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ENVIRONMENTAL IMPACT STATEMENTS

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The Environmental Policy Act of 1969 directs all agencies of the Federal Government to "identify and develop methods and procedures which will insure that presently unquantified environmental amenities and values are given appropriate consideration in decision-making along with economic and technical considerations". The Council on Environmental Quality has set forth guidelines for the preparation of the required environmental statements. It is recommended in these guidelines that the second item to be included in the statement is "the probable impact of the proposed action on the environment".

In any proposal for construction or development, it is the usual practice, both from the standpoint of engineering and economics, to prepare an analysis of the need for the development and the relationship between its monetary costs and monetary benefits. More recently, society has recognized that in addition to these customary economic analyses and discussions of need, there should be a detailed assessment of the effect of a proposed development on the environment and thus its ecological, separate from its monetary benefits and costs; put together, these assessments comprise an Environmental Impact Statement. The preparation of a Statement should be done by a team of physical and social scientists and engineers; likewise, reviews of statements will generally require an interdisciplinary team effort.

THE ENVIRONMENTAL IMPACT STATEMENT

A complete environmental impact statement consists of four basic items:

1. A complete analysis of the need for the proposed action.
 - a. A statement of the major objective sought by the proposed project.
 - b. The technologic possibilities of achieving the objective are analyzed.
 - c. One or more actions are proposed for achieving the stated objective. The alternative plans which were considered as practicable ways of reaching the objective are spelled out in the proposal.
 1. The analysis of need, item (1) above, should be a justification which considers the full range of values to be derived, not simply the usual cost-benefit analysis. It should include a discussion of the overall objectives and of possible alternatives to meet them.
2. An informative description of the environment to be involved, including a careful consideration of the boundaries of a project. For example, every drainage crossed by a highway can be affected at that point of crossing but may also be affected downstream as well owing to erosion.
 - a. A report which details the characteristics and conditions of the existing environment prior to the proposed action is prepared. In some cases, this report may be incorporated as part of the engineering proposal.

1. The characterization of the existing environment, item (2), should be a detailed description of the existing environmental elements and factors, with special emphasis on those rare or unique aspects, both good and bad, that might not be common to other similar areas. It should provide sufficient information to permit an objective evaluation of the environmental factors which could be affected by proposed actions. The description should include all the factors which together make up the ecosystem of the area.
3. A discussion of the pertinent details of the proposed action.
 - a. The principal engineering proposals are finalized as a report or series of separate reports, one for each plan. The plans ordinarily have analyses of monetary benefits and costs.
 1. The details of proposed action, item (3) above, should include discussion of possible alternative engineering methods or approaches to accomplish the proposed development (item 1). This should be done in sufficient detail so that all actions that may have impact upon the environment (item 2) can be checked. The horizontal margin of the matrix can be used as a checklist in preparing this section.
4. An assessment of the probable impacts of the variety of specific aspects of the proposed action upon the variety of existing environmental elements and factors and a summary or recommendation which would include the rationale supporting the selected plan of action.
 - a. The proposed plan of action, usually the engineering report, together with the report characterizing the present environment, sets the stage for evaluating the environmental impact of the proposal.
 1. The environmental impact assessment, (item 4 above), should consist of three basic elements:
 - a. A listing of the effects on the environment which would be caused by the proposed development and an estimate of the magnitude of each.
 - b. An evaluation of the importance of each of these effects.
 - c. The combining of magnitude and importance estimates in terms of a summary evaluation.

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