



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

January 28, 1981

OFFICE OF
THE ADMINISTRATOR

Mr. Walter C. Barber
Acting Administrator
U.S. Environmental Protection Agency
Washington, D.C. 20460

Dear Mr. Barber:

This year's draft of "Research Outlook FY81-85," continues a five-year record of improved documentation of research status and, by and large, of planned, short-range research established in previous documents. Last year's realignment of Research Committee structure with that of program offices seems to have done much to improve this document and to facilitate planning of research in the Agency. Still, the Science Advisory Board finds problems with the document and with the process by which the Science Advisory Board provides its review.

As in the past, we are once again critical of the draft document for its lack of explicit research priority. We thus cannot comment on the appropriateness of the research as it reflects national issues. One of the document's deficiencies that strongly impacts on the research programs is the frequent lack of an accepted national strategy on the utilization/protection of resources. Some general goals are stated in current legislation, but these need to be translated by EPA into research and management strategies. Although Exploratory Research is mentioned in the document, there is little evidence of forward thinking and development of emerging environmental trends and issues.

The organization of the planning effort along program office lines is commendable; however, it may also be responsible for some of the problems the Science Advisory Board finds with the document. The program offices' tendency to approach research needs from the perspective of their medium (water, air, etc.) detracts from future research planning. For example, a very real threat to groundwater quality comes from the growing pressure to resolve solid waste and sludge issues.

Though program office issues are addressed, weaknesses in professional, scientific areas essential to gathering data often seem to be ignored. Again, this could be the result of too great an emphasis on the medium perspective.

The December 1980 draft still required considerable editorial effort by the Science Advisory Board Subcommittee. Chapters were unevenly presented. They differed in their level of detail. Some redundancy also occurred among the chapters. Outcomes and results of proposed research were frequently predicted where such predictions were not warranted.

The Science Advisory Board feels that this document can be much improved by incorporating into the introductory chapter 1) explicit goals and objectives with strategic content, 2) a tactical ordering of priorities with the inclusion of an office/discipline matrix complete with dollars and numbers of people, and 3) a strategy to avoid intermedia issues from being overlooked. Strategies based upon inadequate or unsound scientific evidence and principle should be avoided in any part of the document.

The Science Advisory Board also is convinced that its role in reviewing the "Research Outlook FY81-85" can be substantially improved. Toward that end, the attached letter from the Research Outlook Review Subcommittee to the Science Advisory Board's Chairman Cantlon details specific recommendations. In addition, the Science Advisory Board Review Subcommittee has commented directly to the Research Outlook Coordinator. The Subcommittee has summarized specific comments on the separate chapters in the Appendix I attached.

If we can amplify any of the above and the attached letters please let us know.

Sincerely yours,



John E. Cantlon, Ph.D.
Chairman
Science Advisory Board

Attachments.

- Appendix I
- Appendix II
- Appendix III

APPENDIX I

GASES AND PARTICLES

The Subcommittee agrees that the region is the unit of environmental concern and that regional modeling is important. However, the Subcommittee also feels that the emphasis on regional atmospheric transport models ignores the issue of intermedia transport. For example, EPA has ignored its own program of Research Centers, i.e., the proposed Intermedia Research Center. Technology research is not addressed in this chapter.

MOBILE SOURCES

Weaknesses in this chapter include a lack of emphasis on the issues of carbon monoxide levels in personal monitoring; fugitive dust and aeroallergens, as they might interact with mobile source pollutants; natural processes of vegetative hydrocarbon emissions, allergens and microbial production as background to mobile source pollutant effects and monitoring. The Subcommittee also feels that a scenario that develops the increasing use of diesel generators for power and heat production in large buildings in cities might serve to influence research priorities.

HAZARDOUS AIR POLLUTANTS

The Subcommittee questions the use of the "no risk" factor as a viable means to assess meaningful research priorities. This chapter is also weak in establishing research priorities based upon future trends. For example, a scenario that develops increased sludge incineration could increase airborne cadmium, greatly increasing its human health effects potential.

