

# CLEAN AIR – MISNOMER THE ENVIRONMENTAL CHALLENGE

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## 1. INTRODUCTION

Air is the essential naturally occurring resource or commodity. It is vital to support and sustain Life on planet earth at all times. It is composed of oxygen, nitrogen, carbon dioxide and other inert constituents such as argon. All these are not visible to the naked human eye. It is therefore difficult to appreciate their existence without effort. To this reality it may be added that functional literacy is absolute for human beings to appreciate the importance of air, especially in developing countries where illiteracy is rampant.

Clean air is a relatively rather difficult concept to appreciate, when man has for decades, been consciously polluting the air. It is, to be honest, a misnomer. The harm of air pollution is therefore to a large extent iatrogenic. The cluster of determinants of air pollution are man-made.

Air pollution, on the other hand, is not difficult to define. It is the presence in the outdoor atmosphere of one or more contaminants such as dust, fumes, gas, mist, other smokes or vapour; in quantities, characteristics and duration such as to be injurious to humans, plants and animals, life or property or which unreasonably interferes with comfort and enjoyment of life and property.

## 2. THE ENVIRONMENTAL DILEMMA IN ENSURING CLEAN AIR

We live in a materialistic world where maximisation of profit and efficiency at the minimum cost is the ultimate goal of human ventures. This presents a serious problem and challenge to the environmentalist whose goals are not easily measurable in tangible terms.

The primary objective or ultimate goal of the environmentalist is to manage human affairs so that man can live in consonance with nature – Figure 1. He/she seeks ecological balance, minimisation of our intrusion on various ecosystems and maximisation of survival of all forms of life. From the above the environmentalist is at variance with the giant (the corporative manager).

The environmentalist's alternative is to be adroit in the arts of negotiation, compromise and the formation of coalitions to preserve the environment.

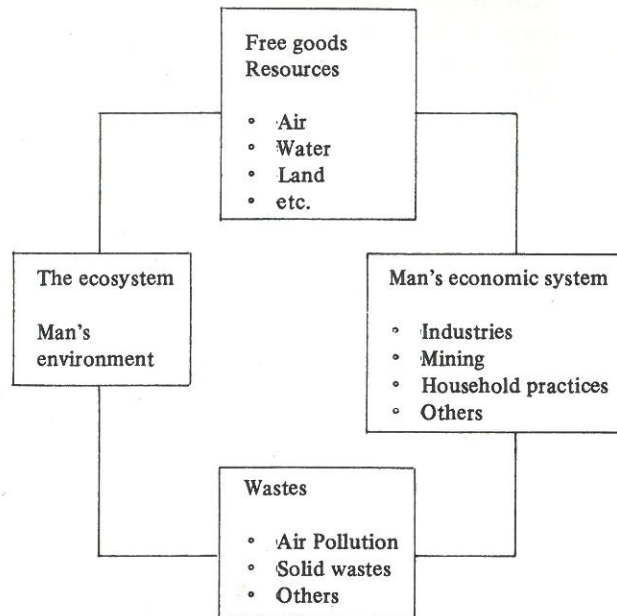


Figure 1: Environmental management process

Man has eyes to see, ears to hear and nose to smell, yet despite what goes on in the developed world, we are busy rising to repeat the very same mistakes.

We have heard and therefore know about the following:

- Meuse valley 1st December 1933. Industrial wastes such as zinc, fluoric acid and sulfuric acids accumulated in atmosphere, trapped by an inversion, sixteen people died.
- London smog December 25, 1952. Because of an inversion, smog containing sulphur dioxide and particulates accumulated in the air. About 4,000 deaths occurred, 79% of them due to pulmonary and heart disease, and the elderly and infants.
- Lung cancer – up to 123% higher rates of cancer occur in urban than rural areas. Higher

incidence of cancer in smokers as opposed to nonsmokers.

- Increased susceptibility to infection. Studies show that nitrogen oxide and sulphur dioxide increase susceptibility to bacterial diseases e.g. Klebsiella Pneumonia, Streptococcal infections, etc. Air pollution intensifies bronchitis. Ozone aggravates breathing problems by damaging the epithelial cells that line the trachea.
- Carbon monoxide precipitates angina.

From the above examples it is clear that air pollution makes breathing hazardous to one's health. But the respiratory centre is not dependent upon our wishes. We breathe because there is a need for us to breathe even in dusty and dirty atmospheres. Yet we know that dirty air can do more than make us cough. It can hurt the heart and increase the risk of cancer.

What is happening in the developing countries to ensure clean air? Are we really making an effort or do we simply say the environmentalists' morals are the thing for the developed countries? What role do the environmentalists play to instill a conscientious attitude in man about this pending pandemic of air pollution.

