"FIRE WITHOUT SMOKE"

THE CLEAN AIR ACT

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I. The Significance of Air Pollution

The incidence of bronchial asthma, chronic bronchitis and pulmonary emphysema, and to a certain degree lung cancer, has been shown to increase in proportion to an increase in air pollution.

Although, at present levels in New Zealand, little damage is caused to healthy individuals, it has been agreed that the air pollution in Christchurch during winter could significantly increase the distress of those already in poor health.(I) However, a lack of research in this area forbids the production of statistical evidence.

The various chemicals and particulates which fall into the category of "air pollution" act in different ways as a health hazard, or as a hazard to the ecosystem of the world. The most obvious constituents and their effects are :

(i) Carbon dioxide. Though not normally considered a pollutant because of its necessity to plant life, as the proportion of carbon dioxide in the air increases the energy balance of the world is modified and this could eventually result in major climatic changes.

(ii) Carbon monoxide. This has more serious immediate potential as a health hazard. The main source here is car exhaust fumes. At present levels only sensitive people are affected, but this is in part due to measures already taken. This gas has a strong affinity for haemaglobin, which carries oxygen to the body tissues, and the effect is to deprive the body tissues of oxygen. Present medical opinion is divided upon whether the effect is partially cumulative or not.(2)

(I)Professor P.J. Lawther of British Medical Research Council - a leading authority on the effects of air pollution.

(2)Myers 'The Challenge of Pollution' (1970) Journal Victoria Automotive Engineering 8, 9

(iii) Oxides of Nitrogen. Apart from causing a reduction in atmospheric visibility, these chemicals react similarly with haemaglobin, but the effect is more serious since acid is formed in the lungs.

(iv) Sulphur Dioxide. Incomplete combustion of coal is the main source of carbon dioxide in the atmosphere. Although low concentrations effect no detectable response in healthy human beings, higher concentrations such as those detected in industrial areas are detected as quite unpleasant and the situation is complicated further by increased toxicity when sulphur dioxide, high humidity, high air temperature and aerosols are simultaneously present.

(v) Lead Particles. The introduction of lead as a petrol additive has caused the presence of airborne lead particles which reach the bloodstream more readily than lead particles in water or food. Though the body has developed levels of resistance it is questionable whether continually increasing amounts of lead will keep below the danger threshold level.(3)

(vi) Hydrocarbons. These cause photochemical smog and are a suspected cause of cancer.

(vii) Hydrogen Sulphide. Geothermal activity in the Rotorua area especially cannot be overlooked as an air pollutant. When combined with heavy carbon dioxide the hydrogen sulphide can be very dangerous and has caused fatalities in New Zealand.

Apart from danger to health and a general disturbance of natural ecological balances, property damage can be a serious problem.

(3) The Challenge of Pollution (supra) p.10

This may take the various forms of discolouration, cracking, corrosion, decomposition or weakening. The effects are such that a quantitative meamsurement is difficult, but it has been estimated that in the UnitedStates the annual cost of property damage due to air pollution averages $65 per person. The national agricultural yearly lossis approximated at $(U.S)500,000,000. (4)

II. The Likely Future of Air Pollution in New Zealand

New Zealand is fortunate in that it does not have the geographical problems experienced in thelarger land masses with lessvariable weather conditions, nor do we have problems with concentrated industrial complexes, and as long as town planning authorities recognise this in their placement of industry, theproblem is unlikely to accelerate at an uncontrollable level.

However, agricultural methods pose some serious problems as a growing source of air pollution, solid fertiliser spread over the country by air has increased from 754,280 tons in I968 to 902,985 tons in I97I. Liquid fertiliser used has a more alarming increase. While 3,048,3I8 gallons were used in I968 this more than doubled to become 6,476,729 gallonsin I97I.(5)

Organic wastes and inefficient methods of tipping and burning cause offensive smoke, odour and fumes. Obviously technological expertise is required to be exercised in these areas as population increases.

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(4) "Air Pollution in the Marietta-Parkersburg Area" (I97I) 32 Ohio SLJ 58

(5) New Zealand Official Year Book I972
Civil Aviation Statistics

Coal used for domestic heating is the basis of the serious air pollution situation in Christchurch. While it is reported that sales of domestic coal are declining slowly, and coal is no longer the basic fuel used for heating and cooking (6), power shortages such as those experienced this year are likely to cause an increase in the coal market.

Oil fired central heating is becoming increasingly more popular as an alternative means of domestic heating, and as property damage is being caused in some instances it is clear New Zealand will have to adopt the techniques which have solved thisproblem overseas.

A major category of air polluters is the chemical industry. Industrial processes yield a variety of offensive pollutants which range from toxic gases to innocuous odours.

