

In the second category is most of the research that should be done in the areas of improved sensing and monitoring techniques, prevention systems and devices, and methods of removing pollutants that can't be kept out of the air and water in the first place.

Government, university, and industrial laboratories can all contribute in all of these areas. But it might seem logical to assign the bulk of the responsibility in the first category to the Government, since much of it concerns very large-scale public health matters, since it is going to be more effective for the Government to coordinate and conduct many of the massive experiments involving large areas of large numbers of people, and since the initial predominant impact of this part of the work will be, by the definition I have used, on the establishment of necessary laws, regulations, and recommendations.

Obviously, university laboratories—with Government support—can make important contributions in much of this work.

In spite of the Government's basic responsibility in this category of the work, the special skills of industrial research can be extremely helpful. Further, the early involvement of industry in all aspects of the pollution problem is essential to pave the way for prompt action once the goals have been set. And, of course, since private industry wants to contribute its knowledge and viewpoints about proposed regulations to combat pollution—especially in regard to the technological and economic feasibility of such proposals—the early and continued involvement of industrial research should be helpful to all concerned.

Industry itself should assume the major responsibility for the research which will lead to hardware and systems needed to monitor pollutants, plus that related to the technology of prevention and removal.

The market for sensing and monitoring equipment should grow substantially in the near future, and I believe industry will be missing an opportunity if it does not substantially increase its research effort here at once. I know one company that is doing so.

In the area of technology for prevention and removal, industry probably will not be motivated to a truly large-scale effort until the "monitoring," "causes," and "effects" research makes it possible to identify the guilty pollutants and quantify the objectives in removing them.

Thus, Government will have to carry proportionately more of the research burden in the early stage of this fight than in the latter stages. Once the necessary rules, objectives, and timetables are established, industry will know better how to channel its efforts. But even as this is being done, and even as the problems are being defined, we should continually remind ourselves that the most desirable eventual solutions will come most rapidly if attacked on a competitive basis. The most economic solutions will be diligently sought by private enterprise, and a profit incentive for those who learn how to do the job best will produce the desired results far quicker than any other approach.

As to who will pay for this research, the same sort of pattern seems appropriate. Industry has opportunities it should explore with its own funds in helping develop the kind of monitoring techniques that obviously are needed now. Similarly, industry should be willing to