industries located in only nine cities. This, along with an unchecked growth in vehicular traffic and a lack of enforcement of proper emission standards for vehicles, has a disastrous effect on the environment and the health of the people.[5] Air pollution levels in Bombay are already very high.[6] This is India's commercial and industrial centre, the most westernized and orderly of the country's four major cities - and the most polluted. Two areas of mid-town Bombay are particularly polluted: Chembur - Trombay and Lalband-Parel. According to environmental experts, of the 300 tons of sulphur dioxide released by industries in Bombay every day, as many as 190 tons are in Chembur-Trombay, where the major oil refineries are also situated. Not surprisingly, residents refer to the area as "Gas Chembur". Another

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5. See "Rise in Pollution", The Times of India (New Delhi, Dec.,9,1985), p.7.

6. See P.J.Deoras, "Pollution in Bombay and its Prevention" Janata vol.33 (1978), pp.13-15. Bhishma Desai Pollutants Engulf Bombay City" Economic Times (May 28, 1978); and P.B.Ghate, "Air Pollution in Bombay: The Emission Charge Approach" Economic and Political Weekly (October 30,1976).

major polluter there is a thermal power plant owned by the Tatas. The laws governing contamination of air here are by no means stringent. Industries are occasionally fined. Even the State-owned Fertilizer Corporation of India, which has come under fierce attack by bodies like Society for Clean Environment, refuses to acknowledge that its giant plant has endangered the health of citizens. The solution, which the Maharashtra State Government is planning for this city is to freeze all expansion by other industries so as to encourage plants to be set up outside city limits.[7] Position in Delhi is no less alarming. A large scale study of atmospheric pollution caused by vehicles, which was recently launched by Delhi Administration, has shown that pollution levels are far above the prescribed safe limit at major traffic intersections. The study is being conducted at eight major traffic intersections. Suspended particulate matter concentration at each of them were found to be excessive - ranging from twice to five times the safe limit. Noxious carbon monoxide fumes as well as oxide of nitrogen were found to be more than twice the safe limit at Shahdara, Kingsway Camp and Nirmal Vihar chowk. The smoke meter at the Inter-state Bus Terminus revealed that 84 per cent of buses plying there emit smoke above the permissible safe limit. Almost all the trucks and

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7. Darryl D'Monte, "Bombay Is India's Most Western City, And Its Most Polluted" World Environment Report vol.6 (Feb.25,1980),p.7.

tempos were excessive polluters. Lead pollution was also observed.[8] The situation in other cities like Calcutta, Kanpur, Ahmedabad, Nagpur and Madras, is not much better. There is already evidence in India pointing towards a direct relationship between respiratory diseases, impaired lung functions, slunted growth in children and cancer on the one hand, and the levels of oxides of nitrogen, sulphur dioxide, suspended particles and hydrocarbons in the air, on the other. Respiratory diseases in Delhi are already 12 times the national average.[9]

In India, studies have revealed that there is wide spread smoke pollution with carbon monoxide released from domestic fires in nigh density population areas of Calcutta. Surveys by Bhabha Atomic Research Centre have established that the air over Bombay (particularly Central Bombay) is highly polluted by industrial emissions. The quality of air over other industrial towns, for example, Kanpur, Ahmedabad and Bokaro is also not expected to be much better than that of Bombay or Calcutta.

The tremendous growth in air traffic volume and the widespread use of wide-body jumbojet aircraft over last two decades has given the problem of pollution a serious proportion.

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8. See The Hindustan Times (New Delhi, April 23,1985), p.3.

9. See n.2.

As against six foreign airlines in 1947, we have today thirtyeight foreign airlines operating. As against just one international service per week by Air India on June 8,1948 between Bombay and London today it operates more than 100 services per week connecting important Indian cities to 39 distinations spread all over the world except South America. Additionally Indian Airlines is operating about 50 international services per week to the neighbouring countries besides its impressive domestic operations connecting 73 towns by about 220 flights per day.

All the facts elucidated hereinabove demonstrate that the risks of atmospheric pollution in India exist in serious proportions. Added to these are periodical disasters which have already had heavy tolls and caused widespread illness. Two recent episodes have still not gone out of the Indian memory - the Bhopal and New Delhi gas leaks.

Episodes

Perhaps, Bhopal gas disaster has been the worst in the history. New Delhi accident, though not so serious, reminds us of the pollution threats in the event of an unexpected accident.

(i) Bhopal Gas Tragedy

The city of Bhopal has only recently observed the first anniversary of the year old holocaust on December 2,1985.

Torchlight processions marked the tragic memory.[10] Bhopal is still reeling under the effects of the toxic gas. Several thousand people all over the city and its immediate environs are, even today, suffering from a variety of ailments and diseases and medical experts say that the effects of the gas will continue to be felt for a long time to come.[11] Evidence of a long-term damage to the natural immune system of those affected by the lethal gas leakage a year ago has been found by a team of doctors. In a study facilitated by the Indian Council of Medical Research and K.E.M. Hospital, Bombay, the team led by Dr. S.R.Kamat, Professor of Respiratory Medicine has found the presence of methyl isocyanate antibodies in the blood of upto 62 per cent of the subjects examined, proving the chronic nature of the patients' affliction.[12]

(ii) New Delhi Gas Leak

About 35 persons were admitted to various hospitals after a cloud of thick, pungent gas engulfed a large area on December 3,1985 in the north and central districts of the capital following massive leak of oleum from a storage tank at the Shriram Food and Fertilisers plant on Old Rohtak Road.[13]

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10. The Times of India (New Delhi, Dec.3,1985),p.1.
11. The Times of India (New Delhi Dec.,2,1985),p.4.
12. The Times of India (New Delhi, Nov.30,1985),p.3.
13. The Times of India (New Delhi, December 4,1985),p.1.

Many people were hospitalised. Three casualities have been officially reported so far.[14] There are indications that those in charge of handling and containing leak did so incompetently and departed from the standard procedures for dealing with such a spill. The chemicals which leaked from the plant were dangerous to inhale and injurious to health. Oleum is nothing but a highly concentrated mixture of sulphuric acid and sulphur trioxide. Sulphuric acid is one of the strongest and most corrosive acids known in the chemical industry. Like all acids, if it is inhaled or imbibed, it can kill.[15] Though in Delhi the casualities were insignificant as compared to the toll of 2,500 in the Madhya Pradesh capital, the incident did bring home the frightening possibility of what havoc such mishaps could cause to life in a city. Realisation spread overnight that if the authorities and citizens failed to awaken in time to the lurking danger posed by chemical units in thickly populated areas and take urgent steps to stop recurrence of such mishaps, the damage may be irreparable.

While the adoption in 1972 of the Stockholm Declaration on the Human Environment has provided the necessary impetus to the on-going international efforts to evolve a viable

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14. The Hindustan Times (New Delhi, Feb.12,1986),p.3.

15. The Times of India (New Delhi, Dec.6,1985),p.1.

strategy for the protection and improvement of global environment, the recent gas leaks in India bring to focus the urgent need for a second look at the existing constitutional and legislative strategies for the environmental protection in the country.

The Constitution of Republic of India, 1950 and Environmental Protection.

It may be appreciated that since the international concern for the environmental protection is of recent origin, it is doubtful whether the founding fathers of the Indian Constitution were really concerned with the need for providing environmental strategies in the fundamental law of the land.[16] It is only in 1976 that the constitutional commitment to the environmental perspectives has become clearly pronounced with the enactment of the Constitution (Forty-Second Amendment) Act, 1976. Article 48A thereby added reads :

> "The State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country".

Another important provision added by the Constitutional 42nd Amendment is Article 51-A which prescribes :

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16. See P.C.Rao, "The Environmental Perspectives in the Indian Constitution" Indian Journal of International Law vol.23 (1983),pp.501-12.

> "It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures".

It is interesting to note that even though the citizens of India have not been conferred any justiciable fundamental right to a hygienic environment, they are under a duty "to protect and improve the natural environment". In this context it has to be noted that the Constitution is surprisingly silent on the mechanism to be employed for the enforcement of the duty imposed on the citizens. An important anomaly in the existing constitutionally sanctified environmental scheme is that the citizens of the country would have no constitutional remedy not only when the state fails to discharge its constitutionally enjoined injunctions but also when it wilfully damages or destroys or threatens to destroy or damage the natural environment which the state is constitutionally obligated to protect. This was what precisely happened in the State of Kerala when a writ petition[17] filed by a group of citizens was dismissed by Justice Gopalan Nambiar.

However, the rights to life and personal liberty embodied in Article 21 of the Constitution have been stretched

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17. Society for Protection of Silent Valley v.Union of India (Unreported) cited in P.Leelakrishnan, Law and Environment ed. (1984),pp.133-38.

and transformed lately into positive rights by the advent of the Supreme Court pronouncement in Maneka Gandhi V.Union of India.[18] The post-Maneka era has witnessed an unprecedented judicial activism in the country elevating Article 21 to the position of a brooding omnipresence and converting it into a "sanctuary of human values". In tune with this judicial trend in Francis Coralie Mullien V.Delhi Administration[19] Justice Bhagwati (as he then was) while elucidating the import of the right to life, observed :

> "The right to life enshrined in Article 21 cannot be restricted to mere animal existence. It means something more than just physical survival. The right to live with human dignity and all that goes alongwith it, namely the bare necessities of life such as adequate nutrition, clothing and shelter over the head".
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> (emphasis added)

With the new content given to Article 21, it is no more inappropriate to read the right to clean and wholesome air into it for it will be impossible to live with human dignity without that. However, as continuance of this right depends on judicial cooperation, it would be better if it finds an express mention in Part III of the Constitution.

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18. All India Reporter (1978) Supreme Court,p.597.

19. All India Reporter (1981),Supreme Court,p.746.

Statutory Law - Substance and Operation

In India, among the various steps taken to implement the recommendations of the Stockholm Conference, 1972, the Air (Prevention and Control of Pollution) Act,1981 (Air Pollution Act) is just an attempt at realisation of the identified goals to ensure good living. It may be instructive to discuss the contents of this piece of legislation to evaluate its effectiveness.

India's participation in the Stockhom Conference convinced it "to take appropriate steps for the preservation of the natural resources of the earth which, among other things, include the preservation of the quality of air pollution",[20] This led to the enactment of Air (Prevention and Control of Pollution) Act, 1981.[21]

The statement of objects and reasons prefaced to this Act states that "with the increasing industrialisation and the tendency of the majority of industries to congregate in areas which are already heavily industrialised, the problem of air pollution has begun to be felt in the country. The problem is more acute in those heavily industrialised areas which are also densely populated.

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20. Air (Prevention and Control of Pollution) Act,1981, Habendum clause.

21. Act No.14 of 1981. This received the assent of the President on March 29,1981. It was published in the Gazette of India Extraordinary (Part II, Section I) dated March 30,1981, pp.55-80.

As defined in the Act, "Air pollution means the presence in the atmosphere of any air pollutant which denotes "any solid liquid or gaseous substance, present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment;"[22] The major polluter of air is the industrial emission which connotes "any solid or liquid or gaseous substance coming out of any chimney, dust or flue or any other outlet".[23] The other main polluters are, the automobiles which means "any vehicle powered by either internal combustion engine or by any method of generating power to drive such vehicle by burning fuel;"[24] and the approved appliances mean "any equipment or gadget used for the burning of any combustible matter or for generating or consuming any fume, gas or particulate matter;"[25] The emissions can be reduced through equipment which means "any apparatus, device, equipment or system to control the quality and manner of emission of any air pollutant and includes any device for securing the efficient operation of industrial plant."[26]

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22. n.20, Section 2 (a).
23. Ibid., Section 2 (j).
24. Ibid., Section 2 (e).
25. Ibid., Section 2 (c).
26. Ibid., Section 2 (i).

Enforcement Machinery.

A. Constitution of Air Pollution Boards.

The Act provides for an enforcement machinery in the form of central and State Boards for the Prevention and Control of Air Pollution (Air Pollution Boards) in their respective geographical jurisdiction. The Central Board, however, is required to perform functions of the State Board for the Union Territories also. But Air Pollution Boards are not to be constituted separately and their functions are to be performed by the respective Boards for the Prevention and Control of Water Pollution constituted under the Water (Prevention and Control of Pollution) Act,1974. This has been intended to achieve "an integrated approach for tackling the environmental problems relating to pollution". However, in states where Water Pollution Boards have not been constituted, "the State Government shall.....appoint, constitute a State Board for the Prevention and Control of Air Pollution under such name as may be specified in the notification, to exercise the powers conferred on, and perform the functions assigned to, that Board under this Act."[27]

The constitution of the State Boards provides for "a Chairman, being a person having special knowledge or practical experience in respect of the matters relating to environmental

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27. Ibid., Section 5 (I).

protection, to be nominated by the State Government".[28] In addition to the Chairman, the Board can comprise a maximum of 15 members and a full time Member-Secretary with a proviso "that no less than two of the members are persons having special knowledge or practical experience in respect of matters relating to improvement of the quality of air or the prevention, control of abatement of air pollution".[29]

The Act also lays down detailed provisions governing the terms and conditions of service of the Members of the Boards, disqualifications for their appointment, constitution of specialist committees and the modalities of their working and other procedural/technological aspects.[30]

8. Functions of the Boards.

The general functions of the Air Pollution Boards are listed below :

(a) To advise the respective governments on such matters and to plan comprehensive programme for "improvement of the quality of air and the prevention, control or abatement of air pollution", and to secure the execution thereof;[31]

(b) To "plan and organise the training of persons engaged or to be engaged in programmes for the prevention, control or abatement of air pollution and to organise mass

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28. Ibid., Section 5(2) (a).
29. Ibid., Proviso to Section 5(2).
30. Ibid., Section 7-15.
31. Ibid., Sections 16(2)(a) (b) (c) and 17(1) (a) & (b).

education programmes relating thereof ;

(c) To collect and disseminate information in respect of matters relating to air pollution ;

(d) To lay down the standards for the quality of air, standards for emission of air pollutants into the atmosphere from industrial plants and automobiles or for discharge of any air pollutant into the atmosphere from any other source ;

(e) The State Boards are also required to function as inspectorates of air pollution areas and to inspect any factory premises to check any control equipment or the manufacturing process so as to take necessary steps for the prevention, control or abatement of air pollution.[32]

In addition, the Central Board is to perform the functions of coordination and settlement of disputes between the State Boards. Besides, this Board is also required to "provide technical assistance and guidance to the State Boards, carry out and sponsor investigations and research relating to problems of air pollution and prevention, control or abatement of air pollution.[33] This Board is further mandated to collect, compile and publish technical and statistical data

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32. Ibid., Sections 17(1) (d) and 16(2) (e).