Finally, the automobile and other methods of transportation cause pollution problems. If no engine modifications are introduced to reduce air pollution within the next few years, before a decade haspassed petrol vehicle pollution could be a serious health hazard. Present conditions are such that while fumes from automobile exhausts are offensive, there is no concrete evidence that they represent a health hazard. Heavy smoke trails near airports left by the Boeing 737 aircraft are the other main source of transport air pollution, but the problems will be at least partially eliminated as present fuel burners are replaced by modified ones. (7)

III. Air Pollution Legislation in New Zealand - A Recent History

The significance of the danger of air pollution was first generally recognised in NewZealand, as in most other countries, during the I950's, particularly after the London fog of I952

(6) Statement from the Mines Department September I969

(7) "Air Pollution" Board of Health Report Series No. I5 August I970

which covered the city for four days and increased the weekly death toll by over 4,000. Following this the Beaver Committee in the United Kingdom was formed and the end result was the passing of the first comprehensive legislation for clean air, the Clean Air Act 1956 (U.K).

NewZealand had local problems at the same time. First, there was an odour nuisance in Mangere, and secondly a recognition that Christchurch experienced conditions during the winter months which were of the same type, though not of the same degree, as those which caused the deaths in London.

The immediate outcome in NewZealand was the enactment of Part V of the Health Act 1956 which closely followed the Alkali Works Regulation Act 1906 (U.K). (8) These provisions, though a major step forward did nothing to regulate either of the two problems which had given rise to them. In Auckland the odours had been caused by water pollution, but the Act did not cover this, while in Christchurch the fog was caused largely by domestic fires and the provisions of the Health Act specifically exempted domestic premises from its jurisdiction.

Part V of the Health Act came into effect in 1957 when the Air Pollution Regulations were promulgated. Since then many inspectors have been trained at a local authority level.

Various other pieces of legislation have a direct bearing on air pollution, i.e. Regulation 22A of the Traffic Regulations 1956, the Smoke Restriction Regulations 1964 and Town and Country Planning legislation.

Possibly because of the somewhat haphazard enforcement of the legislation Mr. B.P. MacDonell M.P. in both 1967 and 1968 introduced private member's Bills into Parliament to provide for an advisory council for air, and generally for prevention and reduction of air pollution.

(8) Hereafter the "Alkali Act".

Though neither Bill survived the second reading, this attempt paved the way for future legislation.

The Bills, combined with increased technological prowess, and availability of knowledge, and a recognition of the effectiveness of the English legislation, led to the reconstitution of the Air Pollution Committee of the Board of Health in 1968, to review the legislation and the standards of control being applied.

The Committee published its recommendations in 1970 (9), and this resulted in the passing of the Clean Air Act 1972 "An Act to promote the conservation of the air and the abatement of pollution thereof".

The Act, subject to the exceptions provided by Section 56 (6) came into force on 1 April 1973.

IV. The Clean Air Act 1972. A Basic Outline.

The first part of the Act is general. It establishes the basic aims and sets up an administrative body.

The interpretation section is extensive and is based, as is much of the Act, on the corresponding Queensland and United Kingdom Sections.

Officers appointed for the purposes of enforcing the Act are required by section 5 to have completed a course of training and instruction.

Of major importance in this part is section 6 which establishes the Clean Air Council and defines its terms of reference. The principal functions are listed as making recommendations to the Minister of Health relating to the prevention and control of air pollution, on questions relating to the administration of the Act, and further to make recommendations which relate to performance of such functions of the Minister as he refers to them.

(9) "Air Pollution" Board of Health Report (supra)

Other functions imposed by the section upon the Clean Air Council include giving advice to the Director-General of Health and to local authorities; co-ordination of the activities of local authorities and other bodies (whether the bodies are voluntary organisations or organisations under the Health Department); the promotion of research investigation; the evaluation of equipment; the publishing of reports, information, and advice; and finally the consideration of suggestions and complaints referred to the Clean Air Council itself.

A treatise on the control of air pollution forms the second part of the Act.

Occupiers of premises are made subject to a general duty to adopt the best practical means of minimising any air pollution, either by containing it or rendering it harmless, and a failure to carry out this duty is deemed an offence. It is also an offence to emit any pollutant at a rate in excess of any standards prescribed by the Act, unless a special exemption has been obtained.

For the purposes of compliance with the section the Director-General may require an occupier, by written notice, to restrict the emission of pollutants, to install control equipment, to alter the height of a chimney etc.

From 31 March 1975 it will be an offence under the Act for dense smoke to be emitted from any fuel burning equipment.(10) Dense smoke is defined as that being shade two or above on the Ringelmann Chart.(11)

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(10) Until this date the Smoke Restriction Regulations 1964 apply.

(11) The Ringelmann Test is considered post p 24

The third part of the Act deals with Clean Air Zones. A Clean Air Zone will be created upon the application of a local authority to the Governor General. The local authority is required to call for objections in a manner prescribed by the Act which includes several publications of a notice in a newspaper of the affected locality.

Once a Clean Air Zone has been duly established any specified class of fuel or fuel-burning equipment may be prohibited or a specified type authorised, within the zone. There is some provision for exemption of any particular specified premises from the provisions, but that exemption must be for a specific period of time.

The Clean Air Council has the power under certain circumstances to recommend the establishment of Clean Air Zones at the expense of the local authority. (I2)

The Clean Air Zone requirements are specifically stated to apply to domestic premises. (I3) Within the zones it is an offenee to emit light smoke, which isthat which is shade one or above on the Ringelmann Chart. Any sale or acquisition of unauthorised fuel within the zone is an offence.