WATER QUALITY

Areas which, in the Subcommittee's opinion, are weak include fate, transport, and control of nonpoint source pollutants and the validation of models. Groundwater quality issues seem to be of low priority, a state with which the Subcommittee disagrees. The Subcommittee also questions why the management of the Clean Waters Program is considered to be a part of the research strategy.

INDUSTRIAL WASTEWATER

Potential production of wastes from gasohol production is apparently ignored, as is industrial sludge in general.

MUNICIPAL WASTE WATER

The Subcommittee feels that areas such as sludge, problems associated with ozone treatment, and intermedia effects are treated too lightly or not at all.

EMERGENCY RESPONSE

A lack of balance between oil and non-oil spills characterizes this chapter. Ecological and genetic engineering research issues, as expressed, give the impression of naivete on the part of the Research Committee. Should emergency responses even be considered a part of the research strategy?

DRINKING WATER

Activated charcoal, upon reactivation, discharges pollutants to water. Is this not an issue? The reactivation of charcoal may change PCB's in water to highly toxic chlorinated dibenzofurans and dioxins is not even mentioned. The Subcommittee notes that there is no accepted groundwater strategy, although page 4 of "Research Options" states, "Minor attention will be placed on supporting the Agency's ground water strategy by:" The Subcommittee further notes that planned research anticipates that groundwater degradation will be allowed and that groundwater may be used as a waste sink.

SOLID WASTE

Research issues that the Subcommittee feels are not adequately covered include feasibility of solid waste disposal when hazardous pollutants are present in the wastes, effects on ecosystem organization and production, the use of ecosystem

level microcosms and the scientific basis for modeling efforts (inadequate knowledge in chemistry, biology, and microbiology). Understanding the problem does not seem to be on the same level as the issues. No strategy is apparent with such pending problems as hazardous waste disposal and intermedia impacts of disposal.

TOXIC SUBSTANCES

This chapter is well written, although it tends to emphasize the present with inadequate attention given to future problems. Some members of the Subcommittee feel that greater emphasis should be placed upon the correlation of chemical structure with fate, activity, and effects of toxins. The Subcommittee also cautions that validation of models is important.

NON-IONIZING RADIATION

Some Subcommittee members feel that non-ionizing radiation is a non-problem. EPA should terminate work in this area.

PESTICIDES

This chapter is also well-written. Integrated pest management activities should be maintained as a viable part of the program. Basic research in new pesticides, preventative methodologies, analytic methodologies, and ecosystem and community effects is needed.

ENERGY AND ENVIRONMENT

The synthetic fuel scenario gives the impression of being approached in a vacuum. Other energy scenarios should be discussed in the strategy development context. A rationale should be developed for selecting the most likely to be followed scenario and the research issues generated as a result. This Subcommittee does not believe that the synthetic fuels issue is the only issue on the horizon in the area of energy and the environment, or even the most important one. Long-term effects of acid precipitation, such as nutrient depletion and changed forest production, of acid should be emphasized over the short-term effects such as increased fish kills. Baseline information on soil and water quality is needed.



APPENDIX II

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

January 28, 1981

OFFICE OF
THE ADMINISTRATOR

Dr. John E. Cantlon
Chairman
Science Advisory Board
U. S. Environmental Protection Agency
Washington, D.C. 20460

Dear Dr. Cantlon:

The Science Advisory Board, as represented by its Research Outlook Review Subcommittees, has now reviewed the annual production of EPA's five-year research plan each year for five years. Each of the preceding review subcommittees has been consistent in its criticism of the research plan and/or the process by which it was achieved.

This year's Research Outlook Review Subcommittee is no different. It sees "Research Outlook FY81-85" as a document lacking strategic content. It is not a forward looking plan at all, but rather a tactical document wallowing in the present and seemingly restricted to inhouse capabilities. Above all, the process by which the plan is achieved leaves much to be desired.

In the past, including the current review, the procedure has been to involve the Review Subcommittee in the final stages of the formulation of the research plan. The Subcommittee was given rough drafts upon which it was asked to comment in a substantive, not redactory way. The Subcommittee was expected to accomplish this in a very short period of time. These comments were then considered advisory statements on the plan and utilized in a final draft which was again commented upon by the same Subcommittee, after which written comments were transmitted to the Administrator.

