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Maintenance of Air Quality Through Performance Standards

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THE PRIMARY OBJECT of air quality standards is to reduce the day-to-day pollution of the urban atmosphere. To the extent that they accomplish that aim they are good and practical. To the extent that they fail to reduce pollution and any possible hazard they are inadequate or impractical.

There would appear to be universal agreement that uncontrolled air pollution is bad for many reasons, including possible resultant human illness, economic loss, plant damage, and soiling. After that general statement, universal agreement ends. As is so often the case, disagreement is based on the lack of evidence or its disputability.

No matter how conventional air quality standards are defined[1] or to what purpose they may be put, they require numbers. These numbers must not only be correct and derived from reliable experience, they must be relevant to the actual situation. The economic and other consequences of enforcing standards which were found ultimately to be unjustified would be considerable. That economics is considered does not imply that dollars are more important than human lives but is merely recognition that the health of a modern society is a frail and complex matter and not solely related to human health.

In this paper the term "conventional air quality standard" refers to environmental exposure standards as exemplified by the California air quality standards.[2] Several problems have arisen in the derivation of conventional air quality standards which are difficult enough to stand in the way of the acceptability or practicality of these standards in at least the immediate future. These problems are true not only of air pollution but of the other environmental hazards of urban life. But the hazards are real and immediate and their control is necessary before such numbers may be available, and thus the control may have to be achieved in some other manner. One such alternative is the use of environmental performance standards in combination with land zoning.

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Deficiencies of Conventional Quality Standards

Much skepticism has developed concerning conventional air quality standards. The following discussion deals with some of the origins of this dissatisfaction. While the examples used come from the area of human health, the experience reported (at the Michgan Seminar on Air Quality Standards[3]) would appear to justify similar arguments in other areas of air pollution effects.

The difficulties in obtaining evidence on which to base air quality standards derive both from the nature of the hazard and the nature of the supposed effects.[4]

Air pollution is ubiquitous. It may be present throughout the lifetime of the individual but it is not constant in duration or degree. The noxious agents themselves may have many parts which coexist in varying degrees and may interact with variable result. Therefore, determining the exact nature of the exposure of an individual is, at best, difficult, and without knowing the exposure it is difficult to relate illness to the exposure in more than a general way. Such general correlations would be of little use in producing the exact numbers necessary for establishing air quality standards. Experimental exposures have produced much of the present information on the health effects of air pollution. Almost always, the effects found in the labora-