A series of special cases are set up by sections I9 - 22. Emission of dense smoke from a motor vehicle travelling along a road must be prosecuted under the Transport Regulations.(I4) Exemption may be granted from the provisions of the zone for investigation and research into matters relevant to air pollution.

Section 22 is an important advance. Save as provided in the section the Crown is bound by the Act.

(I2) This is of major importance when local authorities are lax in their enforcement activities.

(I3) This is in advance of the Queensland legislation.

(I4) Regulation 22A prevents emission of excessive smoke.

Ships belonging to the New Zealand Naval Forces are exempted. The provisions of section 50 and section 52 which deal with legal proceedings and penalties respectively do not apply to the Crown.

Scheduled processes and the licensing thereof comprise the fourth part of the Act. Any person who carries on one of the scheduled processes without a licence commits an offence.

The issue of a licence under the Act may be subject to any conditions that the licensing authority thinks fit for the purposes of the Act itself or of the Health Act 1956. The licensing authority has the power to vary the conditions of the licence during its currency.

The authority must keep a register of licences issued, applications for licences and documents imposing conditions open for public inspection during office hours.(I5)

The licensing authority has the power by virtue of section 29 to refuse to issue a licence if it considers the process to be detrimental to health.

The occupier of scheduled premises is prevented from altering the methods used if by doing so he is likely to cause an increase in air pollution, without prior approval from the local authority.

Rights of appeal are provided for in the sixth part of the Act. An appeal may be made to the Director-General of Health in the first instance from a decision of the local authority.

(I5) This clause was added to the Bill before the Act was passed, after the hearing of submissions.

If either the applicant or the local body is dissatisfied with the decision of the Director-General, he may appeal to the Supreme Court on points of fact or of law.

Appeals to the Supreme Court are to be held in the administrative division and for each appeal two additional members who are not judges are to be appointed. These two members are to be selected from a list prepared by the Ministers of Health and Justice.

Incorporation of specialists in a particular field on a judicial board of review is innovatory in New Zealand legislation. This continental practice has been adopted both in this Act and in the Race Relations Act 1971.

Any decision of the Director-General which varies an order of the local authority does not take effect until the time for appeal has expired.

Appeal to the Court of Appeal is available in certain cases. Firstly a Judge of the Supreme Court may state a case for the opinion of the Court of Appeal on a point of law by virtue of section 40.

Section 41 gives the right of any party to the proceedings of the Supreme Court to appeal with the leave of the Court or the Court of Appeal, to the Court of Appeal. In determining whether to grant leave to appeal the Court is to consider inter alia the importance of the issues, and whether any question of law or general principle is involved.

The remaining part of the Act includes some important miscellaneous sections. Local authorities are given power to require an occupier to furnish information; there are requirements relating to the service of documents; but, more importantly,

local authorities are obliged to enforce the provisions of the Act and to notify occupiers of premises of any offences which the latter may commit.

Section 5I sets out four defences available for a prosecution under sections 8, I0 and I6 of the Act. (I6) It is a defence to prove that the contravention was solely due to some mechanical failure which was not reasonably foreseeable and not reasonably prevented by some action taken after the failure had occurred.

Secondly it is a defence to prove the contravention was due solely to the use of unsuitable fuel where suitable fuel was unobtainable, and the least unsuitable fuel had been used together with all reasonable precautions to reduce emissions of any pollutants. A suitable fuel will be one which is authorized for use in the area. The third defence is if a combination of the above two factors has caused the offence and the fourth is that the contravention was inadvertent and all practicable steps had been taken to prevent it. (I7)

The next section deals with penalties. Commission of offences against sections 7, 8, I0, 42 or 44 renders a person liable to a fine up to $500. (I8)

(I6) These deal with emission in excess of prescribed standards (S.8), emission of dense smoke (S.I0), and emission of light smoke in a clean air zone (S.I6).

(I7) One would hope the standard of proof for this last defence would be a high one.

(I8) These sections deal with the general duty of occupiers (S.7), an emission in excess of prescribed standards (S.8), an emission of dense smoke from any fuel burning equipment (S.I0), failing to furnish information either to the Director-General or local authority (S.42) and obstructing one of the officers by a person in charge of premises (S.44).

Offences against sections 9, 23, 26 and 3I (I9), however, earn a much greater maximum fine of $5000 and if the offence is a continuing one $500 for every day or part thereof where the offence continues and is one against a scheduled process in Part A of the second schedule, and for all other cases a fine of $I000 and $I00 a day for continuing offences.

An offence against section 47 renders the offender liable to three months imprisonment or $I000 fine or both. (20) and for any offences which are not specifically mentioned above carry the fine of $200.

If any offence amounts to a wilful disregard of an order of the Supreme Court, the offender is liable to a fine twice the amount specified above as the maximum fine.

The further penalty of cancellation of the licence of any offender is provided by section 53.

