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The National Environmental Policy Act and Beyond:
Improvements in Environmental Assessment, 1974*

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Summary

Environmental Impact Statements (EIS) have become an important national tool in environmental management. This Bulletin describes some current practices in EIS preparation and review. It emphasizes that ideas of ecology and sociology have been brought to attention of government agencies and developed into guides for action. Since the evolution of EIS led to the writing of other "species" of statements, a glossary has been included to distinguish them. Some bibliographies now available are identified.

Background

The National Environmental Policy Act of 1969 represents the achievement of a plateau in environmental thinking. It incorporated ecology into policy making by stating that environmental studies were to be made, but its most dynamic feature up to this time has been Section 102(2)(C), which specifically demands "a detailed statement" by federal agencies whenever they propose actions which may affect significantly the environment. The content of the statement was outlined briefly, and agencies were charged subsequently with developing administrative procedures and directives to translate the spirit of the Act into action. The result was the rapid evolution of a new document, the Environmental Impact Statement (EIS), previously noted in RCSI Bulletin #149 (1). The adaptation of the federal experience to state and local laws proceeded actively along with the work of federal agencies. The application of EIS to the special problem of landfill site selection was the subject of Bulletin #164 (2), which emphasized geological considerations.

Review

The first six topics selected for review were adopted from a chart of procedural criteria for evaluation of EIS prepared by Gordon A. Enk of the Institute on Man and Science at Rensselaerville, N.Y. (3).

1. Is it a statement by the responsible official?
2. Are alternatives offered?
3. Is there consideration of short-term use of the land in relation to long-term productivity?
4. Is there a description of any irreversible and irretrievable resource commitments?
5. Have agency comments been incorporated into the EIS?
6. Has the EIS met the public availability test?

* This Bulletin reflects Dr. Forest's experience and opinion and we invite others to share with us their experience -

These are all means to an end. The last item for this review is taken from the summary of purpose of the National Environmental Policy Act of 1969:

7. "To create and maintain...productive harmony (between) man and nature."

1. Statement by the Responsible Official

In a landmark case, the United States Court of Appeals established that an agency (Federal Power Commission) could not simply use an applicant's report as its draft EIS (4). The decision strongly stimulated a change which some agencies had already begun: the hiring of natural and social scientists to help prepare their EIS.

Two notable consequences have followed:

1. There has been a mutual education among specialists, and all have begun evolving into a new kind of ecologist.

2. Agencies have started to develop a new kind of responsibility. The better ones subject themselves to self-criticism on environmental considerations, and they devote competent, professional staff time to the give-and-take among agencies.

A contrast should be noted with the A-95 review procedure, required under regulations of the Office of Management and Budget, which allows a non-governmental applicant's report to be used as a basis for a draft impact statement. Thus, the motives of promotion or defense tend to be granted official status. An A-95 review does incorporate the question as to whether a real EIS is required, but the general effect is to undercut the process.

Environmental studies are required in a number of cases by an agency from an applicant asking for funding. These are regarded as information for the agency staff, not as substitutes for its own work. The two types of documents may be compared with reference to the licensing procedures for R. E. Ginna Nuclear Power Plant. The Environmental Report (5) was prepared by the Rochester Gas & Electric Corp. while the EIS (6) was prepared by the AEC.

2. Choices of Action

"Alternatives" must be offered to the proposed action. This is a demanding exercise both in imagination and in integrity. It is asking a lot of a promoter to threaten a choice which he has already made. Yet, this is precisely the demand which is made, and nothing less can be considered compliance with the Act. At best, this requirement has substituted imaginative planning for rash action. At least, it has been a source of avoiding mistakes. At worst, it has been a cynical ritual of supplying absurd alternates which are then blown down easily.

One of the hard lessons from experience has been that alternates to a project are frequently partial, and the parts may or may not fit together in workable combinations. Matrices and other devices are sometimes used to help perceive patterns of impact but the individual parts may work differently in combination.

