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The Impact Statement—Part II

Since 1970, the Council on Environmental Quality has received environmental impact statements on nearly 7500 actions proposed by federal agencies. The CEQ's experience as overseer of the EIS process, under the National Environmental Policy Act, long ago confirmed several criticisms raised by D. W. Schindler earlier in this space ("The impact statement boondoggle," *Science*, 7 May): many EIS's are too long, they often include extraneous material that is neither analytical nor predictive, and the scientific quality of most is below desired standards.*

But to conclude, from these valid objections, that the impact statement process has "backfired" or that it has placed "the advancement of the scientific method . . . in jeopardy" ignores the real gains that have been made, both in protecting the environment and in elevating scientific knowledge to the decision-making level.

As a direct result of the EIS process, for example, the Trans-Alaska oil pipeline was redesigned to avoid adverse environmental impacts, plans for surface storage of nuclear wastes have been postponed for more thorough study, dams and other water resource projects that would have destroyed valuable natural systems have been modified or canceled, and literally scores of major highway and airport projects have been redesigned or eliminated. On this evidence alone, the EIS process has already proved its worth. Both benefits and problems are discussed in a recent CEQ report.†

Equally significant, as federal agencies adapt to EIS requirements, consideration of environmental impacts is becoming an integral part of decision-making rather than an afterthought. In addition, the EIS process opens up for effective review, both by the public and by government experts, decisions that were formerly made by individual agencies and their special-interest constituencies.

Despite these genuine gains, we are concerned with upgrading the scientific quality of impact statements. Accordingly, CEQ joined the Ecological Society of America and the American Institute of Biological Sciences in sponsoring a symposium on the biological evaluation of environmental impact at the 27th AIBS meeting in June.

The symposium specifically addressed the misconception that science as applied to the EIS process can be less stringent than science as applied to academic publication. The many distinguished participants agreed that the opposite is the case: evaluating environmental impacts and predicting environmental changes require a synthesis and understanding which exceed in difficulty the tasks that many environmental scientists have undertaken in the past.

Our relatively new policy on environmental protection expands opportunities for pure as well as applied ecological research. The $50 million in this year's budget for baseline studies on the Outer Continental Shelf is one example. The successful realization of that policy will also require scientists to address two principal challenges: first, to develop criteria for measuring the significance of environmental perturbations, and second, to describe these impacts in ways that are meaningful and useful to decision-makers and the public.

These problems do not, admittedly, fall into the neat disciplinary categories of traditional academic science. Yet our scientists have left the traditional pattern before. Their willingness to do so now in order to improve environmental impact analysis and government decisions will help discharge their responsibilities to society, as well as their responsibility for advancing science.—RUSSELL W. PETERSON, *Chairman, Council on Environmental Quality, Executive Office of the President, Washington, D.C. 20006*

*CEQ advised agency heads to remedy these problems in a memorandum of 10 February 1976.
†*Environmental Impact Statements: An Analysis of Six Years Experience by Seventy Federal Agencies*, Report of the Council on Environmental Quality, March 1976.