Making of regulations by the Governor General by Order in Council are empowered under twenty general heads in section 55. (2I)

The schedules to the Act are of major importance. The first schedule lists the common air pollutants, but the second schedule refers to three groups of processes and gives the specific limits of each group. Part A lists those processes which are subject to licensing by the Department of Health after application to the local authority.

(I9) These deal with failure by the occupier of the premises to comply with a notice from the Director-General requiring some alteration to reduce emissions (S.9), carrying on a scheduled process without a licence after I April I974 (S.23), failure to comply with a condition attached to a licence (S.26) and alteration or instalation which increases pollution on scheduled premises, or causes pollution (S.3I).

Part B processes are subject to licensing by the local authority and Part C includes processes which require notification to be given to the local authority, and are subject to licensing pursuant to bylaws.

The third schedule relates to the Clean Air Council. The membership of the council is stated there and includes

"(a) a person possessing an academic qualification in chemistry or chemical engineering:

(b) a medical practitioner having special qualifications in public health:

(c) a representative of industry:

(d) a meteorologist or scientist having special knowledge of air pollution:

(e) a representative of local authorities:

(f) a person nominated by the Minister for the Environment:

(g) a person having special knowledge in the field of energy resources:

(h) two other persons. "

An annual report is required to be furnished by the Council with a copy to be laid before Parliament. (22)

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(20) This section deals with the disclosure by any person of information relating to manufacturing processes or trade secrets furnished to that person under the Act.

(2I) The twenty purposes listed are of major importance in the functioning of the Act.

(22) This clause was added to the Bill after submissions by the Environmental Defence Society (hereafter E.D.S.).

V. A comparison with some overseas legislation

There are two basic schemes of legislation for remedying the problems of air pollution, which operate best in a complementary manner, but which are rarely found together in countries which have legislation on the topic. These two schemes have been broadly classified as (a) punitive, and (b) preventive legislation. (23)

(a) The punitive method is the more primitive approach. It does not attempt to prevent pollution at its source, and usually exempts domestic and non-industrial premises from its ambit. It is often left in the hands of local bodies to enforce and the officers are largely untrained and uncoordinated. This type of legislation prescribes fines for breaches of set standards.

(b) Under a preventive legislative scheme there is usually a central agency for enforcement and appeal. Trained officers are appointed and for those who carry out one of the processes listed in the schedules, a licence is necessary before operations can be carried out at all. Fuel types are regulated. There is provision for the creation of smokeless zones and penalties for any breach are severe and strictly enforced.

As indicated above, a combination of these two approaches is the most efficient scheme. Annemaree Lanteri in a criticism of Australian legislation stated, (24)

(23) Clean Air Conference (Australia) Paper 36 Annemaree Lanteri

(24) 8 M.U.L.R. 254,268

" The broad characteristics of an efficient, preventive legislative scheme are as follows : a central autonomous enforcement and appeal agency which allows for the appointment of trained officers; scheduled premises which require permits to operate, and submission of plans for the repair alteration and construction of new plant to the agency for approval and periodic inspection of plant by enforcement officers. Apart from specially scheduled premises all sources of pollution should come within the regulatory powers of the agency, and penalties for breaches should be realistically severe and strictly enforced. "

The two types of legislation were first demonstrated in the United Kingdom. Punitive legislation is found in the Alkali Act I906 (U.K), and preventive in the Clean Air Act I956 (U K). Much of the legislation around the world is modelled on these two Acts.

United Kingdom

The Clean Air Act I956 in the United Kingdom deals with the control of dark smoke, smoke from furnaces, smoke control areas, and it sets out special processes which are to be dealt with under the Alkali Act. It further provides for the establishment of Clean Air Councils in England, Scotland and Wales.

The success of the English Act of I956 depended upon a number of factors including the availability of smokeless fuel and finance for it, the will of the authorities to achieve progress and the support of the community.

For the decade following the passing of the Clean Air Act 1956 progress was slow. A number of local authorities failed to submit a programme to the Minister and only the City of London had achieved 100 per cent smoke control.

The Clean Air Yearbook 1966/67 stated -

" The rate of progress is thus seen to be slow ... unless it is improved it will take the best part of the next two decades to complete the programme. "

This could have given rise to a stalemate situation but the attempted introduction of a private member's bill set the parliamentary cogs into motion and the House of Commons passed the Clean Air Act of 1968 (U.K). This Act takes a tougher line than that taken by the 1956 Act. It includes a section giving the Minister power to intervene where a local authority has not exercised its existing powers. The major obstacle to the control of air pollution in the United Kingdom lies in the apathy of the public. (25)

New Zealand has taken heed of the main factors which reduced the expedience of the earlier Act in the United Kingdom, and our legislation has incorporated provisions similar to those enacted in the United Kingdom in 1968. The Director-General of Health is permitted to take the necessary steps when a local authority has been lax in the enforcement of its duties.

Australia

The Board of Health committee recommended that NewZealand legislation be based largely on the Queensland Clean Air Act (26) but it recognised that no Australian State legislation was wholly appropriate since none extended to domestic sources and all States had based their system on a central control agency which was inappropriate for New Zealand.