33. Ibid., Section 16(2) (d).

relating to air pollution and the measures devised therefor as well as prepare manuals, codes or guides for effective prevention, control or abatement of air pollution.[34]

C. Powers of the Boards

For effective discharge of the functions entrusted to the Boards and for the implementation of the advice rendered by such Boards, the Act provides for wide-ranging powers to the Governments and the Boards. These are described below[35]:

(a) Power to declare air pollution control area with authority to alter by way of expansion or reduction or merger of existing such areas ;

(b) Power to regulate or prohibit burning or use of any unapproved fuel or other material not being fuel and unapproved appliances in any air pollution control area ;

(c) Power to grant consent for the operation, location or installation of an industrial plant and suspension or withdrawal thereof for industries listed in the schedule appended to the Act ;

(d) Power to give instructions for ensuring standards for emission from automobiles to the concerned authority in charge of registration of motor vehicles under the Motor Vehicles Act, 1939;

(e) Power to entry and inspection of any place for the purpose of examining and testing any central equipment, or

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34. Ibid., Section 16(2)(g).

35. Ibid., Sections 19-29, Chapter IV.

manufacturing process or any related records or documents.

(f) Power to obtain any information, and in particular regardingthe types of air pollutants emitted into the atmosphere and the level of emission of such air pollutants ;

(g) Power to establish one or more State Air Laboratories or designate any laboratory or institute to carry out the functions of a State Air Laboratory. The State Government may also appoint such suitable and qualified persons as Government Analysts and the Board may appoint Board Analysts ;

(h) Power to take samples of air or emission from any chimney, flue or duct or any other outlet in such manner and procedure as prescribed under the Act.

Constraints on Powers and Functions

The Act, however, provides for certain exceptions to the functions and powers of the Air Pollution Boards, which are given below :

(a) The Boards have no duty or power to lay standards check samples or issue directions in respect of emission from a ship or an aircraft ;[36]

(b) The Prevention and control of radio-active air pollution is expected and seems to be covered under the Atomic Energy Act,1962 (33 of 1962).[37]

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36. Ibid., Section 17(1)(g).

37. Ibid., Section 52.

Duties and Offences

The persons and companies engaged in industrial activities are enjoined with certain duties under this Act. Besides, the Act also specifies certain offences which could be committed by individuals or companies or both. These are described below :

(a) Persons carrying on any industry listed in the schedule or operating any industrial plant in any air pollution control area shall not discharge or cause or permit to be discharged the emission of any air pollutant in excess of the standards laid down ;[38]

(b) It has been made incumbent upon the person in charge of the premises, from where emission of any air pollutant in excess of the standard laid down occurs or is apprehended to occur, to forthwith intimate the fact of such occurence or apprehension to the State Board and such authorities as stipulated ;[39]

(c) Every person carrying on any "scheduled" industry or an industrial plant in an air pollution control area shall be bound to render all assistance to the person empowered by the State Board for carrying out the prescribed functions. In

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38. Ibid., Section 22.

39. Ibid., Section 23.

case he fails to do so without any reasonable cause or excuse, he shall be guilty of an offence under this Act ;[40]

(d) An officer so empowered by the Board shall have the power to take sample of air or emission after due notice to the occupier or his agent and it is incumbent upon the occupier or his agent to be present while sample is being taken and to sign the sealed container of the sample. The absence of such person or his refusal to sign the sample container shall make him liable for payment of any cost incurred in getting the sample analysed and that this cost shall be recoverable from him as arrears of land revenue or of public demand ;[41]

(e) Every person who has been granted consent by the State Board shall ensure that the industry is run as per the terms and conditions of consent and he shall not carry out any demolition or erection or alteration of chimney, flue or duct or effect change in the control equipment for which consent has been granted. Any failure in this regard shall be an offence under the Act ;

(f) Where an offence under this Act has been committed by any Department of Government, the Head of the Department shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly ;

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40. Ibid., Section 24(2).

41. Ibid., Sections 26(4) and 27(4).

(g) Sanctions can be invoked against any person who destroys, pulls down, removes, injures or defaces any pillar, post or notice put up, inscribed or placed under the authority of the Board or damages any works or property belonging to the Board or obstructs any official from acting, or performing functions, under the directions of the Board.

Penalties

The above-mentioned offences or non-performance of duties enjoined under the Act attract penalties in which punishment, though varying, may extend upto six months of imprisonment or fine upto a maximum of Rs.10,000/-. Generally speaking, the penalties provided are nominal and conditional.

Limitations of the Enactment

The AirPollution Act was enacted to implement some of the recommendations of the Stockholm Conference, 1972 relating to the pollution of air. Though, the Act is comprehensive and detailed in its contents relating to prevention and control of air pollution from industrial emissions, yet the scope of this enactment is limited and narrow.

Exceptions under the Act :

The Act excludes prevention and control of emissions from ships and aircraft, and radio-active air pollution. By excepting these areas from the purview of this Act, its effectiveness has been undermined. For example, it is a well-known fact that the aircrafts flying at nigh altitude

are depleting the ozone layer surrounding the earth. Consequently, the thinning of this layer or gaps in it will permit harmful solar radiations to penetrate the atmosphere. It is agreed that check of emissions from ships and aircraft, particularly of foreign registry, and radio-active installations are very sensitive issues. But this is not good enough reason to insulate such polluters from statutory checks and legal sanctions. In fact, there is need to arm the enforcement machinery with wide jurisdiction and effective powers, which though ought to be exercised discreetly.

Weak Offences and low Penalties.

Firstly, there are very few offences laid down under the Act. Secondly, the offences are widely worded with several provisos and inbuilt defences so that prosecution under the Act appears difficult. Even in Bhopal Gas Leak tragedy, trough detailed enquiries are in progress, yet it seems rather improbable that any significant prosecution can be launched under the provisions of this Act.

Similarly, penalities prescribed under this Act are rather nominal when compared to the damage/injury that can be caused or perpetrated by the commission of offences defined or omission of duties enjoined under the Act. Further, prosecution under the Act can only be initiated by the Board or the State and their will and efficacy to do so against defaulting Government undertakings, Municipal authorities and powerful

corporate bodies is open to serious doubts for various reasons. It really lacks sharp teeth to achieve its avowed objectives.

Debilitating Provisos

The provisos under Section 40 and 41 of the Act, which define offences by companies and the Government Departments, literally take the sting out of the clause. It reads "Provided thatnothing contained in this sub-section shall render any such person liable to any punishment provided in this Act, if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of this offence."[42] This clause has vitally impaired the potency of this Act.

Air Pollution: Additional Duty of Boards

The prevention and control of air pollution has been given as an additional duty to the Water Pollution Boards. This under-rates the importance of control of air pollution. Every institution or organisation always tends to attach greater significance to its primary functions and accordingly more effort and time is devoted towards their achievement. This generally happens at the neglect of the additional responsibility

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42. Ibid., Section 40(1).

Recommendations for Strengthening the Law.

Based on the foregoing analysis of the enactment and considering the dimension, magnitude and gravity of the problem of air pollution as well as its progressive aggravation in India, a few suggestions may be put forth :

Integrated Approach to Environment

Pollution of environment is a complex, articulate problem which can not be solved by simplistic solutions in relation to isolated elements of the environment.[42] In fact, environment is a cyclical phenomena which defies identification of its beginning or the end. Environment is a composite factor and the pollution syndrome does not affect each of its components separately. Hence, environment is not divisible, it is an integrated whole, since the cause and effect nexus pervades its different aspects. All types of pollution whether of land, or water, or air, are intermined in myriad manifestations. Each affects the other in one way or another. To

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43. See generally Sekhar Singh ed., Environmental Policy in India (New Delhi,1984); Arun C.Vakil,Environmental Issues in India (Bombay,1984); T.N.Khoshoo,"India's Environmental Concerns" Yojana vol.7(1983),pp.11-15 ; B.D.Nagchondhari and S.Bhatt,"Reflections on India's Environment Policy "India Quarterly vol.39 (1983),pp. 71-78; and Y.R.Hargopal Reddy "India's Pollution Control Policy" Lawyer vol.15 (1983), pp.1-7.

illustrate, pollution of the air is undeniably harmful, yet with rains the oxides, sulphates and other biological and chemical particulate matter get washed into polluted water, which in turn affects adversely the vegetation and in turn, the disappearance of vegetation leads to soil erosion or desertification.

Therefore, however comprehensive be the enactment on air pollution, this problem cannot be effectively tackled and controlled in isolation and in disregard of the other elements of the environment or other living partners sharing the bio-sphere. Hence, there is a dire need to adopt an integrated approach that would regulate the ecology of the total bio-sphere in a balanced manner to maintain the nature's equilibrium and thus retain the environment in a state conducive to survival and welfare of the living world. Based on the above premises and deductions, we need to evolve and enact a law for the prevention and control of pollution of the multi-faceted environment from all aspects and all types of pollutants.

Multi-tier cooperation

The Act has provided for constitution of a Central Board for prevention and control of pollution of air as well as Boards at state level for the same purpose. But there is need for intimate interaction between the two. Since the problems and levels of air pollution as well as environmental conditions in each state are likely to be different, the Central Board should help evolve specific solutions by

extending due support and technological guidance. There is also a requirement for cooperation and integrated research in laying down the standards of pollution of air and industrial emissions.

Further, this Act does not involve the local bodies and municipal corporations in the control of air pollution. In fact, these organisations are already fairly armed, even with statutory powers, for ensuring environmental purity. These bodies possess legal power to license and regulate certain hazardous or offensive trades, for control of effluents and emissions, disposal of urban wastes, regulation of noise-free zones and so on. Unfortunately, this grass-root local executive authority has got been integrated into the national and state level enforcement machinery and its existing infra-structure has not been fully harnessed for effective prevention and control of pollution of aerial environment.

Besides, maintenance of wide-spread enforcement machinery by the State Boards would be infructuous and avoidable, if municipal bodies can be recruited into this network for local inspection of industrial emissions and surveillance over the condition of environment. Therefore, the Boards need to share their power and shed a part of their responsibility to the local bodies and municipal corporations. Cooperative efforts and complementary activities at various tiers can achieve desirable results in maintaining the purity of the air and wholesomeness of the environment in general.

Inter-Departmental Coordination

As has been already stated, the environment is not divisible. As such compartmentalised action in isolation in one area in utter disregard of other areas can hardly promote the desired results. The problems of environmental pollution deserve to be tackled by coordinated and concerted actions of several departments through sublimation of parochial and departmental loyalties. This aspect of inter-departmental coordination assumes importance because every human activity affects environment in one way or the other and different departments regulate different aspects of it. Hence the need for coordination and concerted action by various departments concerned with regulation of different aspects of human activity.

Effective Enforcement

A frequent lament is that our legislations, however laudable may be the cause espoused by them, are rarely ever enforced strictly and scrupulously. The same seems true in this case. It is believed that inspection of industries, check of control equipment and sampling of emissions are hardly carried out regularly or diligently. There are only cursory inspections by a woefully small cadre of inspectors who are almost never qualified and rarely ever motivated. There is lack of will or general apathy towards enforcement of this Act. But such default is to our jeopardy and the earlier we realise this, the better it would be.

In this connection, the Bhopal gas leak tragedy has revealed how few and superficial inspections of industrial premises are carried out to check the proper functioning of safety and control equipment. It is really a pity that the Madhya Pradesh Government, making its statement before Justice N.K.Singh Commission on November 27,1985, pleaded that "no inspecting agency could be reasonably expected to possess the super-expertise to probe deep into the designing faults or defects in fabrication of the plant and machinery according to the original design and ensure their continuous proper maintenance, under any statutory or other provisions."[44] In fact, this tragedy has exposed the tip of an iceberg and it is symptomatic of a malady which can only be controlled by effective enforcement of this Act.

Mass Education

The battle against environmental pollution cannot be fought by the Government alone.[45] Therefore, one of the important tasks is arousal of civil consciousness and involvement of industries in combat against pollution. They need be apprised of the attendant risks and stimulated to report cases of pollution to the concerned authorities for abatement and timely remedial measures. This public awareness will go a long way to generate a desire to keep the atmosphere clean. A concerted drive towards mass

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44. See The Times of India (New Delhi,Nov.28,1985),p.1.

45. See generally R.C.Sharma ed.,Environmental Education (Delhi 1981), and Zafar Futehally,"The Environment and the Public" Indian Express (May 24,1977),p.4.

education about perils of air pollution is required. Non-governmental organisations can play an important role in creating and expanding public awareness. It is no wonder that environmental policies have emerged in various countries not only because of government or academic interest in the subject, but because of popular interest in it.[46]

Other Administrative Moves and Non-Governmental Efforts Made :

If the response of the Indian media is any indicator, there is a definite concern among the educated segments of Indian society on environmental destruction. This concern has manifested itself in largely uncoordinated responses at various levels.[47]

(i) A fullfledged Department of Environment has been set up at the Centre since November,1980 and eight State Governments have followed suit ;

(ii) environment- related legislations on pollution have come on the statute books in India ;

(iii) environmental education has permeated every level of our formal education system,

(iv) a large number of active non-governmental organisations have come into existence with the aim of preserving, protecting and creating awareness about the environment ;

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46. See Anil Agrawal,"Role of Voluntary Organisations" World Focus vol.4(1983),p.38.

47. See Thomas Mathew, "A View of Government's Role in Environmental Protection in India" Society and Science

F/N continues....

(v) with the financial assistance from the International Labour Organisation (ILO), chemical laboratories are being set up in eighteen States with a view to modernise the country's safety system. The laboratories are expected to start functioning before 1989. An intensive training programme for safety personnel is also underway all over the country. These are a few steps taken in the field of safety following last year's Bhopal gas tragedy.[48]

(vi) the private corporate sector, egged on by the government, and a slowly awakening citizenry, is taking increasing account of environmental considerations in their operations ;

(vii) at the official level, environment now forms a recognised component of our Five-Year Plans and a number of programmes are in progress aimed at mitigating environmental impact from development projects as well as from poverty and the satisfaction of basic human needs.

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previous f/n continues

vol.2(1982),pp.7-15; and - - - "The Governmental Response to Environmental Needs in India" India International Centre Quarterly vol.9(1982),pp.238-48.

48. See statement of S.B. Patil, Director, Central Labour Institute, Bombay reported in The Times of India (New Delhi, Dec.,5,1985), p.3.

However, the basic problem seems to be one of perception whereby environment in India is still considered to be the business of environmentalists. At the official level, a merry game of 'passing the buck' is on. Environmental catastrophe seems far away in the perception of our political leadership and our elite.[49] While the first step in the direction of air pollution control has been taken by the Ministries of health and family welfare, and works and housing by appointing an expert Committee to draft a bill, it is more important that all states who are real executive authorities should take concurrent steps. Most of the industrial development is within States, and very little in Union Territories. The largest population is in States, which are exposed to this health hazard most. Unless states move in the matter, the Central Act may not serve a very useful purpose except within the Union Territories.[50] On the front of air pollution by civil aviation activities, there have been established in India air field environmental management committees at all airports. These Committees are headed by the

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49. Thomas Mathew, "World Conservation Strategy" World Focus vol.4(1983),p.6; See also generally V.R.Krishna Iyer, Environmental Pollution and the Law (Indore,1984); Suresh Jain and Vimla Jain, Environmental Law in India (Indore, 1924); J.M.Khoshoo, Environmental Concerns and Strategies (New Delhi,1984), D.P.Dwivedi, "India: Pollution Control Policy and Programmes" International Review of Administrative Sciences vol.43(1977); and P.Leelakrishnan, "Statutory Control of Environmental Pollution" Cochin University Law Review vol.3(1979),p.141.

