

I. The Principal Finding



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Long-Range Research

As individuals, EPA's scientists are qualified and dedicated to producing high-quality research. As an organization, however, EPA's Office of Research and Development (ORD) lacks a clearly defined commitment to research addressing long-range environmental concerns; it appears to be preoccupied with the day-to-day demands of the regulatory process. Short-term research in support of the regulatory process is necessary, to be sure; but this should not preclude a strong commitment by ORD to long-range research.

Where long-range research is mentioned in the Plan, in most cases the development of techniques is addressed rather than a clear definition of what long-range issues are considered important. The following illustrative questions exemplify the considerations that should govern the planning of an effective long-range strategy:

- Can control techniques reduce pollution at a rate adequate to keep pace with environmental goals when, simultaneously, economic growth continues?
- How are global and regional ecosystems reducing, or amplifying, the adverse effects of human pollutants?
- What role could lifestyle changes, as opposed to strict "hardware" control solutions, play in the achievement of environmental quality?
- Can major shifts in the economy, such as might be brought about by energy shortages, be made compatible with environmental quality?

It may take years to illuminate these questions and some of them may not be answerable categorically or conclusively. But they must be addressed in a systematic, mission-

oriented manner. The knowledge gained from pursuing research on long-range environmental issues is essential to the regulatory and legislative processes.

This is not to say knowledge gained on the long-range scientific, technical, social, and economic issues guarantees that a regulatory strategy or a legislative approach will necessarily be effective. If comprehensive information is available to all interested parties, however, the decisionmaking process has a chance, at the very least, of surviving the major pitfalls of misinformation and erroneous assumptions.

To serve the decisionmaking process, research must become policy oriented. That is, research should explore the alternative strategies open to decisionmakers and attempt to determine their relative social, economic, and environmental costs and benefits. Consistent with its neglect of long-range research, the ORD Plan offers little that can be identified as policy analysis organized and planned to support the environmental policymaking process.

ORD's preoccupation with the short term prevents it from exercising national scientific leadership and becoming a forum for scientific knowledge reflecting the broadest input from the scientific community and the public. For example, when environmental debates stem from scientific questions, such as the effects of sulfates or pesticides, ORD should assess the state of knowledge on the subject and provide a rational and objective basis for discussions.

Specific instances suggesting ORD's emphasis on the short term can be found throughout the Plan. While the Plan appropriately emphasizes research to achieve environmentally acceptable use of coal in the short term, it does not include long-range projects to assess the environmental implica-

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tions of large-scale use of waste, biomass, solar and geothermal energy sources. Nor does the Plan discuss long-range research of problems associated with new industrial technologies or changes in industrial energy and raw material sources. Similarly, long-range studies of the health effects of chronic, low-level exposure to pollutants are absent. The Plan fails to discuss socioeconomic research on long-range environmental management strategies combining both technological and nontechnological approaches to environmental problems.

The Other Side of the Coin

Dr. Wilson Talley, EPA's Assistant Administrator for Research and Development, states this view of the role that research plays within EPA:

First and foremost is the full recognition that research serves a support function within the agency. Our strategy, specific objectives and priorities should not and cannot stand as entities in and of themselves. Rather, they must derive from those of the Agency in the accomplishment of its total legislative mandate.¹

Dr. Talley also points out that, although ORD performs mission-oriented research, as opposed to basic research, providing the best scientific data and anticipating future problems is an integral part of ORD's research program.

Thus, the lack of a well-defined commitment to research addressing long-range environmental concerns may reflect the dedication of this Office to its primary job of supporting the regulatory role of EPA. Indeed,

ORD was strongly urged to do this by the Berliner Committee of the National Academy of Sciences, whose principal conclusion was that: "The present Office of Research and Development planning and management system fails to meet the needs of the Agency."² This exhortation by the National Academy of Sciences was a key factor in determining the mid-1975 reorganization of ORD.

It could be argued, in addition, that with environmental concerns apparently ebbing in the face of energy and economic problems, it is not surprising to find EPA spending its shrinking R&D dollars on supporting its most immediate and direct means of effecting environmental regulation. Moreover, some legislative mandates do require EPA to demonstrate the availability of control technology to meet EPA's environmental standards. The role of the regulatory agency and pressing legislative needs may create an atmosphere unsympathetic to the uncertainties of long-range comprehensive research planning. Therefore, because resources available to ORD are constrained, its natural tendency is to concentrate on well-defined Agency requirements and to support regulatory needs as they occur.

For the short term, the EPA 5-Year Research Plan represents an impressive compendium of environmental research problems. It is apparent that ORD has thoroughly identified research needs to support EPA's immediate regulatory role. The difficulty for the short term, therefore, appears to be not so much what environmental research must be done, but how to do it. This may partly explain the deficiencies in EPA's Plan.

¹"The Research Mission," Dr. Wilson Talley, *EPA Journal*, Oct. 1975. See app. A.

²Letter report to Russell E. Train, Administrator, EPA, from the Review Committee on the Management of EPA's R&D Activities, National Research Council/National Academy of Sciences, Aug. 27, 1974.