(25) A.A. Mister "Britains Clean Air Acts" (1970) 20 U.Toronto L J.268

(26) Board of Health Report (supra) para 2.4

The concept of "best practical means" which is adopted by the Board of Health committee is one of the basic concepts in Australian legislation. The concept involves the balancing and reconciliation of three elements; current public opinion, economic cost, and technical feasibility.

Victoria was the first of the Australian States to enact a Clean Air Act in 1957. This was closely modelled on the Clean Air Act 1956 (U.K). New South Wales based its Act on the Alkali Act 1906 (U.K). Queensland and Western Australia followed with legislation on the same pattern, thus preserving the dichotomy between the two types of legislation.

The formation of the Senate Select Committee on Air Pollution in 1968 was the first real action taken by the Commonwealth in this field. Constitutional problems exist in that there is no clear head of power for the Commonwealth to legislate outside Australian Capital Territory and Northern Territory for air pollution, the only possible head under the Constitution being astronomical and meteorological matters. For this reason it is unlikely that federal legislation of the type in force in the United States of America will be enacted. As a manner of circumventing the constitutional problems it has been suggested that financial grants to the States for special purposes with conditions attached will provide a means of indirect action on a national scale. (27)

The problems encountered when an industry with plants in more than one State has to comply with different sets of regulations, and when polluted air moves over State boundaries, demonstrated the need for a consistent approach to be adopted throughout the Commonwealth.

(27) Annemaree Lanteri "Clean Air Legislation in Australia" (1971) 8 M.U.L.R. 254, 258

The report of the Senate Select Committee which was tabled in 1969 showed that the results of the individual State acts had not been spectacular while they had been in operation. The report, while it suggested a scheme similar to the more sophisticated schemes operating within the United States, did not give any detail, but was rather a source of information for prospective reformers.

Difficulties in Australia exist, therefore, at the State level because the approach is not comprehensive enough, and at the Commonwealth level because there is no federal coordinating body.

These two difficulties are apparently overcome in New Zealand legislation. First because we have a system which is apparently comprehensive (28), and secondly because our system of government does not give rise to the same problems as those experienced in federal system.

United States of America

In the United States local bodies most affected have taken the lead in control programmes. Interest in air pollution has escalated over the last decade. While some system of control is present in every State in the major land mass today, in 1963 only seventeen States hadactive programmes, and this number increased to thirty three by 1967.

The federal programme began in 1955 when assistance was first provided for research. The role of the Federal Government was seen then, as it is now, as one of leadership and support.

(28) The system in New Zealand isas comprehensive as any overseas legislation, but whether it will be entirely effective will not be known until the Act is fully operational.

In 1965 an amendment of the Clean Air Act provided for federal standards of automobile emission to be established. More important was the Air Quality Act 1967. This set up eight areas in the United States, regardless of the borders of the forty-eight States involved, based on topographic, atmospheric and industrial criteria.

In many ways the air quality standards derived from the above and other criteria are the American parallel of the "best practical means" test. The air quality standard is a level of pollution in the atmosphere which although not intended to provide a sharp dividing line between air in which detrimental effects occur, and air in which they never occur, the concentration indicated as the standard represents the approximate level at which certain effects may be expected to become apparent.

The air quality standards will reflect the relationship of air pollution to I) human health 2) damage and injury to vegetation 3) damage andinjury to domestic animals 4) damage to materials and 5) interference with visibility.

Computers are increasingly being used to determine the maximum allowable emissions from air pollution sources, based on the air quality standards.

In the first instance the input will comprise growth and urbanisation projection, topographical and meteorological data, and data on sources and emissions.

Control strategy models which are then elicited are fed back together with the air quality standard (which is the objective), control techniques and time factors and costs, which will determine the final output - an emission standard in conformity with the air quality standard.

It can readily be seen that without computer technology the Air Quality Act 1967 (U S A) would probably be ineffective as a control measure.

The Air Quality Act has been criticised in three ways. (29) First it has a built in five year "lead" time, i.e. Individuals are given five years grace before they must comply with the standards laid down. Secondly it relies on ambient air quality standards (i.e. the objective to be achieved) rather than emission standards when monitoring procedures are not yet sophisticated enough to achieve the objectives. Finally it relies on State action despite the poor record of many of the States.

Current legislative proposals in the United States are of the registration/penalty enforcement type. President Nixon in 1970 suggested that fines for failure to meet air quality standards should be as high as $10,000 per day. The tenor of his suggestions was picked up in the National Air Quality Standards Act 1970 (U.S.A.). This Act affirmatively states that tests of economic feasibility shall not serve as barriers to health protection standards.

Probably the most important part of the 1970 Act is that it allows citizens to participate in the enforcement process. Suits can be brought by any person who has suffered as a result of the pollution against individuals, government agencies, or the heads of the department of Health, Education and Welfare (HEW) if they fail to carry out their duties under the Act. Vexatious litigation is simply controlled by the power of the court to award costs to either party, regardless of the decision.