The "no project" alternative must be considered along with any proposed action. It is particularly difficult to argue for doing nothing in a project-oriented agency, but the effort has been demonstrated as worthwhile. Particularly, attention is addressed to long-range trends. Changes continue even without proposed projects, and the EIS have given a new support for studies of the system as it is and as it may be. Furthermore, consideration of the null alternative may lead to realization of management alternatives which are "non-structural". The classic example is flood plain management.

The Army Corps of Engineers developed the principles and application of preventing development of flood plains. It frequently mentioned this alternate when reporting on proposed construction projects, but almost never was the advice taken seriously, because the whole public and the bureaucratic bent was toward construction.

3. Short-Term Use Versus Long-Term Productivity

This is one of the most troublesome topics to address in an impact study; frequently it seems impossible to discuss in specific terms. Yet, the question is perhaps the most important one asked in the statement. Older approaches do not suffice. The older approach was basically an accounting approach. The object was to show a profit on investment. Accounting has been somewhat useful in reducing "pork barrel" projects which would benefit few people, but it is inadequate for environmental protection. The environment frequently has been degraded while a profit on investment was registered. The new approach brings environmental costs into the accounting.

In the past, the most important decision instrument has been the cost-benefit ratio. Any project with a positive benefit ratio was considered "feasible", and a high ratio (2 or 3:1) was virtually a green light. Now NEPA specifically calls for consideration of nonquantifiable qualities. Although some elegant attempts have been made to convert environmental amenities to dollars, quantification is not required. The "dollar value" of seeing a wild duck or securing another Yosemite Park have been computed, but such dubious mathematics are unnecessary. The goal is no longer to extract maximum dollar value for an investment. Nevertheless cost computations are valuable in providing perspective on the investment and its consequences, and the new requirements of NEPA places cost/benefit figures under scrutiny in a systematic fashion. With the viewpoint of various disciplines directed at costs, there has begun a shift of language to "cost/effectiveness" - effectiveness in terms of long range productivity of the environment.

An EIS demands that indirect impacts should be considered. Construction of a sewer may abate pollution, but the EIS must note whether the sewer is near enough to productive farm lands to make them attractive to residential developers. In such a case poor placement of the sewer might jeopardize the best use of the land (1,7). Similarly added sewer capacity can change the residence density in cities (8). Significantly, New York State Pure Waters applications must address the matters of "neighborhood character" and "urban congestion" (9). Moreover, the perspective of NEPA is national, not local. The wisdom of a proposed flood control project can be challenged even though it shows a positive cost/benefit ratio and a generally favorable impact. It may simply be unnecessary, or trifling on the scale of national needs (10).

A favorable estimate of long-range productivity based on single criterion such as board-feet of timber or head of deer, fails to meet the question as NEPA posed it. The only acceptable kind of answer must be couched in terms of all of the components of the natural and social ecosystem. Thus, again, the collaboration of specialists from various disciplines is required.

4. Irreversible and Irretrievable Resource Commitments

Trivial treatment has been given too often to this section: routinely, DOT statements say that time, gasoline, concrete, and manpower will be irretrievable.

The AEC submitted a generic EIS for the introduction of breeder reactors and pointed out that this new technology will save an irretrievable resource because it will greatly decrease the need for mining uranium ores. Instead of that it will recycle into fuel some of the waste products of power production. The reverse side of this is a proposed large increase in the use of atomic power by the nation and with it a great increase in the production of unuseable atomic waste. This represents an

irreversible commitment to storage of hazardous material.

The use of phosphate is another example of the evolution of thinking about the use of irretrievable resources some of which is covered by NEPA, some of which should be but is not. A lake destroyed by eutrophication is a lost and irretrievable resource. One way to help protect the lake is to remove phosphate by tertiary sewage treatment. This comes under NEPA because some federal money goes into the building of the sewage treatment plants. Another approach to the problem is to remove phosphate from detergents. In addition to helping the lake this would help to conserve phosphorus which is a limited resource. This aspect does not come under NEPA because no federal money is involved. The subject was brought to light during federal hearings where environmentalists pointed out that we were using up a limited resource and detergent manufacturers countered, not so, because the phosphate can be recycled from the sewage sludge or the sludge can be used as a soil conditioner. The whole subject was then dropped. Such controversy would be fully examined if NEPA were extended to require an EIS for the awarding of federal subsidies such as that given to farmers for phosphate fertilizer. This would not be a far fetched extension because a subsidy could surely be looked at as the expenditure of federal monies.