Lesotho has a very short history of industrialisation. In fact industries are at their infancy. The urge for increased revenue in the country where jobs are limited provides the rich media for manipulation by the investors. In one small stone cutting industry which produced jewellery from tiger eye in Maseru, twenty-one out of twenty-two women workers were recently found to have silicosis. This is not surprising for there are no human safety standards set and observed. What can the environmentalist do to turn the tide in the favour of both the investor, the employer and the employees?

The environmentalists are at present having a critical look at the safety standards with regard to the Lesotho Highlands Water Project. This project entails, amongst many, water transfers through tunnels to their final destination. The tunnel construction is the potential hazard which unless done to acceptable standards, may leave those desperate for work moribund for many years to come.

The clear blue skies often enjoyed in winters mask the hazardous non-clean air in smoke laden huts in the rural areas of Lesotho. The rondavels are often small with little ventilation. The winter nights are

very cold therefore it is customary to sit around an open fire in the smoke laden hut, chat and tell stories.

Besides the traditional materials, more and more people use coal, gas heaters and paraffin heaters. If the environmentalists set housing standards with heating systems, can they be afforded by Basotho? Can they be effected? Every winter, therefore, lives are often lost due to carbon monoxide poisoning. What about the high rate of upper respiratory tract infections, bronchitis, etc.? To what extent is the inhalation of non-clear air the culprit?

The urban Basotho is by now fully aware of the traffic congestion especially in Maseru. In winter this traffic congestion is associated with high levels of exhaust smoke. What is the implication of this situation to atmospheric air we continue to breathe without thinking about its existence or safety. Do ordinary people ever think of it? If not, there is more education to be done.

What about the voluntary inhalation of non-clear air by individuals? Tobacco production and tobacco smoking despite the overwhelming evidence of devastating epidemics of tobacco related diseases are on the increase especially in developing countries. This is not a surprise. It is expected because the third world is desperate for cash. Therefore those countries involved in tobacco production have valid, strong and seemingly sensible reasons to continue to do so. Tobacco consumption is increasing overall in developing countries by about 5% annually. It is often said old habits die hard. Smoking is clearly one of those habits which are and may continue to be hazardous to millions of people unless a metamorphosis takes place in the hearts of many.

### 3. INTERVENTION STRATEGIES TO ENSURE CLEAN AIR

There is no doubt that in developing countries, just like in developed countries, there is a need for a deliberate, coordinated and systematic control of the environment to ensure pollution free air.

The job of environmentalist in developing countries is fivefold more difficult.

1. Limited number of environmentalists.
2. Inadequate legislation.
3. High rate of illiteracy in the public.
4. Lucrative terms used to attract investors.
5. Limited job opportunities.

It therefore goes without undue deliberation that Primary Health Care Approach is the best developed tool which, if applied properly, can turn the wheel to our advantage. The few environmentalists alone are bound to be overcome. But in collaboration with other sectors, they can be effective in protecting us against the impending monstrous global threat of air pollution. Unity is strength but unity of purpose can achieve wonders.

Primary Health Care health education should form the cornerstone of our intervention strategies. Many people may not be able to read and write but they can be reached through other media. People have to know about the importance of clean air and the hazards of air pollution. Deliberate effort has to be made to isolate facts from controversies so that the messages may be precise, concise and to the point.

The other strategy is to embark on operational research so information specific to that country may be developed with a view to use in health education campaigns. For example:

- Effects of smoke laden huts, a common feature in winter in rural Lesotho.
- Small industry impact on health.
- Agricultural contribution to air pollution.
- Knowledge attitude and practice studies with regard to clean air.

The development of relevant health legislation is imperative. But legislation without a reinforcing mechanism is a waste of valuable time. The inspectorate machine with appropriate fines should be set to ensure safe air in our small factories depending on the type of products or raw materials handled. Building constructions should be developed to appropriate specifications to ensure fresh air circulation. This may be effective mainly in urban areas. Zoning in urban areas is an easy air pollution control which may be effected with little difficulty if good will is there.

#### 4. CONCLUSION

Man, through technological advances, has altered the way of life on this planet. But, the sequel or by-product of our modern way of life is the change in the ecosystem as evidenced by the increasing mor-

bidity and mortality associated with air pollution and other environmental insults.

We are unable to appreciate clean air which our forefathers did. The pandemic of air pollution is spreading to engulf the developing countries. The rural communities are not spared this menace. It is expected and natural because of the easy mobility from one place to another in search of work and other necessities.

It is my considered opinion that just as it took the human brain to put us where we are, it will take the human brain to get us out. We have the tools, we know the problem; and we only have to develop the plausible intervention strategy. The ultimate goal is to restore fresh clean air conducive to life. Where the problem of non-clean air is not grave let us ensure protection of that environment by preventing adoption of living habits or introduction of living standards that are likely to promote the problem. Where the problem exists, using Primary Health Care approach, let us join forces and minimise the impurities. Human health safety should be given high priority in our working environments and homes.

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