(29) Air Pollution in Marietta-Parkesburg Area 32 Ohio S.L.J. 58

South Africa

Although private law remedies in South Africa were fairly well established, the problems of air pollution were gradually seen to be unsuitable for this type of remedy. The deterrent effect of a threatened action is minimal because actions are so rare at common law, and the causes of the rarity of the action lie not only in the lack of public awareness of this form of redress, but also in the expense of bringing an action, and the problem of locus standi.

South African legislation is now basically contained in the Atmospheric Pollution Prevention Act I965. This has been criticised as a misnomer since air pollution is not prevented, but is controlled in the terms of the Act. (30)

Only since I970 has there been sufficient public awareness of the problem to bring air pollution to be regarded as one of the three major environmental problem areas.

The Atmospheric Pollution Prevention Act I965 operates a system of registration for scheduled processes. The chief officer has wide powers in determining the best practical means and the appointment of thisperson is therefore very important. Though there is provision for an appeal from his decision, difficulties are encountered with locus standi. A criticism of the penalty provided by the Act is that it is not sufficiently high to act as a deterrent. (3I) The staff of the control agency in South Africa is far too small to handle the task which has been assigned to them. There are five inspectors and one full-time chief officer to operate over I000 scheduled processes. (32)

(30) Andre Rabie "South African Air Pollution Control Legislation" (I973) VI C.I.L.S.A. 63

(3I) (I973) VI C.I.L.S.A. 63, 68

(32) Ibid p.78

Legislation has been introduced in South Africa this year to amend the present Act. This is the Atmospheric Pollution Prevention Bill 1973. Inter alia it provides for the State to make contributions to the local authorities for the payment of the salaries of full-time inspectors, and for research for improved equipment. There is a more stringent procedure allowing spot checks of the emissions from motor vehicles. The most important amendment is the provisions relating to scheduled processes are now to bind the State.

Sweden

Sweden's air pollution problems are caused largely by incomplete combustion of fuel oil. The colder climate in Sweden necessitates extensive domestic heating.

Specific measures have therefore been introduced regulating the proportion of Sulphur in oil used for heating. Regulations for measurements of emissions from exhausts have been introduced which are designed to reduce emission by 40 per cent. (33)

The legislative source in Sweden is a law of environment protection which came into force in July 1969. Local authorities are empowered under this Act to make more stringent measures than the national ones.

This brief examination of some of the different systems in use overseas gives an indication of the problems encountered with legislating for air pollution control.

It is encouraging to note that the New Zealand Board of Health Committee considered the major overseas problems and has to a large degree included in the report the most advanced solutions appropriate in the various areas. (34)

(33) Sweden's Reply to U.N. Enquiry on the Human Environment.

(34) Board of Health Report (supra)

While New Zealand does not have the problems encountered under a federal system of government such as that in Australia or in the United States, much can be learned from the American system of balancing economic and other interests in their attempt to achieve the requisite air quality standards. As soon as sufficient technological expertise is both available and economic, then the system in the United States will be the most advanced system available.

The New Zealand legislation as it stands appears to run parallel with the most advanced legislation overseas. It has been recognised that the New Zealand system is more comprehensive than any Australian scheme. (35) The latest additions to the South African legislation are incorporated in the New Zealand legislation, with the exception of availability of finance for research.

VI. Role of the Common Law

Until the latter half of this century the only form of redress available in most countries was an action at common law.

Various factors such as the difficulty of isolating a particular defendant when damage is caused as a result of a chemical reaction in the air, the difficulty of distributing damages between victims, and the fact that a common law action is unsatisfactory as a deterrent, all combine to make the common law action unsatisfactory as a means of controlling pollution.

(35) 8 M.U.L.R. 254

However the importance of the common law action should not be overlooked. It is the only type of action in this field which seeks to directly compensate the victims for injury suffered, and the remedy of an injunction is one which is applicable in this field.

Four possible causes of action exist in tort; I) an action for negligence 2) an action against the occupier of premises for the escape of a dangerous thing - this is the doctrine of Rylands v. Fletcher (36) 3) an action in private nuisance and 4) an action in public nuisance. (37)

Two important aspects of the Act itself merit close attention since they have a direct bearing on the effectiveness of the Act as a control measure. The first of these is the Ringelmann test, the basis for determining whether the air is polluted or not, and the second is the composition and power of the administrative body, the Clean Air Council.

VII. The Ringelmann Test

This test involves a trained observer making a comparison of the colour of the source of the pollution with the four grades of colour on the reference chart. (38) The test is a simple one and is inexpensive to carry out.

The test is often criticised for relying as it does on visible pollutants in the atmosphere.

(36) (1868) L.R. 3 H.L. 330

(37) For the Elements of the Actions see Fleming, "Law of Torts" 4th ed

(38) See Appendix for a sample of the chart

The shortcomings of the test are well recognised and have attracted much comment. Typical of comment is that of John Silko, (39)

" Unhappily this method of determining excessive air pollutants does not respect the cumulative properties of emissions of lesser intensity from a large number of individual sources, nor the threat of pollutants such as carbon monoxide and sulphur dioxide which are invisible to Ringelmann Chart readings."