The full intent of NEPA is to consider the ecological "productivity of the land". The land considered should be the local site and the neighborhood and region, but it is also necessary to consider the ecology of the nation and world. For example, the Canaseraga wetlands are an important stopping place for migrating geese and whistling swans which affects Canada.

5. Incorporation of Agency Comments

Perhaps no single act of the federal government in this century has stimulated coherence and cohesion among bureaus as much as NEPA. In addition to the requirement of internal agency responsibility, discussed above, there is a responsibility demanded among agencies. Although performance is uneven, there are some splendid examples of this requirement working as well as it was hoped. Two examples of projects in the Rochester area can be cited for evidence: (1) Army Corps of Engineers Final EIS on development of Hamlin Beach; (2) Atomic Energy Commission EIS on R. E. Ginna Nuclear Power Plant. This final statement included detailed critical comments about the ecology of the lake provided by the New York State Dept. of Environmental Conservation. Both contain comments by other agencies and by public groups.

6. Public Availability

The mechanisms of public availability were discussed in a previous Bulletin (1). The situation is still not satisfactory. Awareness of documents for review has been a local problem. Conservation Advisory Commissions and County Environmental Management Councils were supposed to be notified of all projects up for any kind of review including environmental impact review in their areas. Actually, this was seldom done. But now, the Bureau of Community Assistance of the New York State Dept. of Environmental Conservation has proposed that local conservation commissions and management councils are notified promptly of projects for review. Official awareness should be followed by increased local input into the process. There remains a strong mistrust of the public by officials. The public has limited time and capacity to participate, and sometimes fails to use even the best of opportunities.

On the other hand, the required public hearing, under Environmental Protection Agency or Federal Department of Transportation regulations for example, is usually rigged against meaningful public participation. The "case" has been built before the hearing, and the evidence has been mounted so that it is not possible to argue with it in the course of an evening. Meaningful participation would require informal

meetings with interested members of the public, while the statement is being prepared and before agency positions have in fact become fixed. It is understood that the Federal Aviation Agency is considering just such a procedure toward preparation of the EIS for improvements to the Rochester Airport.

Sometimes members of the public and civic organizations need help with technical problems. One rather conscientious effort has recently been demonstrated by the Atomic Energy Commission, which placed its own staff specialists at the disposal of RCSI who were intervenors in the application for permanent licensing of the Ginna Plant.

New York State has made a special effort to make technical assistance available to municipalities that are concerned with licensing of power plants. The legislature has directed the Public Service Commission to collect \$25,000 from the company applying for a license - the money to be used by the towns or cities where the plants will be located to buy technical assistance in evaluating the project. This is an unusual and admirable procedure that has not yet been tested in courts. It has nothing to do with the environmental impact review mandated by NEPA, but it did result from environmental awareness that came after NEPA.

7. Productive Harmony Between Man and Nature

The goals of NEPA are high, and the intent of EIS statements is beyond simple procedural compliance. How is "productive harmony" to be judged? NEPA specifies that studies should be interdisciplinary and that non-quantifiable properties must be considered. In the first three productive years of the law, natural and social scientists have sought to apply the principles of operation of natural ecosystems to the world modified irreversibly by man. The subject has been addressed more and more under the heading of "Quality of Life" (2, 3, 4).

These ecosystem studies have been novel to the ecologists working on environmental analyses, partly because the systems proposed for impact studies are rarely natural; for example, an ecological study of a site for a power plant in rural Cayuga County revealed that the top carnivores in the food chain were domestic cats. The use of ecological studies is spreading beyond the requirements of NEPA. In this case of the Cayuga County site an environmental assessment had to be prepared by R. G. & E., even though an EIS was not required by law. Such studies pay special attention to the relation between man and the natural features of his environment.

