



Winter 1967

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James A. Crutchfield

Recommended Citation

James A. Crutchfield, *Herfindahl, Orris C., and Kneese, Allen V., Quality of the Environment: An Economic Approach to Some Problems in Using Land, Water, and Air*, 7 Nat. Resources J. 139 (1967).

Available at: <https://digitalrepository.unm.edu/nrj/vol7/iss1/7>

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BOOK REVIEWS

Quality of the Environment: An Economic Approach to Some Problems in Using Land, Water, and Air

By

ORRIS C. HERFINDAHL AND ALLEN V. KNEESE

Baltimore: The Johns Hopkins Press for Resources for the Future, Inc. 1965.
Pp. viii, 96, \$2.00

This little book represents a further extension of a theme that runs through many of the recent publications of Resources for the Future, Inc., in the field of resource use and development. Earlier studies have stressed that the fear of "running out of resources" is so naive as to be meaningless. Even its more sophisticated form—the possibility that relative shortages of natural resources will act as a drag on economic growth—involves a kind of static view of economic growth that does not square at all with the facts. But we are becoming, in the words of Kneese and Herfindahl, "acutely aware of something else that is happening to us, a gradually growing stream of stimuli that produce an increasing dissatisfaction (with the quality of our lives) and, unfortunately, a dissatisfaction with which the individual finds it very difficult to cope." What is disturbing is the mounting evidence that this "deterioration in the quality of the environment," however ambiguous the term may appear, is real and increasing—this in the face of a continuing rapid increase in real per capita gross national product.

Kneese and Herfindahl have set out to demonstrate, in what is essentially a non-technical book for intelligent people, that economic analysis can be tremendously useful in delineating and whittling down a series of intensely important policy problems involving the quality of the environment associated with natural resource use. It can do this despite the fact that many of the benefits and costs involved defy quantification in economic terms. Economics is, after all, a technique for registering and implementing human choice, and its tools are at least partially applicable even in those cases where the market mechanism provides faulty signals or no signals at all.

In chapter I a few basic tools are developed: principally the concept of opportunity cost and the way in which external effects, involving both benefits and costs, upset the normative implications of the competitive model that underlies most economic analysis of re-

source use. In the next five chapters these tools are applied to a series of problems involving the quality of the environment: water pollution, air pollution, the use of chemicals as pesticides, and the physical environment of urban and rural areas. A final chapter presents a summary in the form of a "research strategy" that is, in fact, a determined plea for action. The discussion throughout is characterized by an easy commingling of physical, engineering, and economic variables; this is an essential technique for dealing with the management of natural resources and one that is used with admirable clarity by both authors.

The book is clearly policy oriented. Three common themes are found in the treatment of each of the five problem areas: (1) the usefulness of the concept of external effects and opportunity costs in defining the policy issues to be faced; (2) the gaps, some of which are quite inexplicable, in our factual knowledge of physical as well as economic parameters, and (3) the glaring weakness of our knowledge of institutional arrangements involved in resource use, and of current efforts to devise new techniques.

There is some variation in the clarity and effectiveness of the treatment of the five areas considered. The chapters dealing with water and air pollution are essentially compact summaries of the systematic treatment developed elsewhere by Kneese and others, and are tightly reasoned and convincing. The discussion of the use of chemicals as pesticides is equally praiseworthy, in part because of the frank documentation of the pessimistic conclusions about our ability to improve the social results of the economic processes involved in the use of pesticides. The discussion of the use of rural land area seems less satisfactory, perhaps because, as the authors reveal, the subject matter itself is less sharply focussed than that of chapters II through V. Concentration on one or two rather than six rural land uses involving quality deterioration would have permitted a level of treatment more in keeping with the rest of the book.

In some respects, this excellent book is most disturbing. Because the authors discuss their topics calmly and without emotionalism, some of their conclusions are more than slightly chilling. While many facets of both urban and rural living have improved in the past few decades, a long, expensive, and difficult research effort must be mounted before we can realize the welfare gains implicit in a systematic analysis of air and water pollution. There is much less hope of achieving, at least in the short-run, more satisfactory urban and rural land use patterns. In the case of pesticides, the pace of

technical change is so great, and the number of variables so large, that the authors despair of anything more than modest improvements in the standards and safeguards employed. And the nearly insuperable problems of quantifying individual and collective attitudes toward the elements of the good life—the key problem in a systematic approach to resource use in the urban environment—suggests that we have far to go in defining what we want from cities, much less in moving actively toward fuller realization of those objectives.

It is true that definition and quantification of the elements of efficient use of resources are more difficult in the problem areas selected by the authors than in almost any others. Nevertheless, Kneese and Herfindahl go to some pains to point out that there are probably at least as many cases in which data deficiencies simply reflect insufficient or improperly directed research effort as there are cases in which the problems are hopelessly intractable. Without minimizing the impediments that exist, they argue persuasively that there is much room for improvement of decision-making and of the organization for decision-making even on the basis of present knowledge. There is, for example, much welfare content in the ability to define more clearly, for consideration through political processes, the alternative costs of investments in outdoor recreation and open space, of establishing standards for air and water quality, or of “buying insurance” in terms of the potential threats to health from cumulative ingestion of pesticides. In brief, all of the problems dealt with in this book are problems that require current decisions, both long and short range in nature. They will not become any easier, nor the side effects of erroneous decisions less costly, by neglecting obvious research requirements and opportunities for more precise determination of economic costs and gains.

The message of this book is both a warning and a goad, not only to professionals in the specialized disciplines involved, many of whom have fallen far short of the effort required to integrate their respective skills, but also to the general public which must, in the end, provide both the pressure for, and the validation of, improved political processes for dealing with the quality of environment. The next few decades may well be critical in testing our ability to translate a proper part of our rising productivity into protection and enhancement of the quality of life itself.

JAMES A. CRUTCHFIELD*

* Professor of Economics, University of Washington, Seattle.