50. J.N.Dave, "Air Pollution" World Focus vol.4 (1983),p.13.

Secretaries of the State Governments with broad-based membership from Civil Aviation Department, Municipal Corporations, and Health Departments etc. These Committees consider and implement measures to maintain environmental cleanliness within a radius of ten to fifteen kilometres around the airports.

Further Proposals

1. A Siting Policy

The Government needs to formulate an integrated environmental policy for hazardous and polluting industries. No such policy exists in the country today.

2. Provision of Strict Legal Liability

There is also a need for reform in the environmental laws to fix civil and criminal liability in case of default by corporations and in providing effective deterrents. To be meaningful, there must be provision in the legislation for effective criminal prosecution of those really responsible for running a hazardous establishment and not necessarily only of the foreman or works manager who happens to be on duty at the time of the accident. Further, as a number of toxins have long-term effects, there should be a provision for taking such effects into account in fixing responsibility.[51]

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51. Bharat Bhushan, "Environmental Hazards" The Times of India (New Delhi, Dec.22,1985),p.7.

The spiritual essence of Rylands V.Fletcher[52] doctrine that if noxious substances are kept by anyone on his premises, he is liable even in the absence of negligence for the injurious fall-out therefrom if someone suffers damage in consequence - may be expanded to include even the substances suspected in the atmosphere or outer space since now these are possible menaces and nuisances. These basics need to be changed in the creative crucible of Indian Legislative Chemistry. Parliament should declare that strict liability, regardless of mens rea, will apply to all cases of environmental pollution by chemical plants.

3. Air Pollution Control- Linkage with Development Process

Environmental conservation is an integral part of any development process, and an essential element in ensuring that our efforts result in substantive development for present and future generations. Luckily, the opening paragraph of the section on Environment in the Sixth Five-Year Plan stated the position clearly: "The environment must not be considered as just another sector of national development. It should form a crucial guiding dimension for plans and programmes in each sector". The approach is maintained in the Seventh Five-Year Plan.

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52. 1866 Law Reports vol.I Ex.265.

In fact, need for technological and industrial advancement cannot be ignored in a developing economy. Environmentalists who argue for preservation of our natural resources even at the cost of slowing down, or stopping, all developmental processes, are also not being realistic. There are a large number of "Superpowers" waiting to walk into any country whose weakened economy provides them with the slightest excuse. If them, one slows down beyond a point the process of development in order to preserve the environment one would be inevitably opening the gates to foreign exploiters who would, with great glee, ravage the very environment that was in the first place sought to be preserved.[53] There is thus need to strike a balance between industrialisation and environmental demands.[54]

A multi-pronged approach for prevention and control of air pollution is needed. This would involve :

(i) strengthening of law,

(ii) a vigorous campaign for environmental literacy through schools and colleges, adult and continuing education centres, mass media, trade unions and popular science forums,

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53. Shekhar Singh, "Vested Interests" World Focus vol.4 (1983),p.9.

54. See Nilay Choudhuri, "Industrial Pollution Control Constraints and Conflicts" Yojana vol.28 (1984),pp.4-6 and 12; and D.A.Francis, "Anti-Pollution Steps by Gauhati Refinery "Lok Udyog vol.9(1975),pp.31-32.

(iii) promotion of public interest litigation in air pollution cases.

(iv) establishment of environmental courts having both civil and criminal jurisdiction with authority to issue appropriate directions to the administrative and professional bodies.

(v) co-operation among the professions of law, medicine, social work, journalism and teaching.

To sum up, fortunately in India, the problem is neither so serious nor so widespread. But air pollution is reaching critical levels in certain industrial cluster areas like Bombay, Calcutta, Ahmedabad and Kanpur etc. Further, India has also touched the industrial threshold where this hazard will progressively become evident and serious.[55]

A modest effort has been made to contain this tide of escalating air pollution through the Air (Prevention and Control of Pollution) Act, 1981. This step is a beginning.[56] But it falls short of the requirement for several reasons. Firstly, it tends to tackle air pollution in isolation of the other elements of environment. Secondly, it restricts itself primarily to industrial emission and auto-exhaust

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55. See generally Sarla Devi, Revive Your Dying Planet: An Ecological Socio-Economical and Cultural Appeal (Nainital, 1982).

56. See M.G. Balakrishna, "Legal Control of Air Pollution in India" Banaras Law Journal vol. 13 (1977), pp. 34-42.

pollution. It thus specifically excludes pollution by aircraft and ships as well as radio-active pollution. Thirdly, offences stipulated under the Act admit of a miscellany of defence pleas and the penalties laid down are hardly deterrent. Fourthly, enforcement machinery provided under the Act has not involved the local bodies which were already endeavouring to grapple with the problem at the grass root level, though armed with limited powers and almost non-existent expertise.

Nevertheless, this enactment has shown the right path to be pursued. It has also generated an awareness towards this problem and the attendant risks to our welfare and survival of posterity. It, however, needs to be appreciated that the problem of air pollution can be attacked from both angles - one by reducing the discharge of pollutants, and the other by preserving the vegetation which purifies the atmosphere by removing certain pollutants. Even otherwise also particulate pollutants in the air tend to settle down and affect the quality of land and vegetation. Another palliative can be to plan judicious land use and avoid clustering of air-polluting industries through a coherent and concerted national environment sanitation policy. And last, but not the least, is the need to create a consciousness among the public about the potential dangers of air pollution

and mobilise the public support and involvement in reporting occurrence of air pollution offences. A comprehensive and integrated Environmental Protection Policy needs to be formulated and implemented.[57] Isolated efforts in arresting pollution in each element of environment, howsoever serious and well conceived, can at best lead to partial success or perhaps, temporary amelioration.

Reverence to nature is an important precept of the Indian philosophy[58]. India has a tradition of Vasudhaiv Kutumbakam (the whole earth is our family)[59]. Mahatma Gandhi, perhaps the greatest humanist of this century also said,"The earth has enough for everybody's need but not for everybody's greed". We have to relate these percepts to contemporary contexts, act upon them and bring the same home to the rest of the world before it gets too late.

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57. See K.Ramakrishna,"Indian Environmental Laws A Note on the Existing Legal Framework "Productivity vol.24(1983-84) and U.Sarathchandran, "Environmental Legislation in India" Cochin University Law Review vol.4(1980),pp. 280-311.

58. See Indira Gandhi, "Human Environments An Asian View" Population Review (1981), pp.9-13.

59. See Anil Sengupta, "Gandhiji and Environment" Bhagirath vol.25 (1978), pp.113-15.

Chapter - VI

C O N C L U S I O N

Atmosphere is a part of the biosphere is which life emerges and nurtures. Atmospheric oxygen plays an important role in the photocyclic chain which sustains life on earth. It is vital for all organic activities. The biosphere is that depth of the earth's surface where the incoming light energy from the sun is trapped by the functioning of the different biotic components - producers, consumers and decomposers - with the abiotic components to produce a cyclic interchange of materials between them. With the exception of a few micro-organisms which are capable of utilising the energy from exothermic inorganic chemical reactions, all life on earth, including man, is dependent directly or indirectly on the functioning of these ecosystems. The maintenance of a viable biosphere is therefore in man's long-term interest. Life sustains on food. Man has unusual food habits - cooking for instance - but his food habits are not nearly so peculiar as his waste habits. As he becomes more 'civilised' he produces an even greater variety and volume of wastes to the point where he is now in imminent danger of irreversibly wrecking the ecological balance of the biosphere and of being suffocated in the accumulation of his own garbage. The earth's atmosphere has served man in two fundamental ways

throughout his existence it has provided him with life-sustaining air to breathe and it has acted as a medium for disposing off reasonable quantities of the wastes associated with human activity. Man's indiscriminate use of the atmosphere as a gigantic sewer however, has led to the isolated severe air pollution episodes and ultimately to a global deterioration of the quality of the ambient air.[1]

Introduction of harmful substances to the air leads to its pollution. Major pollutants of the atmosphere are sulphur dioxide, nitrogen dioxide, carbon monoxide, hydrocarbons, dust, smoke, mist and aerosols. Industry, automobiles, aircrafts, ships and the domestic fire are the chief sources of air pollution. The polluted air does not affect the man alone but all animate beings and inanimate things. It is indeed very difficult to demonstratie chronic effects caused by continued air pollution. However, air pollution episodes with extremely high concentrations have shown its effects in terms of acute sickness and deaths. It places a great burden upon the national economy as well as health and economies of individual families.[2]

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1. See Supra Chapter II.

2. Ibid.

Pollution is not a modern phenomenon. It is an inevitable consequence of man's existence on earth. But it is not peculiar to man and may indeed have preceded him. Pollution by man in twentieth century is a reflection of population growth, technological development and the resulting increase in living standards and consumption habits associated with economic growth. To natural pollution from volcanic activity, grass and forest fires, man added his own portion from cooking and heating. It was not, however, until the onset of the industrial revolution and large scale urbanisation that air pollution developed into a regional and continent-wide problem. Convergence of pollution trails from all directions makes the air over densely populated and heavily industrialised cities not only unpleasant but deadly.

Most air is contained in the first 2000 ft. of the atmosphere. Since man discovered fire and began polluting the air, the earth became a giant waste basket for the byproducts of massive combustion. With the coming of the industrial age, the problem was compounded by factories spreading hazardous substances into the air; the natural self cleansing process of the atmosphere operated as long as there was enough time and space. Rapacious exhaustion of atmospheric oxygen and impairment of air quality by pollutants led to 'pollution crisis'. It concerns the health of present and future generations of man. Of late, therefore, he is

slowly beginning to realise that a truly high standard of living can be achieved only if he can find some way to improve the quality of both his own life and his surroundings as well. Gradually, men and women have begun to feel that the technological world they have created throughout the century may become their graveyard, or at least a huge international hospital ward. Threat to health is real and possibly quite close, but not always readily apparent. Still one often hears that the price for progress and urbanisation is polluted air and that it is necessary to put up with a certain amount of polluted air in order to maintain the present standard of living. This is indicative of polluted state of the man's mind as well as the air he breathes. Realistically, man can no longer afford to support his own apathy. He must begin now to restructure his economic and social philosophies and to redirect his technological efforts towards the conservation and preservation of one of the most rapidly disappearing natural resources - breathable air.

Acute adverse effects of air pollution on health are fairly easy to demonstrate. It stands to reason also to expect its chronic effects on human health. The difficulties in obtaining a direct cause - effect relationship between air pollution and morbidity or mortality lies in the high mobility of people and their addiction to certain habits. Industrial hygiene research, laboratory experiments, epidemiological studies, and clinical research establish

direct cause- effect link between pollution, and adverse health effects thereof.[3] Scientific investigations have shown that air pollutants affect weather and climate also. However, on a global scale the long-term modifications affected by man-made pollution are disguised. But because of possible catastrophic implications the longterm effects need all our attention and concern.

Significant progress has been achieved in technological ability to control air pollution. However, legal framework to carry it through is still to acquire perfection. Viewed realistically, therefore, atmosphere may continue to be used as a giant sewer for some time to come.

Dirtier air, however, is not inevitable. Learning to recognise that all life is a series of cycles and that the human species has no choice but to adapt to them if it is to survive, is a shocking change in our perception of reality. Each step of eliminating dirt from the air ingrains social, as well as scientific devisions. Within the overall concept, we need new approaches to determine goals and standards. It is necessary to develop techniques for using of resources more efficiently. Our outlook on the growth rate has to

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3. C.F.Wilfrid Bach, Atmospheric Pollution (New York,1972), p.61.

change and the economy has to be more responsive to environmental concerns.[4] But environmental goals often confront competing considerations- economic efficiency, income distribution, national objectives and even national security. Pollution is global in nature and ignores national boundaries. While pollution transcends political territorial limits, independent states are not prepared to dilute their territorial claims of sovereignty. Consequently, treatment of environmental issues has been extremely uneven throughout the world. No wonder that very little has so far been accomplished on international plane towards treatment of air pollution. Heterogeinty among the domestic approaches of states is apparent. It is only in the last few years that the organised would community has placed would pollution problems in the context of the human environment and adopted a holistic approach to these problems.[5]

Although the principles of international law are not primitive or archaic yet their adequacy for the treatment of environmental problems is seriously in question. The customary legal doctrine of international law has rather restrictive application. Other general principles like good neighbourliness and abuse of rights expounded in the Lotus and the Trail Smelter cases lack sufficient precision. Appreciation

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4. See Virginia Brodine, AirPollution (New York, 1973), pp.165-66.

5. See James Barros and Douglas M.Johnston, The International Law of Pollution (New York, 1974), pp.xvi-xvii.

of need for the development of new institutions and standards to deal with the protection of the environment has recently led to the efforts at international, regional and domestic levels. The Trail Smelter heritage has been appropriated by the international community in the Stockholm Declaration on the Human Environment. Inefficacy of protection mechanism established thereby, however, is evident. Unfortunately, the existing international strategies aiming at global environmental protection awfully lack the necessary teeth. The nation states find it difficult to shed their extravagant claims to unbridled sovereignty. An assertive system of accountability of states in matters of global environment is inevitable. A multilateral covenant providing for an express guarantee of hygienic environment shall be a step in right direction. Nevertheless the problem remains that the 150 odd states are subject to wide-ranging social, economic and political processes. But developed countries can be potential contributors to pollution check by reducing those conveniences and consumption habits which provide minor benefits and present violent threat. Concurrently, developing countries have to learn lessons from past experiences of the developed ones. No doubt, poverty is the worst source of pollution, they have to be wiser not to overlook the environmental aspects of their enthusiastic plans of development

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6. See Supra Chapter III.

In today's world, national sovereignty over natural resources seems, at first sight, to be as strongly entrenched as ever. The concept of world heritage has begun to find legal expression in instruments.[7] This awareness is a precursor of the emergence of new concept of international trust over all resources which would replace national ownership or sovereignty.[8] It is expected that during the foreseable future the best modern standards of care will be imposed on polluters by the cooperative actions of the States.[9] It would be in their national interests too because costs of unilaterally maintaining high standards of pollution prevention would be unreasonably high.[10]

International activity for atmospheric conservation has been relatively intense recently. Thrust is clear with recent developments in the prohibition of environmentally dangerous weapons or weapons

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7. For example, conventions concerning wetlands, islands, and historical sites; convention on Endangered species of wildlife; and convention on the Law of the Sea.

8. See Ludurk A.Teclaff, "The Impact of Environmental Concern on the Development of International Law in International Environmental Law ed.(New York,1974), p.257.