Human considerations are inevitably value-laden and philosophical. On the surface, man is merely being asked to consider what he is doing; an EIS has no binding force other than the persuasion of its information. Nevertheless, the clear implication of NEPA is that man ought to harmonize with nature, not exploit it for pleasure or "good". These considerations are reasonable, but not easy, when attempted at the project level. An example of synthesis between natural and cultural systems can be found in a Corps of Engineer's flood control project study (10). At national level, the court decision to require an environmental impact statement for the whole breeder-reactor development program (as opposed to a statement about each individual breeder reactor) indicates that the human impact on large natural ecosystems is supposed to be taken seriously.

Discussion

The concept of Quality of Life provides a framework for synthesizing thoughts on:

- non-quantifiable characteristics of a project,
- long-range productivity of an ecosystem,
- uniqueness (shading into "variety") of a resource or a community.

The focus on quality has probably led to significant value changes. It contributed to the defeat of the SST program. It is reflected in the "California Tomorrow" environmental plan, and a number of attempts to stop ("regulate" or "control") population growth in particular places. In the question of whether to increase mining in Montana (with presumed increase in jobs, urbanization, per capita income, and available energy) a Montanan remarked that the ideal quality of life was precisely what the state had now.

We can predict changes in quality which are the likely consequences of an action even though there is no agreement on a single scale of quality for the environmental analysts. The examination of alternate possibilities including the null (do nothing) alternative calls for something of science and something of science fiction. The eminent sociologist, Evan Viachos, significantly uses the term "scenario" both in his methodology to prepare EIS and in the broader context of technological assessment. Man has tried to predict social, economic, and personal impacts before, and has not succeeded very well. Yet, he has made few systematic, multidisciplinary attempts. NEPA calls at least for a systematic effort, with the hope that insight will be gained by the investigators and readers of statements. Ironically, people can lose the quality of life which they cherish simply by refusing to face a scenario of the future. For example, in Livingston County, N.Y., surveys conducted by the County Planner show that the rural scenic quality is highly valued by local citizens. Yet, the same voters refuse to regulate land use in a manner which would assure continuation of the treasured quality. The continued use of Environmental Impact Statements may be the means of educating voters as well as agency executives toward a more rational pursuit of human and environmental values.

References

- (1) Forest, H.S. and Olga Berg, "The National Environmental Policy Act: Environmental Impact Statements and Review", RCSI Bulletin #149, December, 1972.
- (2) Lundgren, L.W. Jr., "Environmental Impact Procedures for Landfills in Monroe County", RCSI Bulletin #164, October 1973.
- (3) Enk, G.A. "Beyond NEPA, Criteria for Environmental Impact Review". The Institute on Man and Science, Rensselaerville, N.Y., May 1973.
- (4) "NEPA and the Courts", 102 Monitor 3:1-178, October, 1973. Green County Planning Board v. Federal Power Commission is cited on pg. 12. Reference to the case was made also in RCSI Bulletin #149.
- (5) Environmental Report, R.E. Ginna Nuclear Power Plant Unit #1., AEC Docket 50-244. Prepared according to Draft Guide to Preparation of Environmental Reports issued for commentary and interim use, as amended Feb. 1971. August 1972 by Rochester Gas and Electric Corporation.
- (6) Final Environmental Statement related to the operation of R. E. Ginna Nuclear Power Plant Unit #1, Rochester Gas and Electric Corporation Docket 50-244. Dec. 1973, U.S. Atomic Energy Commission Directorate of Licensing.
- (7) Forest, H.S., et al, "Environmental Assessment: Town of Webster Pure Waters Project", Contributions of the Environmental Resource Center at Geneseo, N.Y. 14454, #35, December, 1973. Particular letter of amendment, February, 1974.
- (8) Forest, H.S., et al, "Environmental Assessment for the Culver-Webster Tunnel (Goodman and Culver arms)", Contributions of the Environmental Resource Center at Geneseo, N.Y. #32 (revised), February 1973.

