

**S.S.e.9. ANTONY, C.A.—ENVIRONOMICS—A Financial
Estimate of Environmental Pollution Control Abatement
Schemes in Eloor—Edayar Industrial Belt—1988—
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Introduction

A major problem of contemporary economic and social policy is the extent to which industrial pollution should be controlled. To this end a substantial amount of academic research has been carried out across the whole spectrum of science. Much theorising and research have still to stand the test of time since environmental issues are essentially long term and there is considerable uncertainty in many natural and applied sciences about pollution and its control.

In the sphere of economics, substantial advances have been made at the macro level concerning problems such as economic growth and the quality of life, but there are still many under-researched areas at the micro level. Little work has been done outside the US in the impact of pollution controls on firms and industries in general, and small and medium sized firms in particular.

Pollutants have clearly been with us since time immemorial and have, to a large extent, been tolerated as a fact of life. To a certain extent the increase in living standards in western economies which have occurred during the 19th and 20th centuries have merely exacerbated the problem and that pollutants that have always existed have become a much more explicit feature of life.

A priori there appear good reason for looking at the impact on firms of government controls and public awareness of pollution. Specifically, these may result in cost the firm has to bear, directly as result of the emission of waste product, or alternatively the firm may be prevented from using an input that, under other circumstances, it would choose to use. The prevention of firms using certain inputs and for charging for waste outputs necessarily constraints freedom of choice and may affect the efficiency of the firm at that point in time; this may result in an increase in prices, reduction in employment or reduction in product quality. The extent to which these phenomena occur depends on the relative importance of pollution control costs in production. The size and nature of the polluter's output of waste also has to be determined, although sometimes it may be necessary to use inputs as a proxy indicator of outputs, for instance when trying to quantify airborne emissions. This type of data is not available from published sources and consequently it had to be collected on an individual firm basis through the use of questionnaires/schedules and interview to generate the information.

Economists interest in the problem of pollution stems principally from three sources: firstly, the existence of externalities; secondly, the debate concerning the cost and benefits of economic growth and finally, the incidence of pollution control on the firm, the consumer and labour. The essence of the debate on externalities (the divergence between private and social costs) has been that production and sometimes consumption of goods uses scarce resources, some that can be bought (labour/raw materials, etc.) and some that result from common property for which, in most instances, no price is paid (for example, fresh air and clean water), since they are used by the community as a whole and there is no market in them. Two problems arise because of this state of affairs; i (i) there is the possibility of over usage and (ii) because the resources are common property, the consumption of one section of the community may well affect the welfare or satisfaction of another group, thus the smoky chimney pollutes the air others breath and the chemical effluents kills fish in the river or, indeed, one firm's pollution may add to another firm's production costs. Technically this means that the individuals utility function contains arguments, some of which he has under his control and some that are interdependent with the production and consumption processes of others. The main problem that economists have attempted to solve in this area relates to what amount of pollution is consistent with an optimum allocation of resources and how can this optimum state of affairs be arrived at. Closely connected to these issues, which have typically been investigated at the micro level (firm, individual or industry), is the debate over whether or not economic growth is a desirable macro-economic objective and exactly how the level of national output can be calculated to take account of non-market activities (like some forms of leisure) which rely on the use of common property resources and do not command a market price. Finally, pollution abatement measures are taxes on the firm's operations and affect the level and nature of these operations to some extent; how the firm reacts to these controls and what impact they ultimately have on the firm's prices, output, employment

and technical progress represents another important area where economics is able to make some contribution.

The thesis under reference is a financial estimate of environmental pollution control and abatement schemes in Eloor-Edayar industrial belt. The Eloor - Edayar industrial belt is the most polluted area in the state of Kerala.

The study analyses the financial, economic, social and political implications of the polluted environment in the project area and various impacts of pollution and its control and abatement measures aimed at protecting the environment. A financial estimate is made accounting for different categories of costs and benefits involved in the abatement and control of pollution.

The specific objectives of the study are:

- i) to define environmics and discuss important issues and problems of this new branch of economics
- ii) to conduct an 'Environment impact assessment' of Eloor-Edayar industrial belt considering the economic, social and other aspects of the problem
- iii) to judge the economic feasibility of protecting the environment of the project area by making a financial estimate taking into account the various costs and benefits involved in the process, and
- iv) to make available relevant data to the appropriate authorities for decision-making and implementing various environmental protection measures in problem area and elsewhere.

Data for the study are collected both from primary and secondary sources. The primary data were collected with the help of four schedules.

The major limitations of the study are:

- (i) Non-quantifiability of most of the environmental aspects.
- (ii) Non-availability of certain critical information on account of gaps in knowledge, especially with respect to the impacts of some of the pollutants, and lack of cooperation from official agencies entrusted with environmental protection.

For the purpose of analysis the thesis is divided into nine chapters.

The first chapter is an introduction to the subject of study. Chapter two makes a brief review of environmental literature and the measures adopted at the global level to protect the environment. The protection of national environment from the ancient till the present forms the content of chapter three. The first three chapters provide a background to the issues analysed in the thesis.

The theoretical issues cocerned with 'Environmics' are reviewed in chapter four. The theoretical issues involved in estimating the costs and benefits of environmental protection constitute the theme of chapter five.

The state of environment in Eloor-Edayar industrial belt and the impact analysis of pollution of the area are discussed in chapters six and seven respectively. Chapter eight makes the financial estimate of environmental protection of the project area. Chapter nine presents the findings of the study.

Conclusions

- (1) The environment of the project area is heavily polluted.
- (2) The pollution impacts are spread to an area approximately 78.5 square kilometers inhabited by nearly 1,10,000 people and 65,000 domesticated animals and birds. The agriculture, materials and structures of the area are also affected.
- (3) Approximately 50 per cent of the households in the affected area have

members suffering from one or more pollution induced diseases.

- (4) Agriculture in the project area has become a gamble in the success of factory stacks and machineries engaged in industrial production and processing.
- (5) It is economically feasible to protect the environment of the project area as incremental benefits exceed the incremental costs involved in the process.

9. Recommendations

- (1) The attitude of the government relating to environmental problems must be one towards 'life and death' rather than 'law and order' problems.
- (2) The official environmental protection agencies must be given executive powers to take action against the polluters.
- (3) The enterprises must be compelled to spend some portion of their sales turn over for the prevention of pollution and the protection of the environment and
- (4) The government should initiate various programmes to create greater awareness of environmental problems among the public.