9. See UNDOC E/4667, Report of the UN Secretary General.

10. Howard J.Tanbenfeld "International Environmental Law" Air and Outer Space" n.8,pp.197-98.

or weapons of mass destruction i.e., nuclear and thermonuclear, bacteriological, and chemical weapons. The World Health Organisation (WHO) and the Economic Commission of Europe (ECE) have studied air pollution problems for a long time and the Council of Europe has worked on guidelines for industrial, thermal, vehicular and other sources of atmospheric pollutants. The US and Canadian International Joint Commission for border problems has conducted studies. Both Western and Eastern European nations have indicated concern and conducted cooperative investigations. Yet, while joint action seems essential, the ultimate right of a state to industrialise as it sees fit is likely to be pressed in practice. The Stockholm results and UNEP's work are triumph for the environmentalists.[11] Nevertheless, contemporary international law and institutions are yet half way in the evolutionary process to gain success in air pollution control.

The emerging international law of air pollution ows something, atleast indirectly, to the doctrines of municipal law. Even trough most international measures in air pollution prevention and control represent fresh efforts in treaty making, those engaged in the law-making exercises have been furnished by training with relevant cognate or analogous concepts that thave evolved within national legal systems. In fact, response of law to the developments in science and technology has not

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11. Ibid., p.197.

been adequate because of a variety of reasons, some historical, some socio-political, and some economic. Legal issues involved in atmospheric pollution concern different procedures institutions, remedies and reliefs. The challenge before legal system is real, imminent and formidable. Solutions have to be necessarily innovative, radical and flexible.

Problem of air pollution is being tackled in all developed countries on an emergency basis. However, their approaches are diverse. The common law doctrines of negligence, strict or absolute liability, and nuisance which served as a basis for compensation to the victim, have been found insufficient in contemporary context where the emphasis is on environmental protection rather than on compensating the victim. State intervention has been necessary for protection of the atmosphere. The history of air pollution legislation goes back to the thirteenth century when during the reign of Edward I England violators of the pollution law could even be executed. The cases of the US and the UK represent two models of air pollution control. They are dealing with the problem through different instrumentalities at different levels. While the UK system operates on emission standards setting through "best practicable means" principle, the US modal involves a combination of both air quality and emission standards. The local bodies are associated with the legislative mechanism in both the countries which ensures check and control at the base levels. However, there exist gaps in certain areas

and in case of certain non-combustion sources. Regular monitoring, enthusiastic implementation and public support have resulted in improved air generally except some black spot areas.[12]

Fortunately, in India the problem is neither too severe nor so widespread. But air pollution is reaching critical levels in certain industrial cluster areas like Bombay, Calcutta, Ahmedabad and Kanpur etc. Further, India has also touched the industrial threshold where this hazard will progressively become evident and serious. Reverence to nature and equation of the whole earth to a family have been at all times important precepts of Indian philosophy. In modern sense, a modest effort has been made to contain the tide of escalating air pollution through the Air (Prevention and Control of Pollution) Act,1981. This step is a beginning. But it falls short of the requirement for several reasons. Firstly, it tends to tackle air pollution in isolation of the other elements of environment. Secondly, it restricts itself primarily to industrial emission and auto-exhaust pollution. It thus specifically excludes pollution by aircraft and ships as well as radio-active pollution. Thirdly, offences stipulated under the Act admit of a miscellany of defence pleas and the penalties laid down are hardly deterrent.

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12. See Supra. Chapter IV.

Fourthly, enforcement machinery provided under the Act has not ensured intimate interaction between the central and state boards and has not involved the local bodies which were already endeavouring to grapple with the problem at the grass root level, though armed with limited powers and almost non-existent expertise. Public consciousness in this arena has not yet attained desirable degree. Thereis also need to formulate and implement an integrated environment protection policy because isolated efforts in arresting pollution in each element of environment, howsoever serious and well conceived, can lead at best only to partial success or temporary amelioration. There is nigh demand for better inter-departmental coordination between various government bodies concerned with environmental protection. The environment is not divisible and as such compartmentalised action in isolation in one area in utter disregard of others may hardly promote the desired goals. Concerted action is required to be taken. Present machinery for air pollution control demands further strengthening. Law should be reformed to incorporate the test of absolute and strict liability in all cases of environmental pollution regardless of mens rea. Environmental conservation is an integral part of any development process, and an essential element in ensuring that our efforts result in substantive development for present and future generations. Sanity lies in striking a balance between industrialisation and environmental aspects.[13]

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13. See Supra Chapter V.

Basically, the objects of any air pollution control regime is maintenance of air as clean as possible, but not dirtier than a specified quality. More specifically, the goals are (i) to preserve the health and welfare of many (ii) to protect plant and animal life; (iii) to prevent any damage to physical property; (iv) to ensure visibly for safe air and ground transportation; and (v) to guarantee an aesthetically pleasing environment. Legal action to control air pollution should, therefore, be guided by the following axioms : (i) control action should not be postponed until an air pollution disaster has occurred; (ii) since it is more economical to control air pollutants at their sources, prevention of pollution emission rather than establishment of costly monitoring and warning systems should be the prime control criterion; (iii) effective air pollution control can only be accomplished if local control agencies and the public closely cooperate in implementing and enforcing stringent air quality standards which ensure protection of the public from adverse effects. Nonetheless, suitable legislation controlling air pollution is inevitable. Unfortunately, legislative texts have often tended to be vague and thus not readily enforceable. Legislation is ineffective unless it is enforced. Enforcement requires constant public awareness, public supervision, and public pressure. The public has the right and duty to enforce legislation that has been designed not only to maintain but also to improve the air quality of an area in spite of continued

urbanization and economic growth. Public vigilance is of utmost importance in enforcing legislation that specifies that there shall be no deterioration of air quality in relatively clean areas. The voice of the inanimate object should not be ignored. Before these priceless bits are forever lost or are so transformed as to be reduced to the eventual rubble of our urban environment, the voice of the existing beneficiaries of these environmental wonders should be heard. Let the bulldozers of progress not plough under all the aesthetic wonders of this beautiful earth. Ecology reflects the land ethic which enlarges the boundaries to include all soils, waters, plants, and animals.

More difficult than the identification of the major pollutants is the question of the means to decide that pollution has occured; that is getting worse; or that it has reached a degree unacceptable to the society. The difficulty of determining socially acceptable criteria is magnified when the threatened resource has multiple uses. Such is the case with air. It is essential to make scientific studies of pollutants, their biological effects, and engineer controls within a suitable legislative framework. Air laboratories may be highly useful in scientific study of pollutants. The measurement of air pollution at source is desirable because once pollutants are emitted into the atmosphere, their movement, concentration, chemical reactions and effects are largely controlled by the prevailing environmental conditions. The monitoring of emissions at source, and a knowledge of the weather conditions

allows a rought calculation of the atmospheric concentrations to be made. From this it is impossible to develop quality objectives and emission standards for specific pollutants, to provide a measure of protection for the population at risk. Regular monitoring is necessary to provide a check upon the compliance with regulations, and to assess whether changed atmospheric conditions require a revision of the emission standards.

It is obvious that law on its own cannot be expected to provide the criteria of pollution assessment and control. It is purely a question that can be approached on an inter-disciplinary basis. Air pollution respects neither political border not the artificial divisions between various academic disciplines. Work in this field requires specially trained personnel who can respond professionally to the requirements of a problem that spans a wide-range of academic disciplines. Unluckily, there may be very few people who have received formal training in more than one of the many disciplines contributing to the knowledge and understanding of air pollution problems. There is thus much to be gained from a broader perspective of the subject. It is essential that the industry, society and the legislators work together to equilibriate reasonable industrial development with environmental standards which are scientifically defensible, practicably operable and acceptable to the society at large. Finding reasonable solutions to the complicated problems of air pollution requires nothing less than

the full mobilisation of all our available brain power. Representatives from physical, engineering, biological, medical, and social sciences must begin now to translate their research data and ideas into mutually understandable information which can then be used by environmental specialists working full time toward finding practical solutions to the problem. Fortunately, considerable experience of this kind of collaboration is now being consolidated.

Cleaning the air presents ever-changing regulatory problems to which it is difficult to find any permanent solutions. As consumption habits, lifestyles and industrial processes are modified, the sources of pollution change as well, and regulators have to struggle to keep up. However, it would be advisable to view the problem of air pollution in a long-term and international perspective. Isolated local measures of un-coordinated nature may not save the mankind from the peril of extinction. Dirty air anywhere is a threat to life everywhere. The pollutants travel widely. It is felt that there are advantages in developing and establishing world-wide air quality standards. International standards so laid down would permit valid comparison of air pollution levels among all countries and would provide a basis for assessment of the earth's pollutant dispersion mechanism. But it is a difficult undertaking. People have varying reactions depending on where they happen to be because it varies from place to place. The chemical make up of the atmosphere

determines the degree to which it is polluted. However, weather conditions that prevail at any particular time, as well as topography of an area have a marked influence on the effects of the pollution.

A community relations programme and mass education campaign can go a long way in checking air pollution. Such programmes would develop mutual trust between various interest groups representing the polluters and the polluters and can explain what restrictions specific regulations impose on particular segment of the economy. Public awareness aroused through mass education campaigns would win the people's cooperation and support. In dealing with environmental problems it is not enough to apply hard data, quantify the issues and expect a rational response without public support. Logic penetrates the head, but not the heart, and many of these issues are settled by the heart, especially in legislatures where the final decisions are political. So in order even to have the legislation passed, environmental education is essential in a number of ways. It is common knowledge that industry employs well paid lobbyists whose full-time job is to pursuade legislators and other public officials to represent their interests. The informed and concerned citizen usually has litle but his own time and keen interest in well-being of his community to offer when he is educating the public officials. This demanding role on the part of mature citizenship is the noblest responsibility in a democracy.

Public officials as the referees between the polluters and the public's interests, have the difficult task of deciding which of the desires of the different groups is best for the community. Air pollution control can be successfully achieved if the officials of a community have public support. Public support, however, can only be expected from well-informed citizens. Pollution control standards prescribed by law can fall short of their purported objectives unless they arekept upto date and vigorously enforced.[14] Air pollution is really everybody's fault because everyone contributes to it. The steady and accelerated movement of people to metropolitan areas to work for the industrial concerns located there increases the need for more goods and services. Soon a situation develops where nature cannot dispose off the airborne wastes at an adequate rate and the air quality begins to degrade. Apart from this, the people who are mainly responsible for urban development, namely mayors, local legislators, businessmen, real estate speculators, and city planners in most cases show little concern about the consequences which might ensue from their profit-oriented planning. The urban and regional planner can play a decisive role in securing a livable urban environment through thoughtful application of such methods as zoning, site selection, highway and rapid transit design, slum clearance and

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14. See Ralph Nader, "Corporations and Pollution", Progressive (April, 1970), p. 19.

urban renewal. Climatological factors such as solar radiation, greenhouse and heat-island effect, ventilation, and precipitation markedly influence the urban air hygienic situation. By integrating these factors in his planning scheme the urban planner can bring them to beneficial use for the general public.[15]

Ecological literacy begins with an awareness of environmental problems; passes to an understanding of underlying principles, issues, and answers; and climaxes in a commitment to individual and effective action in the community interest. The sudden explosion of public concern for environmental quality indicates that we are already deep in a process of transformation in traditions and value systems--mass emergence of an ecological conscience. But we will not have arrived at the climax stage of environmental literacy until we appreciate fully the ethical as well as technical dimensions of ecology. Some people, surprisingly still cling tenaciously to the belief that a technological solution to the problem will soon befound. This ideology represents a dangerous excuse for individual inaction. Ecology teaches that man is a plain member of the land-community, not its conqueror. We have to develop for our own survival, a new philosophy of life. As individuals we must consider the ecological consequences of all our actions. As a society of careless

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15. See Supra, n.3,p.116 and 129.

individuals we have recklessly degraded the quality of our air. As a society throughout the world we are now faced with the consequences of our carelessness, and it remains to be seen whether we shall be equal to the monumental task of preserving our atmosphere.

Hope of life lies in effective regulation of atmospheric pollution. Pollution concerns our health and that of our children. Continued pollution poses threats of human extinction. We have to protect the breathable air for our successive generations. Preservation of atmosphere shall be a tribute of the mankind unto itself. Multi-pronged efforts based on inter-disciplinary approach at international, municipal and local tiers should pre-empt all our available brain power and energies. Pollution knows no political limits and so the law to check it should not be restricted by narrow claims of sovereignty. A multinational convention would be a step ahead in prescribing legal obligations for states to protect atmosphere. There is also need to strengthen present institutions, prescribing certain common international air quality standards and effective enforcement of obligations. The solutions have to be innovative in nature. Regional and municipal efforts should adopt a coordinated approach. Apart from incorporation of principle of strict liability into written law, community relations programmes and mass education campaigns can play a vital role in making

the air pollution control plans effective. Atmospheric preservation should form part of development processes, and urban and regional planning. Monitoring infrastructure and constant updating of regulations are no less important. But sooner we start the better it would be so that there is no "the day after". The clock is ticking fast. Let us awake lest it should be too late and future generations curse us for imprudence.

APPENDIX I

GLOBAL : THE UNITED NATIONS CONFERENCE ON THE HUMAN ENVIRONMENT (1972)

Text of the U.N.General Assembly Resolution on Problems of the Human Environment.

The General Assembly,

Noting that the relationship between man and his environment is undergoing profound changes in the wake of modern scientific and technological developments.

Aware that these developments, while offering unprecedented opportunities to change and shape the environment of man to meet his needs and aspirations, also involve grave dangers if not properly controlled,

Noting, in particular, the continuing and accelerating impairment of the quality of the human environment caused by such factors as air and water pollution, erosion and other forms of soil deterioration, waste, noise and the secondary effects of biocides, which are accentuated by rapidly increasing population and accelerating urbanization,

Concerned about the consequent effects on the condition of man, his physical, mental and social well-being, his dignity and his enjoyment of basic human rights, in developing as well as developed countries,

Convinced that increased attention to the problems of the human environment is essential for sound economic and social development,

Expressing the strong hope that the developing countries will, through appropriate international co-operation, derive particular benefit from the mobilization of knowledge and experience about the problems of the human environment, enabling them, inter alia, to forestall the occurrence of many such problems,

Having considered Economic and Social Council resolution 1346 (XLV) of 30 July 1968 on the question of convening an international conference on the problems of the human environment,

Bearing in mind the important work on some problems of the human environment at present being undertaken by organizations in the United Nations system, in particular the United Nations (including the Economic Commission for Europe), the International Labour Organisation, United Nations Educational,

Scientific and Cultural Organization, the Food and Agricultural Organization of the United Nations, the World Health Organization, the World Meteorological Organization, the Inter-Governmental Maritime Consultative Organization and the International Atomic Energy Agency, as referred to in the report of the Secretary-General on activities of United Nations organizations and programmes relevant to the human environment,

Aware of the important work being done on the problems of the human environment by Governments as well as by intergovernmental organizations such as the Organization of African Unity and non-governmental organizations such as the International Union for Conservation of Nature and Natural Resources, the International Council of Scientific Unions and the International Biological Programme,

Bearing in mind the recommendations of the Intergovernmental Conference of Experts on the Scientific Basis for Rational Use and Conservation of the Resources of the Biosphere, convened by the United Nations Educational, Scientific and Cultural Organization with the participation of the United Nations, the Food and Agriculture Organization of the United Nations and the World Health Organization,

Convinced of the need for intensified action at the national, regional and international level in order to limit and, where possible, eliminate the impairment of the human environment and in order to protect and improve the natural surroundings in the interest of man,

Desiring to encourage further work in this field and to give it a common outlook and direction,

Believing it desirable to provide a framework for comprehensive consideration within the United Nations of the problems of the human environment in order to focus the attention of Governments and public opinion on the importance and urgency of this question and also to identify those aspects of it that can only or best be solved through international co-operation and agreement,

1. Decides, in furtherance of the objectives set out above, to convene in 1972 a United Nations Conference on the Human Environment;

2. Requests the Secretary-General, in consultation with the Advisory Committee on the Application of Science and Technology to Development, to submit to the General Assembly

at its twenty-fourth session, through the Economic and Social Council at its forty-seventh session, a report concerning:

(a) The nature, scope and progress of work at present being done in the field of the human environment;

(b) The main problems facing developed and developing countries in this area, which might with particular advantage be considered at such a conference, including the possibilities for increased international cooperation, especially as they relate to economic and social development, in particular of the developing countries;

(c) Possible methods of preparing for the Conference and the time necessary for such preparations;

(d) A possible time and place for the Conference;

(e) The range of financial implications for the United Nations of the holding of the Conference;

3. Further requests the Secretary-General, in preparing the report, to consult Governments of States Members of the United Nations and members of the specialized agencies and of the International Atomic Energy Agency and appropriate organizations of the United Nations system, and to draw on contributions from appropriate intergovernmental and non-governmental organizations.

Text of U.N. General Assembly Resolution : Calling for a 1972 Conference on the Human Environment.

The General Assembly,

In pursuance of its decision in resolution 2398(XXIII) of 3 December 1968 to convene in 1972 a United Nations Conference on the Human Environment and to begin immediately preparations for the Conference,

Having considered with appreciation the report of the Secretary-General called for in the above-mentioned resolution,

Having considered the relevant chapter of the report of the Economic and Social Council,

Taking into account the recommendations of the Economic and Social Council in the matter,

Having taken cognisance of the note by the Secretary-General of 21 October 1969,

Reaffirming the importance and urgency of the problems of the human environment and underlining the necessity for complete preparatory arrangements for the 1972 United Nations Conference on the Human Environment to become operative as soon as possible,

Recognising the important work on the problems of the human environment that is at present being undertaken and planned by the organizations in the United Nations system, other intergovernmental organizations, non-governmental organizations and national Governments,

1. Endorses in general the proposals contained in the report of the Secretary-General regarding the purposes and objectives of the United Nations Conference on the Human Environment;

2. Affirms that it should be the main purpose of the Conference to serve as a practical means to encourage, and to provide guidelines for, action by Governments and international organizations designed to protect and improve the human environment, and to remedy and prevent its impairment, by means of international co-operation, bearing in mind the particular importance of enabling developing countries to forestall the occurrence of such problems;

3. Entrusts to the Secretary-General the over-all responsibility for organizing and preparing for the Conference, being in mind the views expressed during the debates of the forty-seventh session of the Economic and Social Council and the twenty-fourth session of the General Assembly;

4. Establishes a Preparatory Committee for the United Nations Conference on the Human Environment — consisting of highly qualified representatives nominated by the Governments of Argentina, Brazil, Canada, Costa Rica, Cyprus, Czechoslovakia, France, Ghana, Guinea, India, Iran, Italy, Jamaica, Japan, Mauritius, Mexico, the Netherlands, Nigeria, Singapore, Sweden, Togo, the Union of Soviet Socialist Republics, the United Arab Republic, the United Kingdom of Great Britain and Northern Ireland, the United States of America, Yugoslavia, Zambia — to advise the Secretary-General;

5. Requests the Secretary-General to set up immediately a small conference secretariat, by drawing, with the agreement

of the specialised agencies concerned, particularly upon regular staff of the United Nations system, and to appoint, at the appropriate time, a Secretary-General of the Conference;

6. Further requests the Secretary-General to pursue the consultations on the preparations for the Conference, undertaken by him in accordance with the General Assembly resolution 2398 (XXIII), to take account of the results of other international conferences such as the Conference on the Problems of Environment organized by the Economic Commission for Europe and scheduled to take place at Prague in 1971, and to draw on contributions from appropriate intergovernmental and non-governmental organizations;

7. Invites the specialised agencies, the International Atomic Energy Agency and the Advisory Committee on the Application of Science and Technology to Development to collaborate closely with the Secretary-General in the preparations for the Conference and to assist, as appropriate, in the work of the Preparatory Committee;

8. Invites the intergovernmental and non-governmental organizations concerned to lend every possible assistance in the preparations for the Conference;

9. Requests the Secretary-General, in collaboration with the Preparatory Committee, to take the necessary steps, as part of the preparations for the Conference, to bring to public attention the nature and importance of the problems of the human environment;

10. Believes it essential that all participating countries be enabled to take an active part in the preparations for the Conference and the Conference itself, and requests the Secretary-General to investigate what concrete steps could be taken to this end;

11. Notes the outline of the range of the possible financial implications for the United Nations of the holding of the Conference presented in the Secretary-General's reports and requests the Secretary-General, in the light of the views expressed during the debates of the forty-seventh session of the Economic and Social Council and the twenty-fourth session of the General Assembly, to make all efforts to reduce the costs of the Conference.

12. Decides that the Conference should be of two weeks' duration and requests the Secretary-General to take full account of this fact in preparing for the Conference;

13. Believes that, in order for the Conference to achieve its objectives, it is essential that its agenda be selective, its organizational structure be simple and efficient, and that the documentation be kept reasonably limited;

14. Accepts with appreciation the invitation of the Government of Sweden to hold the Conference in Sweden in June 1972;

15. Requests the Secretary-General to submit a brief progress report to the General Assembly at its twenty-fifth session through the Economic and Social Council at its forty-ninth session;

16. Decides to consider the progress of the preparatory work and to take the necessary further decisions at its twenty-fifth and twenty-sixth sessions.

Also on 15 December 1969 at the 1834th plenary meeting, the General Assembly, without objection, adopted the following decision on the recommendation of the Second Committee(A/7866):

The General Assembly decides that any interested Member State not appointed to the Preparatory Committee for the United Nations Conference on the Human Environment may designate highly qualified representatives to act as accredited observers at sessions of the Committee, with the right to participate in its discussions.

Stockholm Declaration on the Human Environment (1972)

The United Nations Conference on the Human Environment,
Having met at Stockholm from 5 to 16 June 1972, and
Having considered the need for a common outlook and for common principles to inspire and guide the peoples of the world in the preservation and enhancement of the human environment,

PROCLAIMS

1. Man is both creature and moulder of his environment which gives him physical sustenance and affords him the opportunity for intellectual, moral, social and spiritual growth. In the long and tortuous evolution of the human race

on this planet a stage has been reached when through the rapid acceleration of science and technology, man has acquired the power to transform his environment in countless ways and on an unprecedented scale. Both aspects of man's environment, the natural and the man-made, are essential to his well-being and to the enjoyment of basic human rights — even the right to life itself.

2. The protection and improvement of the human environment is a major issue which affects the well-being of peoples and economic development throughout the world; it is the urgent desire of the peoples of the whole world and the duty of all governments.

3. Man has constantly to sum up experience and go on discovering, inventing, creating and advancing. In our time man's capability to transform his surroundings, if used wisely, can bring to all peoples the benefits of development and the opportunity to enhance the quality of life. Wrongly or heedlessly applied, the same power can do incalculable harm to human beings and the human environment. We see around us growing evidence of man-made harm in many regions of the earth: dangerous levels of pollution in water, air, earth and living beings; major and undesirable disturbances to the ecological balance of the biosphere; destruction and depletion of irreplaceable resources; and gross deficiencies harmful to the physical, mental and social health of man, in the man-made environment, particularly in the living and working environment.

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6. A point has been reached in history when we must shape our actions throughout the world with a more prudent care for their environmental consequences. Through ignorance or indifference we can do massive and irreversible harm to the earthly environment on which our life and well-being depend. Conversely, through fuller knowledge and wiser action, we can achieve for ourselves and our posterity a better life in an environment more in keeping with human needs and hopes. There are broad vistas for the enhancement of environmental quality and the creation of a good life. What is needed is an enthusiastic but calm state of mind and intense but orderly work. For the purpose of attaining freedom in the world of nature, man must use knowledge to build in collaboration with nature a better environment. To defend and improve the human environment for present and future generations has become an imperative goal for mankind — a goal to be pursued together with, and in harmony with, the established and fundamental goals of peace and of world-wide economic and social development.

7. To achieve this environmental goal will demand the acceptance of responsibility by citizens and communities and by enterprises and institutions at every level, all sharing equitably in common efforts. Individuals in all walks of life as well as organizations in many fields, by their values and the sum of their actions, will shape the world environment of the future. Local and national governments will bear the greatest burden for large-scale environmental policy and action within their jurisdictions. International co-operation is also needed in order to raise resources to support the developing countries in carrying out their responsibilities in this field. A growing class of environmental problems, because they are regional or global in extent or because they affect the common international realm, will require extensive co-operation among nations and action by international organizations in the common interest. The Conference calls upon the Governments and peoples to exert common efforts for the preservation and improvement of the human environment, for the benefit of all the people and for their posterity.

Principles

STATES THE COMMON CONVICTION THAT

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Principle 6

The discharge of toxic substances or of other substances and the release of heat, in such quantities or concentrations as to exceed the capacity of the environment to render them harmless, must be halted in order to ensure that serious or irreversible damage is not inflicted upon ecosystems. The just struggle of the peoples of all countries against pollution should be supported.

Principle 7

States shall take all possible steps to prevent pollution of the seas by substances that are liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.

* * *

Principle 11

The environmental policies of all States should enhance and not adversely affect the present or future development

potential of developing countries, nor should they hamper the attainment of better living conditions for all, and appropriate steps should be taken by States and international organizations with a view to reaching agreement on meeting the possible national and international economic consequences resulting from the application of environmental measures.

* * *

Principle 18

Science and technology, as part of their contribution to economic and social development, must be applied to the identification, avoidance and control of environmental risks and the solution of environmental problems and for the common good of mankind.

* * *

Principle 21

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

Principle 22

States shall co-operate to develop further the international law regarding liability and compensation for the victims of pollution and other environmental damage caused by activities within the jurisdiction or control of such States to areas beyond their jurisdiction.

Principle 23

Without prejudice to such criteria as may be agreed upon by the international community, or to standards which will have to be determined nationally, it will be essential in all cases to consider the systems of values prevailing in each country, and the extent of the applicability of standards which are valid for the most advanced countries but which may be inappropriate and of unwarranted social cost for the developing countries.

Principle 24

International matters concerning the protection and improvement of the environment should be handled in a co-operative

spirit by all countries, big or small, on an equal footing. Co-operation through multilateral or bilateral arrangements or other appropriate means is essential to prevent, reduce or eliminate adverse environmental effects resulting from activities conducted in all spheres, in such a way that due account is taken of the sovereignty and interests of all States.

Principle 25

States shall ensure that international organizations play a co-ordinated, efficient and dynamic role for the protection and improvement of the environment.

Note: The Conference forwarded principle 26 for consideration by the U.N. General Assembly in the autumn of 1972.

Principle 26

Man and his environment must be spared the effects of nuclear weapons and all other means of mass destruction. States must strive to reach prompt agreement, in the relevant international organs, on the elimination and complete destruction of such weapons.

Note: The Chinese delegation rejected this principle and proposed the following language in its place:

In order to protect mankind and the human environment, it is imperative to firmly prohibit the use of and thoroughly destroy the inhuman biological and chemical weapons which seriously pollute and damage the environment; to completely prohibit and thoroughly destroy nuclear weapons and, as the first step, to reach an agreement by the nuclear states on the non-use of nuclear weapons at no time and under no circumstances.

Appendix II

THE AIR (PREVENTION AND CONTROL OF POLLUTION) ACT, 1981. (Act No.14 of 1981)* (29 March,1981)

An Act to provide for the prevention, control and abatement of air pollution, for the establishment, with a view to carrying out the aforesaid purposes of Boards, for conferring on and assigning to such Boards powers and functions relating thereto and for matters connected therewith.

Whereas 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 the natural resources of the earth which, among other things, include the preservation of the quality of air and control of air pollution;

And whereas it is considered necessary to implement the decisions aforesaid in so far as they relate to the preservation of the quality of air and control of air pollution;

Be it enacted by Parliament in the Thirty-second Year of the Republic of India as follows-

Chapter I

PRELIMINARY

1. Short title, extent and commencement. — (1) This Act may be called the AIR (PREVENTION AND CONTROL OF POLLUTION) Act, 1981.

(2) It extends to the whole of India.

(3) It shall come into force on such date as the Central Government may, by notification in the Official Gazette, appoint.

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* Received the assent of the President on 29.3.1981. Act published in Gaz. of India 30.3.1981, Part II-S.1,Ext., p.55.
For Statement of Objects and Reasons, see Gaz. of India, 24-11-1980, Part II-S. 2, Ext., p.1092.

2. Definitions - In this Act, unless the content otherwise requires, —

(a) "air pollutant" means any solid, liquid or gaseous substance present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment;

(b) "air pollution" means the presence in the atmosphere of any air pollutant;

(c) "approved appliance" means any equipment or gadget used for the burning of any combustible material or for generating or consuming any fume, gas or particulate matter and approved by the State Board for the purposes of this Act;

(d) "approved fuel" means any fuel approved by the State Board for the purposes of this Act;

(e) "automobile" means any vehicle powered either by internal combustion engine or by any method of generating power to drive such vehicle by burning fuel;

(f) "Board" means the Central Board or a State Board;

(g) "Central Board" means the Central Board for the Prevention and Control of Water Pollution constituted under section 3 of the Water (Prevention and Control of Pollution) Act, 1974;

(h) "Chimney" includes any structure with an opening or outlet from or through which any air pollutant may be emitted;

(i) "control equipment" means any apparatus device, equipment or system to control the quality and manner of emission of any air pollutant and includes any device used for securing the efficient operation of any industrial plant;

(j) "emission" means any solid or liquid or gaseous substance coming out of any chimney, duct or flue or any other outlet;

(k) "industrial plant" means any plant used for any industrial or trade purposes and emitting any air pollutant into the atmosphere;

(l) "member" means a member of the Central Board or a State Board, as the case may be, and includes the Chairman thereof;

(m) "occupier", in relation to any factory or premises, means the person who has control over the affairs of the factory or the premises and where the said affairs are entrusted to a managing agent, such agent shall be deemed to be the occupier of the factory or the premises;

(n) "prescribed" means prescribed by rules made under this Act by the Central Government or, as the case may be, the State Government;

(o) "State Board" means —

(i) in relation to a State in which the Water (Prevention and Control of Pollution) Act, 1974, is in force and the State Government has constituted for that State a State Board for the Prevention and Control of Water Pollution under section 4 of that Act, the said State Board; and

(ii) in relation to any other State, the State Board for the Prevention and Control of Air Pollution constituted by the State Government under section 5 of this Act.

