

Environmental Impact Assessment

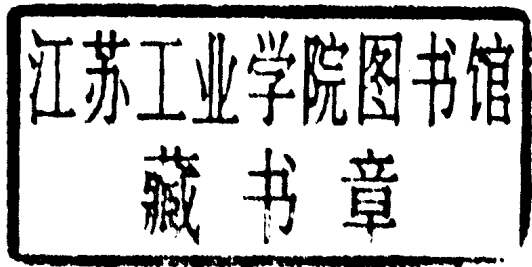
A PRACTICAL GUIDE

BETTY BOWERS MARRIOTT



Practical Guide to Environmental Impact Assessment

Betty Bowers Marriott



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Introduction

Environmental impact assessment is an integral component of decisions made every day on proposed projects, plans, and actions. The National Environmental Policy Act (NEPA) requires that a statement of environmental impacts of proposed projects be prepared as part of the development process of federally funded projects. Several states also have environmental protection laws in effect which are applicable even if federal funding is not involved. These laws, and numerous related environmental regulations and statutes at federal, state, and local levels, affect almost every construction project and planning activity in the United States and in many other parts of the world. An understanding of the essentials of the NEPA process and requirements, and those of other environmental statutes and permits, is important to those who pursue a career in this field, those who construct or plan projects or communities' facilities, public officials, and even the general public who will certainly be affected at some level by the environmental impact process.

The purpose of this book is to improve the quality and efficiency of environmental impact assessment, and the subsequent worthy contribution of the completed analysis to the decision-making process. This book provides, in one location, the fundamental essentials of impact assessment in all impact categories.

Chapters 1 and 2 explain the foundation for environmental studies; critical terms; basic documents and content; and the required processing for the three thresholds of documentation. The remainder of the text goes beyond *what* needs to be achieved to equally focus on *how* to conduct high-quality, efficient analysis of potential project or action impacts.

Chapter 3 examines the importance of early and continuing agency and public involvement in the impact assessment process. The text recommends productive techniques to solicit and incorporate meaningful input and to avoid conflicts or time delays. Chapter 4 describes the extreme importance of alternatives development and scrutiny to the impact analysis and to the overall success of a project, plan, or ac-

tion. It emphasizes the critical and continuous connection of alternatives refinement and impact analysis.

The next 17 chapters are what makes this book different from many others. Rather than just list the types of impacts that need to be investigated in an environmental assessment, this book explains the essential elements of impact analysis within each category. The text is full of examples, recommendations, and guidance that will become immediately useful in the practical, competent, and time-efficient conduct of environmental analyses. Each impact category chapter identifies applicable legislative content and processing requirements, permits, and required agency coordination. Methodologies are described and distinguished by type or magnitude of the project being assessed. Common errors to avoid are revealed. No text can present exactly what needs to be included in an environmental impact assessment or particular disciplinary areas of impact, because seldom are any two proposed actions exactly the same. By presenting numerous examples of the types of impacts that may occur with various types of projects, the text invokes the thought process to ensure sensible and effective identification of possible impacts that may otherwise be overlooked. Mitigation measures in successful use are discussed.

The last chapter focuses on the importance of productively using results of environmental assessment in the evaluation of proposed alternatives. Methodologies to facilitate input critical to the decision-making process are recommended and described.

This text provides practical guidance, discussions, and thought-provoking examples. Direction is given on the efficient compliance with established legislation, executive orders, regulations, and guidelines. The process required to successfully complete quality and timely environmental documents that are focused on real issues, and thus add to the decision-making procedure, is described, with tips on common mistakes to avoid, on cost- and time-saving measures, and on productive coordination with agencies and the public to ensure that major issues are addressed early in the studies. The reader will learn the importance of alternatives development and the fact that the process of evaluating and enhancing specific features of proposed alternatives is a dynamic, not stagnant, ongoing action throughout the environmental assessment.

