THE INDUSTRIALIST'S RESPONSIBILITY IN AIR POLLUTION

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WHAT IS AIR POLLUTION?

Unusual as it may appear, it is important to define what is understood under the heading "Air Pollution".

The definition "Substances carried in the atmosphere" is not sufficient because this would include the scent of flowers or the aroma of a well prepared meal. A limitation of the definition by the inclusion of the words "harmful to the human" would narrow the field unreasonably because the harmful effect of many pollutants would be difficult to demonstrate over the shorter period. It would also exclude the concept of amenity or harm to surroundings like buildings or vegetation.

An alternative approach is to name all the substances like sulphur dioxide, lead and asbestos fibre. This method of defining air pollutants however should then include oxygen which is harmful in undiluted form.

A complete definition should therefore include three concepts, namely harmfulness, amenity and concentration. The following would fulfill most requirements. Air pollution is the presence of material in the atmosphere in undesirable concentrations.

WHY DOES AIR POLLUTION EXIST?

From the natural environment, many examples may be quoted of undesirable concentrations of material in the air. The eruption of volcanoes introduces millions of tons of smoke, dust and sulphur dioxide into the atmosphere annually. Forest fires caused by lightning can blanket many square kilometres with smoke while the decay of plant material in marshes liberates vast quantities of hydrogen sulphide. It has been calculated that only one-fifth of all sulphur dioxide and one-hundredth of all nitrogen compounds in the atmosphere are derived from the activities of man.

Reference to air pollution normally however does not include natural

phenomena as it is not within man's power to do anything about it. The word is used exclusively with respect to the evolution and release of pollutants caused by the activities of man.

While poor management of processes may give rise to proportionately larger quantities of pollution, the complete discontinuance of most processes would be the only avenue to stop the evolution of pollutants.
Rephrased, the evolution of pollution is not by malicious intent, nor in most cases by negligence, but is part of the process. Once this has been accepted, it is possible to search for a solution.

RESPONSIBILITY FOR ABATEMENT

Much has been written about the responsibility for reduction in atmospheric pollution. It can be argued that the world population requires the manufactured products in order to improve the general standard of living. If, therefore, the world population requires steel or cement or electricity, then it has to accept the presence of air pollutants as a normal part of its surroundings.

Returning to earlier statements, it is however not so much a matter of the existence of an air pollutant, but the concentration, which is important. The problem is largely localised and therefore a small part of the total population must bear the burden.

The foregoing accepts that the air pollution must be accepted as inevitable. Reversal of the approach could however be summed up in the question "Is authority to produce also an approval to pollute?".

Democracy is based on the rights of the individual, and this includes the right of the individual, near industry, not to be adversely affected in his enjoyment of life, by activities which are in the interest of others.

FINANCIAL RESPONSIBILITY

The abatement of air pollution is a heavy financial burden in most cases, because of the nature of the problem. Unlike water pollution, the air

pollutants are often evolved at high temperatures, and cannot be stored until purification or treatment can be effected. The cleaning operation must usually be completed within seconds, in fully enclosed equipment, sized to accept even abnormal surges. This must be achieved on a continuous basis with sophisticated equipment, requiring the provision of high reliability installations with duplication of critical components. When compared to other forms of pollution, the volume to be treated is vast, with initial pollutant loading in the order of 0,1% by weight and target loadings as low as 0,001%, requiring efficiencies of 99% and more.

According to available statistics, the abatement of air pollution costs between 2 and 100% of the production units, with an average around 7%. The operating cost is normally between 5 and 20% of the capital for the abatement equipment. Equating the abatement cost to product cost is more difficult, but may range between 30% for photo-sensitive paper to a net gain in the proper operation of a simple boiler because of the better utilisation of fuel. Other useful figures are approximately 3% for steel, 2% for cement and between 3 and 7% for ferro-alloys.

This cost should be covered by the industry directly, but the normal price mechanism in a free enterprise economy will pass it on to the consumer. After all, the price for any commodity should include the cost of any clean-up after production, so as not to create an embarrassment to others less fortunately sited.

ATTITUDE OF INDUSTRY

The often held opinion that industry is totally irresponsible and will avoid its duty at all cost has been found untrue in all but a few exceptional cases.

It is however true that when air pollution control is initiated, the concept is new and unusual with an unknown economic implication. Under such circumstances, it can hardly be expected of responsible industrialists to be over-enthusiastic and rush into cost commitments without proper study, evaluation and preparation. The additonal uncertainty of how the implement-ation of abatement will influence their position in the competitive market

requires some consideration.

The need to evaluate the problem, however real, does not remove the responsibility, and experience has proved that, after the initial period, industry accepts the concept that a productive process inlcudes the correction of any undesirable condition.

ATTITUDE OF THE AUTHORITY

The control authority is an interpreter of the needs of the population, and at the same time a link between the industry and the public. While conveying the needs of the total population to the industry it has the additional responsibility of acting as co-ordinator of the efforts of industry in order to avoid competitive disbalance which would upset an otherwise stable economy. To achieve this end, the closest contact must be established with the managements of industry so that a frank and free exchange of information is possible. Mutual respect and trust are an essential ingredient for successful implementation of control and this is perhaps the most difficult task of the authority.

The alternative is an autocratic control with the resultant unwillingness based on misunderstanding and mistrust.

THE CONCEPTS OF REASON AND REALITY

As indicated above, the cost of air pollution abatement is high, and if control is not carefully applied, the cost may be catastrophic.

It must be accepted and appreciated that no two productive units or processes are identical. Minor though the differences may appear to the layman, techniques which will be suitable in one case, can fail totally in another.

Variations in the ability of managements, skill of the operating staff, climate, distance from service industries, or even the conviction of the manager that the technique will fail, may influence the chances of success of a particular abatement installation.

In the formulation of a control policy, reality must be borne in mind at all times. This reality includes the severity of the problem, the technology available, the suitability of the available technology, the prevailing economic conditions and the cost likely to be involved.

Once a policy has been formulated, based on all the variables, it must be applied with reason. More marginal return on investment can be achieved by low efficiency abatement with attendant reduction in cost on older installations with a short life, and by high collection efficiency equipment on new or replacement installations. It may even be advantageous to reduce the planned working life of old facilities and allow them to operate unabated while new and modern replacement production plant is being planned and erected.

The basis of good air pollution control is to effect evolution and not revolution.

GOOD AND BAD LEGISLATION

The matter of legislation has intentionally been left to the last, not so much because it is a controversial topic, but because it is only an enabling facility.

Good legislation is that which can be applied and which will achieve the desired effect or result, with the minimum of disruption and unfairness. The mere existence of legislation will not achieve any results, nor will the indiscriminate application thereof achieve the ends envisaged.

Professor Drucker of New York University once said that any legislation which places the majority in the position of criminals cannot succeed. For any air pollution control legislation to succeed it is therefore essential that cognizance must be taken of the factual situation that effective abatement is not reality yet. The legislation must provide for the orderly implementation of abatement measures within the framework of existing circumstances. Such legislation exists in the Republic of Rhodesia.