CHAPTER II

CENTRAL AND STATE BOARDS FOR THE PREVENTION AND CONTROL OF AIR POLLUTION

3. Central Board for the Prevention and Control of Air Pollution — The Central Board for the Prevention and Control of Water Pollution constituted under section 3 of the Water (Prevention and Control of Pollution) Act, 1974, shall, without prejudice to the exercise and performance of its powers and functions under that Act, exercise the powers and perform the functions of the Central Board for the Prevention and Control of Air Pollution under this Act.

4. State Boards for the Prevention and Control of Water Pollution to be State Boards for the Prevention and Control of Air Pollution — In any State in which the Water (Prevention and Control of Pollution) Act, 1974, is in force and the State Government has constituted for that State a State Board for Prevention and Control of Water Pollution under section 4 of that Act, such State Board shall be deemed to be the State Board for the Prevention and Control of Air Pollution constituted under section 5 of this Act and accordingly that State Board

for the Prevention and Control of Water Pollution shall, without prejudice to the exercise and performance of its powers and functions under that Act, exercise the powers and perform the functions of the State Board for the Prevention and Control of Air Pollution under this Act.

5. Constitution of State Boards — (1) In any State in which the Water (Prevention and Control of Pollution) Act,1974, is not in force, or that Act is in force but the State Government has not constituted a State Board for the Prevention and Control of Water Pollution under that Act, the State Government shall, with effect from such date as it may, by notification in the Official Gazette, appoint/constitute a State Board for the Prevention and Control of Air Pollution under such name as may be specified in the notification, to exercise the powers conferred on, and perform the functions assigned to, that Board under this Act.

(2) A State Board constituted under this Act shall consist of the following members, namely:-

(a) a Chairman, being a person having special knowledge or practical experience in respect of matters relating to environmental protection, to be nominated by the State Government;

Provided that the Chairman may be either whole-time or part-time as the State Government may think fit;

(b) such number of officials, not exceeding five, as the State Government may think fit, to be nominated by the State Government to represent that Government;

(c) such number of persons, not exceeding five, as the State Government may think fit, to be nominated by the State Government from amongst the members of the local authorities functioning within the State;

(d) such number of non-officials, not exceeding three, as the State Government may think fit, to be nominated by the State Government to represent the interests of agriculture, fishery or industry or trade or labour or any other interest, which, in the opinion of that Government, ought to be represented;

(e) two persons to represent the companies or corporations owned, controlled or managed by the State Government, to be nominated by that Government;

(f) a full-time member-secretary having practical experience in respect of matters relating to environmental protection and having administrative experience, to be appointed by the State Government:

Provided that the State Government shall ensure that not less than two of the members are persons having special knowledge or practical experience in respect of matters relating to the improvement of the quality of air or the prevention, control or abatement of air pollution.

(3) Every State Board constituted under this Act shall be a body corporate with the name specified by the State Government in the notification issued under sub-section (1), having perpetual succession and a common seal with power, subject to the provisions of this Act, to acquire and dispose of property and to contract, and may by the said name sue or be sued.

6. Central Board to exercise the powers and perform the functions of a State Board in the Union territories -- No State Board shall be constituted for a Union territory and in relation to a Union territory, the Central Board shall exercise the powers and perform the functions of a State Board under this Act for that Union territory:

Provided that in relation to any Union territory the Central Board may delegate all or any of its powers and functions under this section to such person or body of persons as the Central Government may specify.

7. Terms and conditions of service of members --(1) Same as otherwise provided by or under this Act, a member of a State Board constituted under this Act, other than the member-secretary, shall hold office for a term of three years from the date on which his nomination is notified in the Official Gazette;

Provided that a member shall, notwithstanding the expiration of his term, continue to hold office until his successor enters upon his office.

(2) The term of office of a member of a State Board constituted under this Act and nominated under clause (b) or clause (c) of sub-section (2) of section 5 shall come to an end as soon as he ceases to hold the office under the State Government or, as the case may be, the company or corporation owned, controlled or managed by the State Government, by virtue of which he was nominated.

(3) A member of a State Board constituted under this Act, other than the member-secretary, may at any time resign his office by writing under his hand addressed, --

(a) in the case of the Chairman, to the State Government; and

(b) in any other case, to the Chairman of the State Board, and the seat of the Chairman or such other member shall thereupon become vacant.

(4) A member of a State Board constituted under this Act, other than the member-secretary shall be deemed to have vacated this seat, if he is absent without reason, sufficient in the opinion of the State Board, from three consecutive meetings of the State Board or where he is nominated under clause (a) of sub-section (2) of section 5, he ceases to be a member of the local authority and such vacation of seat shall, in either case, take effect from such date as the State Government may, by notification in the Official Gazette, specify.

(5) A casual vacancy in a State Board constituted under this Act shall be filled by a fresh nomination and the person nominated to fill the vacancy shall hold office only for the remainder of the term for which the member whose place he takes was nominated.

(6) A member of a State Board constituted under this Act shall be eligible for re-nomination but not for more than two terms.

(7) The other terms and conditions of service of the Chairman and other members (except the member-secretary) of a State Board constituted under this Act shall be such as may be prescribed.

8. Disqualifications - (1) No person shall be a member of a State Board constituted under this Act, who —

(a) is, or at any time has been, adjudged insolvent, or

(b) is of unsound mind and has been so declared by a competent court, or

(c) is, or has been, convicted of an offence which, in the opinion of the State Government, involves moral turpitude, or

(d) is, or at any time has been, convicted of an offence under this Act, or

(e) has directly or indirectly by himself or by any partner, any share or interest in any firm or company carrying on the business of manufacture, sale or hire of machinery, industrial plant control equipment or any other apparatus for the improvement of the quality of air or for the prevention, control or abatement of air pollution, or

(f) is a director or a secretary, manager or other salaried officer or employee of any company or firm having any contract with the Board, or with the Government constituting the Board or with a local authority in the State, or with a company or corporation owned, controlled or managed by the Government, for the carrying out of programmes for the improvement of the quality of air or for the prevention, control or abatement of air pollution, or

(g) has so abused, in the opinion of the State Government, his position as a member, as to render his continuance on the State Board detrimental to the interests of the general public.

(2) The State Government shall, by order in writing, remove any member who is, or has become, subject to any disqualification mentioned in sub-section (1):

Provided that no order of removal shall be made by the State Government under this section unless the member concerned has been given a reasonable opportunity of showing cause against the same.

(3) Notwithstanding anything contained in sub-section (1) or sub-section (6) of section 7, a member who has been removed under this section shall not be eligible to continue to hold office until his successor enters upon his office, or, as the case may be, for re-nomination as a member.

9. Vacation of seats by members — If a member of a State Board constituted under this Act becomes subject to any of the disqualifications specified in section 8, his seat shall become vacant.

10. Meetings of Board — (1) For the purposes of this Act, a Board shall meet at least once in every three months and shall observe such rules of procedure in regard to the transaction of business at its meetings as may be prescribed:

Provided that if, in the opinion of the Chairman any business of an urgent nature is to be transacted, he may convene a meeting of the Board at such time as he thinks fit for the aforesaid purpose.

(2) Copies of the minutes of the meetings under sub-section (1) shall be forwarded to the Central Board and to the State Government concerned.

11. Constitution of Committees — (1) A Board may constitute as many committees consisting wholly of members or partly of members and partly of other persons and for such purpose or purposes as it may think fit.

(2) A committee constituted under this section shall meet at such time and at such place and shall observe such rules of procedure in regard to the transaction of business at its meetings as may be prescribed.

(3) The members of a committee other than the members of the Board shall be paid such fees and allowances, for attending its meetings and for attending to any other work of the Board as may be prescribed.

12. Temporary association of persons with Board for particular purposes -- (1) A Board may associate with itself in such manner, and for such purposes as may be prescribed, any person whose assistance or advice it may desire to obtain in performing any of its functions under this Act.

(2) A person associated with the Board under sub-section (1) for any purpose shall have a right to take part in the discussions of the Board relevant to that purpose, but shall not have a right to vote at a meeting of the Board and shall not be a member of the Board for any other purpose.

(3) A person associated with a Board under sub-section (1) shall be entitled to receive such fees and allowances as may be prescribed.

13.Vacancy in Board not to invalidate acts or proceedings-- No act or proceeding of a Board or any committee thereof shall be called in question on the ground merely of the existence of any vacancy in, or any defect in the constitution of, the Board or such committee, as the case may be.

14.Member-Secretary and officers and other employees of State Boards -- (1) The terms and conditions of service of the member-secretary of a State Board constituted under this Act shall be such as may be prescribed.

(2) The member-secretary of a State Board, whether constituted under this Act or not, shall exercise such powers and perform such duties as may be prescribed.

(3) Subject to such rules as may be made by the State Government in this behalf, a State Board, whether constituted under this Act or not, may appoint such officers and other employees as it considers necessary for the efficient performance of its functions under this Act.

(4)The method of appointment, the conditions of service and the scales of pay of the officers (other than the member-secretary) and other employees of a State Board appointed

under sub-section (3) shall be such as may be determined by regulations made by the State Board under this Act.

(5) Subject to such conditions as may be prescribed, a State Board constituted under this Act may from time to time appoint any qualified person to be a consultant to the Board and pay him such salary and allowances or fees, as it thinks fit.

15. Delegation of Powers — A State Board may, by general or special order, delegate to the Chairman or the member-secretary or any other officer of the Board subject to such conditions and limitations, if any, as may be specified in the order, such of its powers and functions under this Act as it may deem necessary.

Chapter III

POWERS AND FUNCTIONS OF BOARD

16. Functions of Central Board — (1) Subject to the provisions of this Act, and without prejudice to the performance of its functions under the Water (Prevention and Control of Pollution) Act, 1974, the main functions of the Central Board shall be to improve the quality of air and to prevent, control or abate air pollution in the country.

(2) In particular and without prejudice to the generality of the foregoing functions the Central Board may —

(a) advise the Central Government on any matter concerning the improvement of the quality of air and the prevention, control or abatement of air pollution;

(b) plan and cause to be executed a nation-wide programme for the prevention, control or abatement of air pollution;

(c) co-ordinate the activities of the State Boards and resolve disputes among them;

(d) provide technical assistance and guidance to the State Boards, carry out and sponsor investigations and research relating to problems of air pollution and prevention, control or abatement of air pollution;

(e) plan and organise the training of persons engaged or to be engaged in programmes for the prevention, control or abatement of air pollution on such terms and conditions as the Central Board may specify;

(f) organise through mass media a comprehensive programme regarding the prevention, control or abatement of air pollution;

(g) collect, compile and publish technical and statistical data relating to air pollution and the measures devised for its effective prevention, control or abatement and prepare manuals, codes or guides relating to prevention, control or abatement of air pollution;

(h) lay down standards for the quality of air;

(i) collect and disseminate information in respect of matters relating to air pollution;

(j) perform such other functions as may be prescribed;

(3) The Central Board may establish or recognise a laboratory or laboratories to enable the Central Board to perform its functions under this section efficiently.

(4) The Central Board may —

(a) delegate any of its functions under this Act generally or specially to any of the committees appointed by it;

(b) do such other things and perform such other acts as it may think necessary for the proper discharge of its functions and generally for the purpose of carrying into effect the purposes of this Act.

17. Functions of State Boards - (1) Subject to the provisions of this Act, and without prejudice to the performance of its functions, if any, under the Water (Prevention and Control of Pollution) Act, 1974, the functions of a State Board shall be —

(a) to plan a comprehensive programme for the prevention, control or abatement of air pollution and to secure the execution thereof;

(b) to advise the State Government on any matter concerning the prevention, control or abatement of air pollution;

(c) to collect and disseminate information relating to air pollution;

(d) to collaborate with the Central Board in organising the training of persons engaged or to be engaged in programmes

relating to prevention control or abatement of air pollution and to take steps for the prevention, control or abatement of air pollution;

(f) to inspect air pollution control areas at such intervals as it may think necessary, assess the quality of air therein and take steps for the prevention, control or abatement of air pollution in such areas;

(g) to lay down, in consultation with the Central Board and having regard to the standards for the quality of air laid down by the Central Board, standards for emission of air pollutants into the atmosphere from industrial plants and automobiles or for the discharge of any air pollutant into the atmosphere from any other source whatsoever not being a ship or an aircraft;

(h) to advise the State Government with respect to the suitability of any premises or location for carrying on any industry which is likely to cause air pollution;

(i) to perform such other functions as may be prescribed or as may, from time to time, be entrusted to it by the Central Board or the State Government;

(j) to do such other things and to perform such other acts as it may think necessary for the proper discharge of its functions and generally for the purpose of carrying into effect the purposes of this Act.

(2) A State Board may establish or recognise a laboratory or laboratories to enable the State Board to perform its functions under this section efficiently.

18. Power to give directions — In the performance of its functions under this Act,

(a) the Central Board shall be bound by such directions in writing as the Central Government may give to it; and

(b) every State Board shall be bound by such directions in writing as the Central Board or the State Government may give to it;

Provided that where a direction given by the State Government is inconsistent with the direction given by the Central Board, the matter shall be referred to the Central Government for its decision.

Chapter IV

PREVENTION AND CONTROL OF AIR POLLUTION

19. Power to declare air pollution control areas — (1)The State Government may, after consultation with the State Board, by notification in the Official Gazette, declare in such manner as may be prescribed, any area or areas within the State as air pollution control area or areas for the purposes of this Act.

(2) The State Government may, after consultation with the State Board, by notification in the Official Gazette —

(a) alter any air pollution control area whether by way of extension or reduction;

(b) declare a new air pollution control area in which may be merged one or more existing air pollution control areas or any part or parts thereof.

(3) If the State Government, after consultation with the State Board, is of opinion that the use of any fuel, other than an approved fuel, in any air pollution control area or part thereof, may cause or is likely to cause air pollution, it may, by notification in the Official Gazette, prohibit the use of such fuel in such area or part thereof with effect from such date (being not less than three months from the date of publication of the notification) as may be specified in the notification.

(4) The State Government may, after consultation with the State Board, by notification is the Official Gazette, direct that with effect from such date as may be specified therein, no appliance, other than an approved appliance, shall be used in the premises situated in an air pollution control area;

Provided that different dates may be specified for different parts of an air pollution control area or for the use of different appliances.

(5) If the State Government, after consultation with the State Board, is of opinion that the burning of any material (not being fuel) in any air pollution control area or part thereof may cause or is likely to cause air pollution, it may, by notification in the Official Gazette prohibit the burning of such material in such area or part thereof.

20. Power to give instructions for ensuring standards for emission from automobiles — With a view to ensuring that the standards for emission of air pollutants from automobiles laid down by the State Board under clause (g) of sub-section (1) of section 17 are complied with, the State Government shall, in consultation with the State Board, give such instructions as may be deemed necessary to the concerned authority in charge registration of motor vehicles under the Motor Vehicles Act, 1939, and such authority shall, notwithstanding anything contained in that Act or the rules made thereunder be bound to comply with such instructions.