In addition to providing guidance on practical preparation and processing of documents to comply with legislative and regulatory requirements, the text—especially those chapters on specific disciplinary areas of potential impact—meshes the fundamental, practical requirements of environmental impact assessment with underlying principles and theories. The reader thus will understand the reasons why certain changes produced by proposed projects or actions should be included

in the assessment of potential adverse or beneficial impacts. This feature of the book expands its usefulness beyond the “cookbook” legal requirements of large federal or state-funded projects to effective environmental assessment at all levels of local, state, and federal decision making.

The environmental assessment process includes insurance that decisions are not made without consideration of all interests. Through the use of multidisciplinary teams, the analysis of impacts is a result of interaction of team members with expertise in many fields of study. By requiring public and agency review and input, the process ensures that all elements of value to the human environment are considered. The various agencies established within the United States are charged with the protection and management of particular areas of the nation’s resources. Through their review and input, these agencies, with jurisdictional and technical expertise involvement, ensure a representation of all public interest resources into the decision-making process.

The information presented here is not meant to be a detailed study of every complex regulation or methodology, which can change with time and also take extensive study and experience to master. Rather, this approach to the environmental process explains the basics of required documentation levels; identification of analysis requirements in the disciplines that should be evaluated; the public and agency participation process; and the timing and processing of environmental activities within the context of overall project development.

For this reason, detailed descriptions of all regulations and current complex technical methodologies are not given. Numerous agencies have developed specific and detailed guidelines to be followed on projects under their jurisdictions. Often a multidisciplinary team conducts the environmental assessment and analyses for any particular project. Each team member is educated and experienced in his or her particular area of expertise. This book is targeted to those at the beginning of a future specialization and those wishing to obtain an overall understanding of the content and process of environmental impact assessment and its underlying principles.

The information here is not, however, just for the beginner. It is equally targeted, and provides a valuable resource, for those established experts and for federal and state agency personnel specializing in a particular disciplinary area of resource protection. In this sense, the text provides critical guidance in areas not within the particular expertise of the experienced professional. The knowledge gained can enhance the agency coordination process that is key to successful environmental impact assessment and mitigation by providing a foundation understanding of other impact areas not within the specialization

of the experienced expert. For beginning professionals to seasoned agency, public administration, engineering, or planning personnel, this text will be a constantly valuable reference.

Environmental impact assessment is fundamentally an analysis of the changes produced by a particular project or action. The earth which we humans inhabit with all other living and physical entities is constantly in a state of change to continually reach a balance of unanimity within the community. Because of the interaction and interrelationship of all the earth's elements, every change produces associated changes. Natural occurrences, such as earthquakes, floods, hurricanes, droughts, fires, or volcanic eruptions, can produce catastrophic and immediate changes. Most of the changes caused by living organisms, however, occur at an extremely slow rate. In contrast, changes produced by the human species can occur rapidly and abruptly. For every change, the process of reaching a new balance begins again.

Sometimes the results of human-produced changes are not beneficial and leave a surrounding environment that we neither wished for nor expected. Although the proposed project or action has good intent and solves or addresses an identified problem, the resultant ramifications may be a degradation of the human environment beyond the benefits provided by the proposed project or action. This is the underlying principle and purpose of environmental impact assessment.

An environmental impact assessment identifies those associated changes produced by a proposed project or action. It evaluates the degree of these changes, or impacts, on the basis of short-term or long-term, adverse or beneficial, direct and indirect effects. It ensures that (1) alternatives are developed that minimize adverse environmental impacts and (2) mitigation measures to reduce associated impacts are included in the planning process. It promotes a comparative assessment of all proposed alternatives, including the alternative of doing nothing (the no-action or no-build alternative), to yield an understanding of the cost/benefit tradeoffs and thus lead to better decisions.

Foundation

Certain concepts of environmental impact assessment are established in the language of the National Environmental Policy Act and implementing regulations. These concepts are fundamental to all impact assessments (Fig. 1.1).