However the Ringelmann Chart as a visual standard has achieved worldwide acceptance. The reasons for this are obvious. Not only is it a sound basis for universal comparison, but it is simple, inexpensive, apart from being the only test practically available.

Special problems are encountered in New Zealand with the use of the Ringelmann chart. The coal type most commonly used is one which gives a smoke which is light in colour, yet offensive.

A further criticism of the test recognised by the Committee of the Board of Health as fundamental to its enforcement, is that it is vulnerable to subjective judgment factors, and provides no permanent record which could be produced in evidence.

In answer to these criticisms it can be pointed out that experiments are being performed to perfect a sticky-tape technique, but this has not yet been developed to an acceptable standard.

Of primary importance is the fact that the Board of Health Committee, and the present Clean Air Council, recognise the shortcomings of the Ringelmann test as a viable means of determining the level of pollutants in the atmosphere, and there is ample provision in the Act for implementation of the new tests as soon as they become available. (40)

(39) IO Nat. Res. J. 8II, 82I

(40) S.55 (I) (g) Clean Air Act I972

VIII. The Clean Air Council

The composition of the boards administering air pollution control measures varies greatly from one country to another, but a few generalizations can be made. Boards generally comprise between four and fourteen members. The designation in the empowering legislation allows not for the appointment of an individual (i.e. head of a particular department) but for a representative of a particular agency. If the appointment is for a particular office holder, then there is usually some provision for delegation to a subordinate.

The Board of Health Committee recommended that a majority of the members of the New Zealand Clean Air Council be appointed from outside the Public Service and that before any appointments be made a variety of bodies should be consulted including the Universities Vice Chancellors Committee, the Council of the Royal Society, the Royal Society of Health and the New Zealand Federation of Industry. (4I)

The recommendation was not adopted in the Act which places no mandatory duty on the Minister to consult anyone before making appointments to the Council. Membership of the Council was set at nine members, two more than the Report recommended. (42) The actual composition, the aim of which is obviously for a balancing of interests, is more important. The balancing of interests concept as applied to air pollution control boards has been criticised. Commenting on state control boards in the United States Robert Vaughn says, (43)

(4I) Board of Health Report para 7.28

(42) The submission on the Bill by E.D.S. that one of the "two other persons" be a member of CoEnCo was rejected.

(43) (I97I) Okla. L.R.25,4I

" It could be argued that the laws establishing the membership of state air pollution control boards ~~W~~ are neither a surrender of these boards to interests nor an attempt to establish through the allocation of positions a balance of interests. Rather by creating boards representing different interests, the laws could be establishing a framework for bargaining between interests."

The result of such bargaining will not necessarily be the result which will achieve a quality of air which will have as its basic interest the health of the people. However, he goes on to suggest that the problems created can be simply overcome by having public hearings before important decisions are made.

An urgent necessity in New Zealand is for the creation of clean air zones, and in this area provision is made for the hearing of public complaint by requiring the local authority to call for objections in the local newspaper for at least three successive weeks.

The balancing of interests in the membership of the Clean Air Council appears to be adequate. (44)

IX. Criticisms of the Clean Air Act

In environmental protection circles the Act has been the subject of much debate. The Environmental Defence Society (E.D.S) submissions on the bill included a number of suggestions, few of which were incorporated.

While applauding the general tenor of the bill they felt that it had tended to adhere too much to concepts which had become outdated.

(44) see supra p.13

One of their major criticisms dealt with the public availability of data. To a considerable extent the basis for this criticism was corrected in the Act. The second major criticism relates to the ability of citizens to participate in decisions relating to standard setting and in the enforcement activity. Next they criticised the fact that emphasis seemed to be placed at a local rather than a regional level.

Many of the specific criticisms made by E.D.S. in their clause by clause analysis of the bill can be seen to be valid. Among the more important is section 5 which empowers the local authority to appoint officers but this is facultative not mandatory. They point to a study carried out in Auckland which revealed that only eight out of the twenty-three local bodies had a trained smoke inspector under the Smoke Restriction Regulations 1964 (45), and there was no uniform standard of policy amongst the eight.

A Recommendation was made by both the Board of Health Committee and by E.D.S. concerning publication of an annual report by the Clean Air Council. This was in no way provided for in the original bill, but clause 5 of the third schedule provides for an annual report to be laid before the Minister of Health. However there is no requirement that such a report be published or made public in any way. This is one part of the Act which could well be amended.

Although the general criticisms relating to publication of information seem to have been considered, the mere inclusion in the Act of a duty to provide a register to be open to the public for inspection is not sufficient.

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(45) These remain in force until March 1974. S11 Clean Air Act 1972

It seems that the smokescreen of secrecy which tends to surround the workings of government departments has not been entirely shaken off to give the public direct access to information which is of primary importance to health.

The suggestion by E.D.S. that public submissions be called for before making regulations has not been accepted. In the United States this has been seen to be an important requirement and the latest legislation requires a ninety day period for the calling for submissions.