21. Restrictions on use of certain industrial plants — (1) Subject to the provisions of this section, no person shall, without the previous consent of the State Board, operate any industrial plant for the purpose of any industry specified in the Schedule in an air pollution control area.

(2) An application for consent of the State Board under sub-section (1) shall be accompanied by such fees as may be prescribed and shall be made in the prescribed form and shall contain the particulars of the industrial plant and such other particulars as may be prescribed:

Provided that where any person, immediately before the declaration of any area as an air pollution control area, operates in such area any industrial plant for the purpose of any industry specified in the Schedule, such person shall make the application under this sub-section within such period (being not less than three months from the date of such declaration) as may be prescribed and where such person makes such application, he shall be deemed to be operating such industrial plant with the consent of the State Board until the consent applied for has been refused.

(3) The State Board may make such inquiry as it may deem fit in respect of the application for consent referred to in sub-section (1) and in making any such inquiry, shall follow such procedure as may be prescribed.

(4) Within a period of four months after the receipt of the application for consent referred to in sub-section (1), the State Board shall, by order in writing, either grant or refuse, for reasons to be recorded in the order, the consent applied for.

(5) Every person to whom consent has been granted by the State Board under sub-section (4), shall company with the following conditions, namely:-

(i) the control equipment of such specifications as the State Board may approve in this behalf shall be installed and operated in the premises where the industry is carried on or proposed to be carried on;

(ii) the existing control equipment, if any, shall be altered or replaced in accordance with the directions of the State Board;

(iii) the control equipment referred to in clause (i) or clause (ii) shall be kept at all times in good running conditions;

(iv) chimney, wherever necessary, of such specifications as the State Board may approve in this behalf shall be erected or re-erected in such premises;

(v) such other conditions as the State Board may specify in this behalf; and

(vi) the conditions referred to in clauses (i), (ii) and (iv) shall be complied with within such period as the State Board may specify in this behalf:

Provided that in the case of a person operating any industrial plant for the purpose of any industry specified in the Schedule in an air pollution control area immediately before the date of declaration of such area as an air pollution control area, the period so specified shall not be less than six months;

Provided further that —

(a) after the installation of any control equipment in accordance with the specifications under clause (i), or

(b) after the alteration or replacement of any control equipment in accordance with the directions of the State Board under clause (ii), or

(c) after the erection or re-erection of any chimney under clause (iv),

no control equipment or chimney shall be altered or replaced or, as the case may be, erected or re-erected except with the previous approval of the State Board.

(6) If due to any technological improvement or otherwise the State Board is of opinion that all or any of the conditions referred to in sub-section (5) require or requires variation (including the change of any control equipment, either in whole

or in part), the State Board shall, after giving the person to whom consent has been granted an opportunity of being heard, vary all or any of such conditions and thereupon suchperson shall be bound to comply with the conditions as so varied.

(7) Where a person to whom consent has been granted by the State Board under sub-section (4) transfers his interest in the industry to any other person, such consent shall be deemed to have been granted to such other person and he shall be bound to comply with all the conditions subject to which it was granted as if the consent was granted to him originally.

22. Persons carrying on industry, etc., not to allow emission of air pollutants in excess of the standards laid down by State Board — No person carrying on any industry specified in the Schedule or operating any industrial plant in any air pollution control area shall discharge or cause or permit to be discharged the emission of any air pollutant in excess of the standards laid down by the State Board under clause (g) of sub-section (1) of section 17.

23. Furnishing of Information to State Board and other agencies in certain cases — (1) Where in any air pollution control area the emission of any air pollutant into the atmosphere in excess of the standards laid down by the State Board occurs or is apprehended to occur due to accident or other unforeseen act or event, the person in charge of the premises from where such emission occurs or is apprehended to occur shall forthwith intimate the fact of such occurrence or the apprehension of such occurrence to the State Board and to such authorities or agencies as may be prescribed.

(2) On receipt of information with respect to the fact or the apprehension of any occurrence of the nature referred to in sub-section (1), whether through intimation under that sub-section or otherwise, the State Board and the authorities or agencies shall, as early as practicable, cause such remedial measures to be taken as are necessary to mitigate the emission of such air pollutants.

(3) Expenses, if any, incurred by the State Board, authority or agency with respect to the remedial measures referred to in sub-section (2) together with interest (at such reasonable rate, as the State Government may, by order, fix) from the date when a demand for the expenses is made until it is paid, may be recovered by that Board, authority or agency from the persons concerned, as arrears of land revenue, or of public demand.

24. Power of entry and inspection — (1) Subject to the provisions of this section, any person empowered by a State Board in this behalf shall have a right to enter, at all reasonable times with such assistance as he considers necessary, any place —

(a) for the purpose of performing any of the functions of the State Board entrusted to him;

(b) for the purpose of determining whether and if so in what manner, any such functions are to be performed or whether any provisions of this Act or the rules made thereunder or any notice, order, direction or authorisation served, made, given or granted under this Act is being or has been complied with;

(c) for the purpose of examining and testing any control equipment, industrial plant, record register, document or any other material object or for conducting a search of any place in which he has reason to believe that an offence under this Act or the rules made thereunder has been or is being or is about to be committed and for seizing any such control equipment industrial plant, record, register, document or other material object if he has reasons to believe that it may furnish evidence of the commission of an offence punishable under this Act or the rules made thereunder.

(2) Every person carrying on any industry specified in the Schedule and every person operating any control equipment or any industrial plant, in an air pollution control area shall be bound to render all assistance to the person empowered by the State Board under sub-section (1) for carrying out the functions under that sub-section and if he fails to do so without any reasonable cause or excuse, he shall be guilty of an offence under this Act.

(3) If any person wilfully delays or obstructs any person empowered by the State Board under sub-section (1) in the discharge of his duties, he shall be guilty of an offence under this Act.

(4) The provisions of the Code of Criminal Procedure, 1973, or, in relation to the State of Jammu and Kashmir, or any area in which that Code is not in force, the provisions of any corresponding law in force in that State or area, shall so far as may be, apply to any search or seizure under this section as they apply to any search or seizure made under the authority of a warrant issued under Section 94 of the said Code or, as the case may be, under the corresponding provisions of the said law.

25. Power to obtain information — For the purposes of carrying out the functions entrusted to it, the State Board or any officer empowered by it in that behalf may call for any information (including information regarding the types of air pollutants emitted into the atmosphere and the level of the emission of such air pollutants) from the occupier or any other person carrying on any industry or operating any control equipment or industrial plant and for the purpose of verifying the correctness of such information, the State Board or officer shall have the right to inspect the premises where such industry, control equipment or industrial plant is being carried on or operated.

26. Power to take samples of air or emission and procedure to be followed in connection therewith — (1) A State Board or any officer empowered by it in this behalf shall have power to take, for the purpose of analysis, samples of air or emission from any chimney, flue or duct or any other outlet in such manner as may be prescribed.

(2) The result of any analysis of a sample of emission taken under sub-section (1) shall not be admissible in evidence in any legal proceeding unless the provisions of sub-sections (3) and (4) are complied with.

(3) Subject to the provisions of sub-section (4), when a sample of emission is taken for analysis under sub-section (1), the person taking the sample shall —

(a) serve on the occupier or his agent a notice, then and there, in such form as may be prescribed, of his intention to have it so analysed;

(b) in the presence of the occupair or his agent, collect a sample of emission for analysis;

(c) cause the sample to be placed in a container or containers which shall be marked and sealed and shall also be signed both by the person taking the sample and the occupier or his agent;

(d) send without delay, the container or containers to the laboratory established or recognised by the State Board under section 17 or, if a request in that behalf is made by the occupier or his agent when the notice is served on him under clause (a), to the laboratory established or specified under sub-section (1) of section 28.

(4) When a sample of emission is taken for analysis under sub-section (1) and the person taking the sample serves on the occupier or his agent, a notice under clause (a) of sub-section (3), then —

((a) in a case where the occupier or his agent wilfully absents himself, the person taking the sample shall collect the sample of emission for analysis to be placed in a container or containers which shall be marked and sealed and shall also be signed by the person taking the sample, and

(b) in a case where the occupier or his agent is present at the time of taking the sample but refused to sign the marked and sealed container or containers of the sample of emission as required under clause (a) of sub-section (3), the marked and sealed container or containers shall be signed by the person taking the sample,

and the container or containers shall be sent without delay by the person taking the sample for analysis to the laboratory established or specified under sub-section (1) of section 28 and such person shall inform the Government analyst appointed under sub-section (1) of section 29, in writing, about the wilful absence of the occupier or his agent, or, as the case may be, his refusal to sign the container or containers.

27. Reports of the result of analysis on samples taken under section 26. — (1) Where a sample of emission has been sent for analysis to the laboratory established or recognised by the State Board, the Board analyst appointed under sub-section (2) of section 29 shall analyse the sample and submit a report in the prescribed form of such analysis in triplicate to the State Board.

(2) On receipt of the report under sub-section (1), one copy of the report shall be sent by the State Board to the occupier or his agent referred to in section 26, another copy shall be preserved for production before the court in case any legal proceedings are taken against him and the other copy shall be kept by the State Board.

(3) Where a sample has been sent for analysis under clause (d) of sub-section (3) or sub-section (4) of section 26 to any laboratory mentioned therein the Government analyst referred to in the said sub-section (4) shall analyse the sample and submit a report in the prescribed form of the result of the analysis in triplicate to the State Board which shall comply with the provisions of sub-section (2).

(4) Any cost incurred in getting any sample analysed at the request of the occupier or his agent as provided in clause (d) of sub-section (3) of section 26 or when he wilfully absents himself or refuses to sign the marked and sealed container or containers of sample of emission under sub-section (4) of that section, shall be payable by such occupier

or his agent and in case of default the same shall be recoverable from him as arrears of land revenue or of public demand.

28. State Air Laboratory — (1) The State Government may, by notification in the Official Gazette, —

(a) establish one or more State Air Laboratories; or

(b) specify one or more laboratories or institutes as State Air Laboratories to carry out the functions entrusted to the State Air Laboratory under this Act.

(2) The State Government may, after consultation with the State Board, make rules prescribing —

(a) the functions of the State Air Laboratory;

(b) the procedure for the submission to the said Laboratory of samples of air or emission for analysis or tests, the form of the Laboratory's report thereon and the fees payable in respect of such reports;

(c) such other matters as may be necessary or expedient to enable that Laboratory to carry out its functions.

29. Analysts — (1) The State Government may, by notification in the Official Gazette, appoint such persons as it thinks fit and having the prescribed qualifications to be Government analysts for the purpose of analysis of samples of air or emission sent for analysis to any laboratory established or specified under sub-section (1) of section 28.

(2) Without prejudice to the provisions of section 14, the State Board may, by notification in the Official Gazette, and with the approval of the State Government, appoint such persons as it thinks fit and having the prescribed qualifications to be Board analysts for the purpose of analysis of samples of air or emission sent for analysis to any laboratory established or recognised under section 17.

30. Reports of Analysts — Any document purporting to be a report signed by a Government analysts or, as the case may be, a State Board analyst may be used as evidence of the facts stated therein in any proceeding under this Act.

31. Appeals — (1) Any person aggrieved by an order made by the State Board under this Act may, within thirty days from the date on which the order is communicated to him, prefer an appeal to such authority (hereinafter referred to as the

Appellate Authority) as the State Government may think fit to constitute:

Provided that the Appellate Authority may entertain the appeal after the expiry of the said period of thirty days if such authority is satisfied that the appellant was prevented by sufficient cause from filing the appeal in time.

(2) The Appellate Authority shall consist of a single person or three persons as the State Government may think fit to be appointed by the State Government.

(3) The form and the manner in which an appeal may be preferred under sub-section (1), the fees payable for such appeal and the procedure to be followed by the Appellate Authority shall be such as may be prescribed.

(4) On receipt of an appeal preferred under sub-section (1), the Appellate Authority shall, after giving the appellant and the State Board an opportunity of being heard, dispose of the appeal as expeditiously as possible.

Chapter V

FUND, ACCOUNT AND AUDIT

32. Contributions by Central Government - The Central Government may, after due appropriation made by Parliament by law in this behalf, make in each financial year such contributions to the State Boards as it may think necessary to enable the State Boards to perform their functions under this Act:

Provided that nothing in this section shall apply to any State Board for the Prevention and Control of Water Pollution constituted under section 4 of the Water (Prevention and Control of Pollution) Act, 1974, which is empowered by that Act to expend money from its fund thereunder also for performing its functions, under any law for the time being in force relating to the prevention, control or abatement of air pollution.

33. Fund of Board — (1) Every State Board shall have its own fund for the purposes of this Act and all sums which may, from time to time, be paid to it by the Central Government and

and all other receipts (by way of contributions, if any, from the State Government, fees, gifts, grants, donations, benefactions or otherwise) of that Board shall be carried to the fund of the Board and all payments by the Board shall be made therefrom.

(2) Every State Board may expend such sums as it thinks fit for performing its functions under this Act and such sums shall be treated as expenditure payable out of the fund of that Board.

(3) Nothing in this section shall apply to any State Board for the Prevention and Control of Water Pollution constituted under section 4 of the Water (Prevention and Control of Pollution) Act, 1974, which is empowered by that Act to expend money from its fund thereunder also for performing its functions under any law for the time being in force relating to the prevention, control or abatement of air pollution.

34. Budget - The Central Board or, as the case may be, the State Board shall, during each financial year, prepare, in such form and at such time as may be prescribed, a budget in respect of the financial year next ensuing showing the estimated receipt and expenditure under this Act, and copies thereof shall be forwarded to the Central Government or, as the case may be, the State Government.

35. Annual Report — (1) The Central Board shall, during each financial year, prepare, in such form and at such time as may be prescribed, an annual report giving full account of its activities under this Act during the previous financial year and copies thereof shall be forwarded to the Central Government and that Government shall cause every such report to be laid before both Houses of Parliament within six months of the date on which it is received by that Government.

(2) Every State Board shall, during each financial year, prepare, in such form and at such time as may be prescribed, an annual report giving full account of its activities under this Act during the previous financial year and copies thereof shall be forwarded to the State Government and that Government shall cause every such report to be laid before the State Legislature within a period of nine months of the date on which it is received by that Government.

36. Accounts and Audit — (1) Every Board shall, in relation to its functions under this Act, maintain proper

accounts and other relevant records and prepare an annual statement of accounts in such form as may be prescribed by the Central Government or, as the case may be, the State Government.

(2) The accounts of the Board shall be audited by an auditor duly qualified to act as an auditor of companies under section 226 of the Companies Act, 1956.

(3) The said auditor shall be appointed by the Central Government or, as the case may be, the State Government on the advice of the Comptroller and Auditor-General of India.

(4) Every auditor appointed to audit the accounts of the Board under this Act shall have the right to demand the production of books, accounts, connected vouchers and other documents and papers and to inspect any of the offices of the Board.