All of the Subcommittees found this procedure disturbing for two reasons: 1) It involved advising, at best, in a perfunctory way. Some of this advice was then incorporated into a plan, which presumably was to guide the Agency's research for the next five years; and 2) the Subcommittees felt uneasy about what amounted to reviewing a document that included their own advice.

Since the Congress has mandated (P.L. 95-155) that the Science Advisory Board review the five-year research plan each year and transmit to the Administrator and the Congress a written copy of such review, the Science Advisory Board is bound to comply. It should, however, review the final document and not one in its preliminary stages of development.

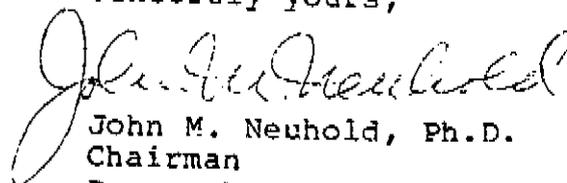
On the other hand, the Science Advisory Board was created to advise the Administrator on matters of science. The planning arm of the Agency would be remiss in not asking for such advice, and the Board would be remiss in not giving it. But such advice should be given only after thoughtful reflection and discussion.

This year's Research Outlook Review Subcommittee believes that the Science Advisory Board can accommodate both needs with a timely and discrete division of labor. Specifically, the Subcommittee recommends that various standing committees of the Science Advisory Board be given the task of working with and providing advice to the Research Committees of the Agency in the preparation of the research strategy documents. The advice can be formulated in response to written documents such as the research strategy documents or in direct interaction with the Research Committees. In either case, sufficient time must be provided to allow reasoned input by Science Advisory Board members.

A second committee organized with members of the Executive Committee and independent of the Board's Research Committee advisors may then review the final draft of the five-year research plan. Presumably, the five-year plan, as formulated from the strategy documents, can be completed in final form in sufficient time to allow a review subcommittee a sound, indepth review. A minimum of four weeks would be required for such an indepth review.

This year's Subcommittee feels strongly that the advising and the reviewing functions be separated, that the published Research Outlook be submitted to the Science Advisory Board as soon as it becomes available after the President's budget submission to Congress, and that the Science Advisory Board be allowed a minimum of four weeks in which to complete its review. We feel that, if these recommendations are implemented, the best interests of the Agency, the Congress, and the public will be served.

Sincerely yours,



John M. Neuhold, Ph.D.
Chairman
Research Outlook Review
Subcommittee

APPENDIX III

U. S. ENVIRONMENTAL PROTECTION AGENCY
SCIENCE ADVISORY BOARD

RESEARCH OUTLOOK REVIEW SUBCOMMITTEE

Dr. John M. Neuhold, Chairman
Professor of Wildlife Sciences and Ecology
Department of Wildlife Sciences
Utah State University
Logan, Utah 84321

Dr. Martin Alexander
Professor, Soil Microbiology
Department of Agronomy
Cornell University
Ithaca, New York 14853

Mr. Vinton W. Bacon
Professor
Department of Civil Engineering
University of Wisconsin
Milwaukee, Wisconsin 53201

Dr. John L. Buckley
General Ecologist
P. O. Box 263
Whitney Point, New York 13862

Dr. Bernard D. Challenor
Associate Dean
Associate Professor of Public Health
Columbia University
College of Physicians and Surgeons
630 West 168th Street
New York, New York 10032

Dr. Edward F. Ferrand
Assistant Commissioner for
Science and Technology
New York City Department of
Environmental Protection
51 Astor Place
New York, New York 10003

Dr. Julius E. Johnson
Consultant
Dow Chemical Company
2030 Building
Midland, Michigan 48640

Dr. Raymond C. Loehr
Professor of Agricultural and Civil
Engineering
Department of Civil and Environmental
Engineering
207 Riley-Robb Hall
Cornell University
Ithaca, New York 14853

Dr. Donald H. Pack
Consulting Meteorologist
1826 Opalocka Drive
McLean, Virginia 22101

* * * * *

Dr. J Frances Allen
Staff Scientist-Ecologist and
Staff Officer to Subcommittee