- (9) Checklist prepared by the Division of Environmental Analysis, New York State Department of Environmental Conservation, late 1973.
- (10) Forest, H.S. et al, "Canaseraga Creek Valley Studies: Environmental and Socio-Economic Aspects". Contributions of the Environmental Resource Center at Geneseo, N.Y., #30, July 1973. The discussion may be found in the section titled, "A View of the Integrated System".
- (11) Ammerman, P.D., "Environmental Impact Review Notification System for Conservation Commissions", Bureau of Community Assistance, New York State Department of Environmental Conservation, June, 1973.
- (12) Thomas, W.A., "Indicators of Environmental Quality", Plenum Press, New York, 1971.
- (13) Baumgold, Marian S. (Ed.), "Defining the Quality of Life: Household Technology on Trial", The Institute on Man and Science, Rensselaerville, New York, July, 1972.
- (14) An Anthology of Selected Readings for the Symposium on "The Quality of Life Concept", August 29, 30 and 31, Office of Research and Monitoring, Environmental Studies Division, Environmental Protection Agency (GPO), 1973. Report No. 1972-0-473-782.

APPENDIX I

Provisional Glossary of Environmental Statements, as of February, 1974

Detailed (Environmental) Statement- This is the term used in the law (NEPA).

Environmental Impact Statement (EIS) - The descriptive title simply grew up in practice, but the Federal Environmental Protection Agency uses it officially.

Both terms refer to the statement issued by the responsible official of the governmental agency proposing an action. The courts have held that the responsibility may not be delegated, although the official may rely on others for information and opinions.

Preliminary of Draft Environmental Statement - This is a review document. Other Federal agencies in particular are invited to comment, but comments are also solicited from state, regional, and local agencies and the public. Although regional clearing houses are designated by the states, there is no consistency in the actual circulation of the documents. The Federal EPA specifically mentions giving notice to environmental groups, and, in practice, the Buffalo District of the Army Corps of Engineers will send copies directly to any group or individual who declares interest.

The comments must be included in the Final Environmental Statement and the comments must be answered. Although commentaries and replies are usually separate from the text, the final statement does frequently include changes prompted by the comments.

Environmental Report - The U.S. Atomic Energy Commission uses this designation for information which is supplied by an applicant for a nuclear installation: a power plant or fuel reprocessing plant. The work on AEC's own statement begins with the applicant's report, but AEC's experts have not been satisfied with them alone, and have become more and more dependent on their own staff work to comply with NEPA.

Environmental Analysis - This is a preliminary report by an applicant for agency support.

Environmental Assessment - The term has been adopted in regulations of the Environmental Protection Agency. The form and general content of an EIS is followed, but the report is prepared by the applicant at the time of application for funds. A municipality or Pure Waters Agency would prepare such a document in planning for pollution abatement facilities. Thus, the Assessment is roughly equivalent to an AEC Report.

These terms do not exhaust the list. The Corps of Engineers, for example, may contract for preliminary studies at different phases of its projects. The phases are related to the Corps' own decision-making structure. Generally, the more advanced phases require more intense studies. Any or all of the studies up to the preparation of actual EIS are frequently accomplished by the Corps' own staff, which includes civil engineers, ecologists, and social scientists.

Bibliographies

A Selected Bibliography on Socio-Economic Aspects of Land Use Planning and Environmental Impact Analysis, The Institute on Man and Science, Rensselaerville, New York, January, 1974. This is probably the most valuable list compiled.

List of references circulated by the New York State Sea Grant Advisory Service, State University of New York at Oswego, N.Y., Late in 1973, undated

"Emerging Limits of the National Environmental Policy Act", Cornell University Water Resources and Marine Science Center, Ithaca, New York, Jan. 10, 1974. The periodic circular includes an article reprinted from The Professional Geographer, 25:377-381. Beard, Daniel P., "The National Environmental Policy Act in Courts and Congress, 1970-1972, Nov., 1973. Thirty-seven references are cited.