(5) Every such auditor shall send a copy of his report together with an audited copy of the accounts to the Central Government or, as the case may be, the State Government.

(6) The Central Government shall, as soon as may be after the receipt of the audit report under sub-section (5), cause the same to be laid before both Houses of Parliament.

(7) The State Government shall, as soon as may be after the receipt of the audit report under sub-section (5), cause the same to be laid before the State Legislature.

Chapter VI

PENALTIES AND PROCEDURE

37. Failure to comply with the provisions of section 21(5) or section 22 or with orders or directions issued under the Act — (1) Whoever fails to comply with the provisions of sub-section (5) of S.21 or S.22 or with any order or direction given under this Act shall, in respect of each such failure, be punishable with imprisonment for a term which may extend to three months or with fine which may extend to ten thousand rupees, or with both, and in case the failure continues, with an additional fine which may extend to one hundred rupees for every day during which such failure continues after the conviction for the first such failure.

(2) If the failure referred to in sub-section (1) continues beyond a period of one year after the date of conviction, the offender shall be punishable with imprisonment for a term which may extend to six months.

38. Penalties for certain acts — Whoever —

(a) destroys, pulls down, removes, injures or defaces any pillar, post or stake fixed in the ground or any notice of other matter put up, inscribed or placed, by or under the authority of the Board, or.

(b) obstructs any person acting under the orders or directions of the Board from exercising his powers and performing his functions under this Act, or

(c) damages any works or property belonging to the Board, or

(d) fails to furnish to the Board or any officer or other employees of the Board any information required by the Board or such officer or other employee for the purpose of this Act, or

(e) fails to intimate the occurrence of the emission of air pollutants into the atmosphere in excess of the standards laid down by the State Board or the apprehension of such occurrence, to the State Board and other prescribed authorities or agencies as required under sub-section (1) of section 23, or

(f) in giving any information which he is required to give under this Act, makes a statement which is false in any material particular, or

(g) for the purpose of obtaining any consent under section 21, makes a statement which is false in any material particular, shall be punishable with imprisonment for a term which may extend to three months or with fine which may extend to five hundred rupees or with both.

39. Penalty for contravention of certain provisions of the Act — Whoever contravenes any of the provisions of this Act, for which no penalty has been elsewhere provided in this Act, shall be punishable with fine which may extend to five thousand rupees, and in the case of continuing contravention, with an additional fine which may extend to one hundred rupees for every day during which such contravention continues after conviction for the first such contravention.

40. Offences by Companies — (1) Where an offence under this Act has been committed by a company, every person who, at the time the offence was committed, was directly in charge of, and was responsible to, the company for the conduct of the business of the company, as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly:

Provided that nothing contained in this sub-section shall render any such person liable to any punishment provided in this Act, if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1), where an offence under this Act has been committed by a company and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

Explanation — For the purposes of this section —

(a) "company" means any body corporate and includes a firm or other association of individuals; and

(b) "director", in relation to a firm, means a partner in the firm.

41. Offences by Government Departments — (1) Where an offence under this Act has been committed by any Department of Government, the Head of the Department shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly:

Provided that nothing contained in this section shall render such Head of the Department liable to any punishment if he proves that the offence was committed without his knowledge or that he exercised all dues diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1) where an offence under this Act has been committed by a Department of Government and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of, any officer, other than the Head of the Department, such officer shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

42. Protection of action taken in good faith — No suit, prosecution or other legal proceeding shall lie against the Government or any officer of the Government or any member or any officer or other employee of the Board in respect of anything which is done or intended to be done in good faith in pursuance of this Act or the rules made thereunder.

43. Cognizance of Offences — No court shall take cognizance of any offence under this Act except on a complaint made by, or with the previous sanction in writing of, the State Board, and no court inferior to that of a Metropolitan Magistrate or a Judicial Magistrate of the first class shall try any offence punishable under this Act.

44. Members, officers and employees of Board to be public servants — All the members and all officers and other employees of a Board when acting or purporting to act is pursuance of any of the provisions of this Act or the rules made thereunder shall be deemed to be public servants within the meaning of section 21 of the Indian Penal Code.

45. Reports and Returns — The Central Board shall, in relation to its functions under this Act, furnish to the Central Government, and a State Board shall, in relation to its functions under this Act, furnish to the State Government and to the Central Board such reports, returns, statistics, accounts and other information as that Government, or, as the case may be, the Central Board may, from time to time, require.

46. Bar of Jurisdiction — No civil court shall have jurisdiction to entertain any suit or proceeding in respect of any matter which an Appellate Authority constituted under this Act is empowered by or under this Act to determine, and no injunction shall be granted by any court or other authority in respect of any action taken or to be taken in pursuance of any power conferred by or under this Act.

Chapter VII

MISCELLANEOUS

47. Power of State Government to Supersede State Board— (1) If at any time the State Government is of opinion —

(a) that a State Board constituted under this Act has persistently made default in the performance of the functions imposed on it by or under this Act, or

(b) that circumstances exist which render it necessary in the public interest so to do, the State Government may, by notification in the official Gazette, supersede the State Board for such period, not exceeding six months, as may be specified in the notification:

Provided that before issuing a notification under this sub-section for the reasons mentioned in clause (a), the State Government shall give a reasonable opportunity to the State Board to show cause why it should not be superseded and shall consider the explanations and objections, if any, of the State Board.

(2) Upon the publication of a notification under sub-section (1) superseding the State Board —

(a) all the members shall, as from the date of supersession, vacate their offices, and such;

(b) all the powers, functions and duties which may, by or under this Act, be exercised performed or discharged by the State Board shall, until the State Board is reconstituted under sub-section (3), be exercised, performed or discharged by such person or persons as the State Government may direct;

(c) all property owned or controlled by the State Board shall, until the Board is reconstituted under sub-section (3), vest in the State Government.

(3) On the expiration of the period of supersession specified in the notification issued under sub-section (1), the State Government may —

(a) extend the period of supersession for such further term, not exceeding six months, as it may consider necessary; or

(b) reconstitute the State Board by a fresh nomination or appointment, as the case may be, and in such case any person who vacated his office under clause (a) of sub-section (2) shall also be eligible for nomination or appointment;

Provided that the State Government may at any time before the expiration of the period of supersession, whether originally specified under sub-section(1) or as extended under this sub-section, take action under clause (b) of this sub-section.

48. Special provision in the case of supersession of the Central Board or the State Boards constituted under the Water (Prevention and Control of Pollution) Act, 1974 — Where the Central Board or any State Board constituted under the Water (Prevention and Control of Pollution) Act, 1974, is superseded by the Central Government or the State Government, as the case may be, under that Act, all the powers, functions and duties of the Central Board or such State Board under this Act shall be exercised, performed or discharged during the period of such supersession by the person or persons, exercising, performing or discharging the powers, functions and duties of the Central Board or such State Board under the Water (Prevention and Control of Pollution) Act, 1974, during such period.

49. Dissolution of State Boards constituted under the Act — (1) As and when the Water (Prevention and Control of Pollution) Act, 1974, comes into force in any State and the State Government constitutes a State Board for the Prevention and Control of Water Pollution under that Act, the State Board constituted by the State Government under this Act shall stand dissolved and the Board first-mentioned shall exercise the powers and perform the functions of the Board second-mentioned in that State.

(2) On the dissolution of the State Board constituted under this Act —

(a) all the members shall vacate their offices as such;

(b) all moneys and other property of whatever kind (including the fund of the State Board) owned by, or vested in, the State Board, immediately before such dissolution, shall stand transferred to and vest in the State Board for the Prevention and Control of Water Pollution;

(c) every officer and other employee serving under the State Board immediately before such dissolution shall be transferred to and become an officer or other employee of the State Board for the Prevention and Control of Water Pollution and hold office by the same tenure and at the same remuneration and on the same terms and conditions of service as he would have held the same if the State Board constituted under this Act had not been dissolved and shall continue to do so unless and until such tenure, recommendation remuneration and terms and conditions of service are duly altered by the State Board for the Prevention and Control of Water Pollution :

Provided that the tenure, remuneration and terms and conditions of service of any such officer or other employee

shall not be altered to his disadvantage without the previous sanction of the State Government;

(d) all liabilities and obligations of the State Board of whatever kind, immediately before such dissolution, shallbe deemed to be the liabilities or obligations, as the case may be of the State Board for the Prevention and Control of Water Pollution and any proceeding or cause of action, pending or existing immediately before such dissolution by or against the State Board constituted under this Act in relation to such liability or obligation may be continued and enforced by or against the State Board for the Prevention and Control of Water Pollution.

50. Power to amend the Schedule — (1) The Central Government may, of its own motion or on the recommendation of a Board, by notification in the Official Gazette, add to, or omit from, the Schedule any industry or alter the description of any industry and thereupon the Schedule shall be deemed to be amended accordingly.

(2) Every notification made under sub-section (1) shall be laid, as soon as may be after it is made, before each House of Parliament.

51. Maintenance of register — (1) Every State Board shall maintain a register containing particulars of the persons to whom consent has been granted under section 21, the standards for emission laid down by it in relation to each such consent and such other particulars as may be prescribed.

(2) The register maintained under sub-section (1) shall be open to inspection at all reasonable hours by any person interested in or affected by such standards for emission or by any other person authorised by such person in this behalf.

52. Effect of other laws — Save as otherwise provided by or under the Atomic Energy Act, 1962, in relation to radioactive air pollution the provisions of this Act shall have effect notwithstanding anything inconsistent therewith contained in any enactment other than this Act.

53. Power of Central Government to make rules —(1)The Central Government may, in consultation with the Central Board, by notification in the Official Gazette, make rules in respect of the following matters, namely:-

(a) the intervals and the time and place at which meetings of the Central Board or any committee thereof shall be held and the procedure to be followed at such meetings, including the quorum necessary for the transaction of business thereat, under sub-section (1) of section 10 and under sub-section (2) of section 11;

(b) the fees and allowances to be paid to the members of a committee of the Central Board, not being members of the Board, under sub-section (3) of section 11;

(c) the manner in which and the purposes for which persons may be associated with the Central Board under sub-section (1) of section 12;

(d) the fees and allowances to be paid under sub-section (3) of section 12 to persons associated with the Central Board under sub-section (1) of section 12;

(e) the functions to be performed by the Central Board under clause (j) of sub-section (2) of section 16;

(f) the form in which and the time within which the budget and the annual report of the Central Board may be prepared and forwarded to the Central Government under sections 34 and 35;

(g) the form in which the accounts of the Central Board may be maintained under sub-section (1) of section 36.

(2) Every rule made by the Central Government under this Act shall be laid, as soon as may be after it is made, before each House of Parliament, while it is in session, for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the session immediately following the session or the successive sessions aforesaid, both Houses agree in making any modification in the rule or both Houses agree that the rule should not be made, the rule shall thereafter have effect only in such modified form or be of no effect, as the case may be; so however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule.

54. Power of State Government to make rules.—(1) Subject to the provisions of sub-section (3), the State Government may, by notification in the Official Gazette, make rules to carry out the purposes of this Act in respect of matters not falling within the purview of section 53.

(2) In particular, and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely:-

(a) the terms and conditions of service of the Chairman and other members (other than the member-secretary) of the State Board constituted under this Act under sub-section (7) of section 7;

(b) the intervals and the time and place at which meetings of the State Board or any committee thereof shall be held and the procedure to be followed at such meetings, including the quorum necessary for the transaction of business thereat, under sub-section (1) of section 10 and under sub-section (2) of section 11;

(c) the fees and allowances to be paid to the members of a committee of the State Board, not being members of the Board under sub-section (3) of section 11;

(d) the manner in which and the purposes for which persons may be associated with the State Board under sub-section (1) of section 12;

(e) the fees and allowances to be paid under sub-section (3) of section 12 to persons associated with the State Board under sub-section (1) of section 12;

(f) the terms and conditions of service of the member-secretary of a State Board constituted under this Act under sub-section (1) of section 14;

(g) the powers and duties to be exercised and discharged by the member secretary of a State Board under sub-section (2) of section 14;

(h) the conditions subject to which a State Board may appoint such officers and other employees as it considers necessary for the efficient performance of its functions under sub-section (3) of section 14;

(i) the conditions subject to which a State Board may appoint a consultant under sub-section (5) of section 14;

(j) the functions to be performed by the State Board under clause (i) of sub-section (1) of section 17;

(k) the manner in which any area or areas may be declared as air pollution control area or areas under sub-section(1) of section 19;

(l) the form of application for the consent of the State Board, the fees payable therefore the period within which such application shall be made and the particulars it may contain, under sub-section (2) of section 21;

(m) the procedure to be followed in respect of an inquiry under sub-section (3) of section 21;

(n) the authorities or agencies to whom information under sub-section (1) of section 23 shall be furnished;

(o) the manner in which samples of air or emission may be taken under sub-section (1) of section 26;

(p) the form of the notice referred to in sub-section (3) of section 26;

(q) the form of the report of the State Board analyst under sub-section (1) of section 27;

(r) the form of the report of the Government analyst under sub-section (3) of section 27;

(s) the functions of the State Air Laboratory, the procedure for the submission to the said Laboratory of samples of air or emission for analysis of tests, the form of Laboratory's report thereon, the fees payable in respect of such report and other matters as may be necessary or expedient to enable that Laboratory to carry out its functions, under sub-section (2) of section 28;

(t) the qualifications required for Government analysts under sub-section (1) of section 29;

(u) the qualifications required for State Board analysts under sub-section (2) of section 29;

(v) the form and the manner in which appeals may be preferred, the fees payable in respect of such appeals and the procedure to be followed by the Appellate Authority in disposing of the appeals under sub-section (3) of section 31;

(w) the form in which and the time within which the budget and annual report of the State Board may be prepared and forwarded to the State Government under sections 34 and 35;

(x) the form in which the accounts of the State Board may be maintained under sub-section (1) of section 36;

(y) the particulars which the register maintained under section 51 may contain;

(z) any other matter which has to be, or may be, prescribed.

(3) After the first constitution of the State Board, no rule with respect to any of the matters referred to in sub-section (2) (other than those referred to in clause (a) thereof), shall be made, varied, amended or repealed without consulting that Board.

THE SCHEDULE
(See sections 21,22,24 and 30)

1. Asbestos and asbestos products industries.
2. Cement and cement products industries.
3. Ceramic and ceramic products industries.
4. Chemical and allied industries.
5. Coal and lignite based chemical industries.
6. Engineering industries.
7. Ferrous metallurgical industries.
8. Fertiliser industries
9. Foundries.
10. Food and agricultural products industries.
11. Mining industry.
12. Non-ferrous metallurgical industries.
13. Ores/mineral processing industries including beneficiation, pelletisation, etc.
14. Power (coal, petroleum and their products) generating plants and boiler plants.
15. Paper and pulp (including paper products) industries.
16. Textile processing industry (made wholly or in part of cotton).
17. Petroleum refineries.
18. Petroleum products and petro-chemical industries.
19. Plants for recovery from and disposal of wastes.
20. Incinerators.

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