1.1 National Environmental Policy Act

The National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. 4321–4347), set forth requirements for agencies of the federal government in Title I and established the Council on Environmental Quality (CEQ) in Title II. Among the most significant features of the law in Section 102(2) are the requirements for federal agencies to use a systematic, interdisciplinary approach to ensure integrated use of environmental arts in planning and decision making which may have an impact on the human environment; to develop procedures to ensure that environmental amenities and values are given appropriate consideration in decision making, along with economic and technical considerations; and to

Include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on—

- (1) The environmental impact of the proposed action,
- (2) Any adverse environmental effects which cannot be avoided should the proposal be implemented,
- (3) Alternatives to the proposed action,
- (4) The relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and

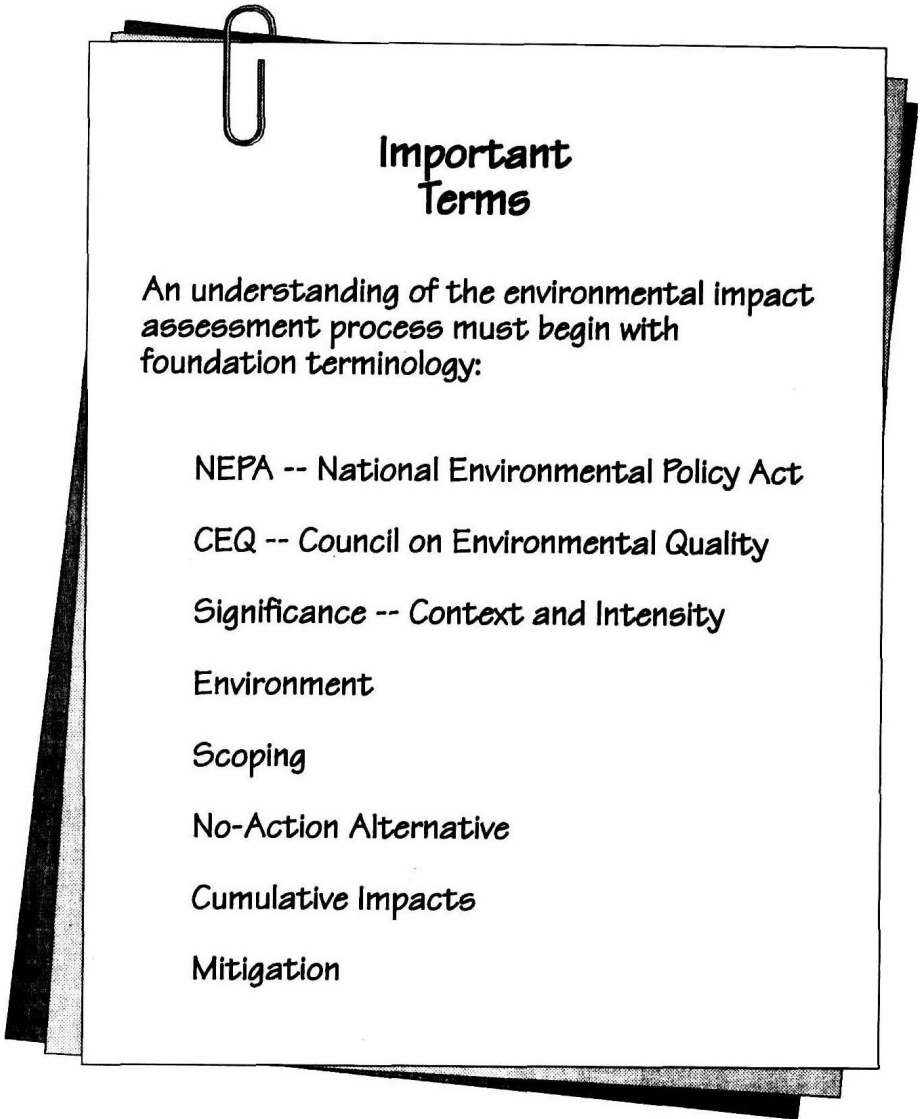


Figure 1.1 Important terms.

- (5) Any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

The above Section 102(2)(C) is the part of the legislation often referenced in what has become known as the Environmental Impact Statement (EIS).