The next criticism concerns the licensing system generally. As it stands a licence can be interpreted as a licence to pollute. This type of criticism can only be regarded as valid if a viable alternative can be suggested to replace it is presented along with it. Nevertheless the accepted submission that an inspection be necessary before renewal of a licence should go a long way towards allaying the fear prompting the criticism. The licence to pollute criticism is difficult, if not impossible, to fully overcome. Industrial processes have become part of a way of life in the twentieth century, and as world population continues to increase, there is no present possibility of taking retroactive steps to cut down the amount of industry.

There is little provision in the appellate structure for giving persons affected, other than the polluter, a right to appeal. The sole provision seems to be in section 37 (1) which provides for the Supreme Court to hear the evidence of "other persons" if the Court considers it to be relevant.

The fines for two offences are seen to be inadequate. For refusing to supply information and obstructing an officer (46) the fine is $200. This, it is contended, is indicative of the "payment to pollute" phenomenon. The disparity between this and the $1000 fine and/or three months imprisonment which relates to trade secrets and information relating to manufacturing processes (47) is another part of the Act requiring amendment.

The provisions of section 48 which deals with enforcement are narrower than the provisions of the corresponding United Kingdom Act. The problem with locus standi is one which pervades most environmental law and it is disappointing that in an innovatory Act this problem was not grappled with.

X. An Evaluation

In New Zealand, where the air pollution problem could be regarded as minor in comparison with overseas, it is encouraging to note that we have what is probably equal to, if not better than, the most advanced legislation in the world. The legislation is therefore preventive. Just as medical practitioners prefer to immunize than to treat, so the legislators are attempting to prevent a problem before it arises. The reason for this probably lies in the fact that our air pollution is comparatively minor, and in New Zealand we have been able to critically analyse overseas legislation before introducing our own, thus not encountering the time-consuming technical difficulties usually present in correcting erroneous legislation.

(46) S.42 and S.44 respectively Clean Air Act 1972

(47) S.47 Clean Air Act 1972

The Committee of the Board of Health has executed its function of analysing overseas legislation in a manner which can only command respect. The Queensland Act, upon which much of our own Act was based, was recognised to be ineffective in some areas.

The Committee recognised the shortcomings of the Ringelmann test, even though they have found it applicable in lieu of anything better. Their quest for a balanced administrative body seems to have been achieved.

Although this may sound complacent, there is no room for complacency in any field of environmental law. The Clean Air Act came into force early this year. The Council was formed and had its inaugural meeting some months ago. Committees have been set up to look into the worst problem areas. But there is need for public education in the aims and objectives of the legislation. The costs of enforcing the Act will not be minor. It will cost $3,000,000 to correct the situation in Christchurch. (48) For public money of this magnitude to be spent, it will be necessary for members of the public to see the desirability and necessity of cleaning the air. It has been effectively demonstrated that public support declines as the amount of money required to be expended increases. For this reason some sort of publicity campaign is needed to gain public support and educate the public in the dangers. Both overseas and in New Zealand this has been a job traditionally left to the interest groups.

(48) Board of Health Report para 1.8

Publicity campaigns in the United Kingdom and the United States have been aided by the immediate physical effects of particular polluted areas. Only when the problem has had news value has the mass media been ready to take up the topic. Cooperation of the mass media and a recognition by lawyers and teachers of their responsibilities in this field will be necessary if our Clean Air Act is not to stagnate and become a worthless piece of paper, unknown and unenforced.

APPENDIX I

B.S.2742M BRITISH STANDARD MINIATURE SMOKE CHART

The B.S. Miniature Smoke Chart is designed for use at a distance of a few feet from the observer's eye. It is to be used under the conditions of illumination described on pages 6 and 7 of B.S.2742, 'Notes on the use of the Ringelmann Chart'. As the card on which the chart is printed is slightly translucent, the chart is to be backed when in use by a loose sheet of white opaque material or by insertion in a suitable holder.

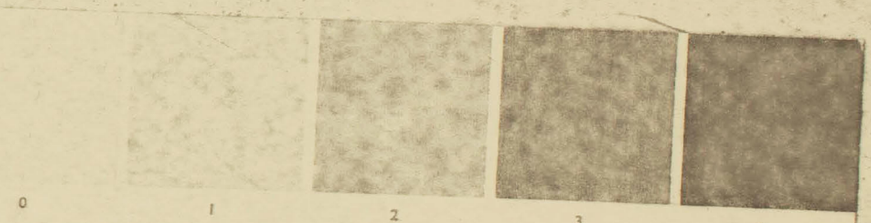
Preferably the chart should be held at a distance of 5 ft. from the observer's eye. A suitable holder which can be fixed to the end of a light rod is shown in the British Standard. The chart may also be held at arm's length, but observers are likely to find that it is then less easy to obtain readings agreeing with those obtained with the British Standard Ringelmann Chart, B.S.2742C.

DO NOT HANDLE THE NUMBERED SQUARES

Published by British Standards Institution, 2 Park Street, London, W.1.

Price 3/- *each,* 24/- *per dozen,* £10 *per gross*

Gr 2



BRITISH STANDARD 2742M : 1960 MINIATURE SMOKE CHART

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LE: de Page, P.A.: Fire Without Smoke: