

HOW TO CONDUCT CEAM STUDIES MORE EFFECTIVELY

by
Larry Canter
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WELCOME TO WEBINAR – A DESCRIPTION OF BOOK ENTITLED CUMULATIVE EFFECTS ASSESSMENT AND MANAGEMENT – PRINCIPLES, PROCESSES, AND PRACTICES

EXPERIENCES WITH CEAM

- Yucca Mountain FEIS
- Ohio River Mainstem Systems Study and Programmatic EIS
- Presentation of Training Courses

BACKGROUND INFORMATION

Some key terms include cumulative effects (impacts) and the occurrence of such effects on resources, ecosystems, and human communities. These terms represent Valued Ecosystem Components (VECs) as used in the USA and Canada.

In the USA, the term cumulative impact (or cumulative effect) is defined as the impact on the environment which results from the incremental impact of the proponent project or action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts (effects) can result from individually minor but collectively significant actions taking place over a period of time.

CONTENTS OF THIS BOOK

This 446-page book on CEAM principles, processes, and practices is comprised of 14 chapters and three supporting appendices. Chapter 1 includes definitions from several countries related to cumulative effects (impacts), CEAM, VECs, and multiple principles. Chapter 2, which is the longest chapter, describes numerous examples of multi-step processes. The processes range from generic approaches across a range of types of CEAM consequences, to topically-specific methods for addressing CEAM studies for transportation, mining, and hydropower projects. Chapter 2 also addresses CEAM planning for study area VECs. Further, information is included on SEAs (or Programmatic EISs) for policies, plans, or programs.

Chapters 3 through 6 are related to information gathering. Chapter 3 is focused on identifying direct and indirect effects of the proposed project or action. Chapter 4 is related to selecting pertinent VECs which are within designated spatial and temporal boundaries. The use of public and agency scoping in Chapter 5 is supportive of the needed information as described for Chapters 3 and 4. Chapter 6 is related to identifying and analyzing past, present, and RFF actions within the designated spatial and temporal boundaries. A selection protocol for other actions is based on case law as described in Chapter 6.

Chapter 7 is related to connector methods for evaluating multiple effects contributors to selected VECs. Such methods include interaction matrices, conceptual models, and scenarios. A wide variety of methods and tools for predicting effects on key VECs is included in Chapter 8. Chapter 9 encompasses significance determinations for cumulative effects on VECs, while Chapter 10 describes a protocol for addressing the environmental sustainability of affected VECs.

VEC monitoring and adaptive management of projects or actions in causing or contributing direct, indirect, and cumulative effects is the subject of Chapter 11. Chapter 12 highlights mitigation and regional management of various effects on selected VECs.

Finally, Chapter 13 is focused on the inclusion of CEAM study findings in NEPA compliance documentation. Such findings need to be carefully described and supported by pertinent documentation. Chapter 14 contains a summary of choices and challenges related to planning and implementing CEAM studies. Several supporting appendices comprise the latter sections herein.

TWELVE SUGGESTIONS RELATED TO CEAM STUDIES

It is assumed that requirements will continue, as appropriate, to focus on CEAM issues within EIAs, EISs, and EAs. Accordingly, the project study team preparing the EIA or EIS needs to be familiar with step-wise CEAM analytical frameworks, particularly the multi-step processes described in Chapter 2. It is anticipated that governmental agencies and private sector entities will need CEAM study teams, along with Subject Matter Experts, contractors, and staff to conduct multiple working meetings focused on planning and implementing the CEAM study. Such meetings can facilitate discussions on developing appropriate CEAM studies. Further, reviews of existing CEAM studies can also be used.

The following 12 Suggestions are generally reflective of current activities associated with CEAM studies addressing a wide variety of proposed projects or actions. These Suggestions are listed in the approximate order they could be used within several existing multi-step analytical frameworks (or portions thereof). Such frameworks include:

- Suggestion 1 – Become familiar with CEAM terminology. Utilize an established CEAM analytical framework (or step-wise process) as an overall planning tool for

a CEAM study. Recognize that most frameworks can be appropriately modified or even blended together for specific types of projects in designated spatial areas.

- Suggestion 2 – In addition to identifying and evaluating direct and indirect effects of proposed projects or actions resulting from traditional public and agency scoping endeavors, introduce and use a CEAM-focused segment within the public and agency scoping process to select pertinent VECs and their key indicators.
- Suggestion 3 – Query, select, and summarize appropriate Internet and other governmental and private sector sources of data and information related to describing historical trends in the conditions of selected VECs and their indicators. In addition, identify past and present actions affecting the selected VECs; and select or modify existing EIA or EIS related scientific methods and tools, or develop new ones, for application in specific CEAM studies.
- Suggestion 4 – Designate appropriate spatial (local to regional) and temporal (past, present, and future) boundaries for each selected VEC within the CEAM study area, and carefully describe the rationale basic to each of the spatial and temporal designations. Also, note that differing spatial and temporal boundaries could be appropriate for one to several of the selected VECs.
- Suggestion 5 – As relevant, apply the analytical framework process steps to each of the selected VECs and associated indicators. In this regard, think like you are the resource (or put yourself in the resource's niche) and carefully document the rationale used for including or eliminating process steps. Example questions which could be considered for each VEC and its indicators are:
 - Where do I (for example, the VEC) live (or what habitat is important) and what are my basic needs?
 - What is my limiting factor or my weakest link within the selected spatial boundaries?
 - What cumulative effects are most affecting me at the current time?
 - What external stresses or conditions will move me the most toward or away from achieving and/or maintaining environmental, social, and economic sustainability?
- Suggestion 6 – Systematically identify and classify actual or potential contributed effects of past, present, and reasonably foreseeable future actions (RFFAs) within the spatial and temporal study boundaries established for selected VECs and their indicators. As appropriate, classifications of each of the identified RFFAs relative to their effects on each resource should be developed. One example of a classification system for RFFAs is:

- Likelihood of occurrence of each of the RFFAs (define and use three levels -- low, medium, and high)
 - Location of the RFFAs (define and clarify information on these three locational groupings -- nearby, local area, and regional)
 - Frequency and/or duration of the RFFAs (define the following terms -- daily to annually; or short term, intermediate term, or long term)
 - Time period of occurrence of the RFFAs (define the rationale for within 5 years, within 25 years, and beyond 25 years)
- Suggestion 7 – Address both the relative contributions of the proposed governmental or private sector project or action and its alternatives, along with the relative impacts of other past, present, or future actions within the spatial and temporal boundaries of the CEAM study. Further, qualitative or quantitative summaries of the total cumulative effects on each selected VEC and their indicators should be described. This “relative contribution” approach will likely be necessary due to the minimal availability of quantitative effect information for past, present, and future actions. As appropriate, describe the total cumulative effects (qualitative or quantitative) and their significance in relation to VEC-specific thresholds, standards, policies, and broader themes such as environmental, social, and economic sustainability. Pertinent information in Chapters 9 and 10 can be used to determine the significance of cumulative effects and VECs and their sustainability.
 - Suggestion 8 – Develop and implement appropriate local mitigation measures for the incremental effects of the proposed project or action and its alternatives on each selected VEC. Such measures could be promoted to assure compliance with existing governmental environmental management programs; for example, emission or discharge standards for air and water quality, surface water and groundwater quantity and uses, protected species and designated critical habitat, protected areas and sanctuaries, and cultural resources protection and management.
 - Suggestion 9 – Consider and explore systematic collaboration with other governmental entities and/or private sector companies which could contribute to cumulative effects on the selected VECs, or which have management responsibilities for the VECs. Accordingly, identify appropriate local and regional cumulative effects management strategies and measures which could encompass contributed effects from multiple other actions.
 - Suggestion 10 – Cumulative effects on specific VECs or their indicators should be recognized as integrators of proposed project or action effects at local and regional levels. Such recognition is necessary for understanding the importance of CEAM studies in planning and environmental management. Further, with appropriate planning, CEAM studies can provide a useful basis for addressing environmental, social, and economic sustainability and incorporating such findings into multiple decision-making processes for the proponents of projects or actions and other local to regional contributing entities.

- Suggestion 11 – As appropriate, consider VEC-to-VEC relationships within CEAM studies. This can be accomplished by first considering each VEC separately; then, evaluating if changes in the sustainability conditions of VEC no. 1 will influence such conditions for VEC no. 2, etc., and vice versa. Incorporate consideration of these relationships in both local mitigation efforts and area-wide regional management planning.
- Suggestion 12 – Because of the potential complexity of CEAM studies, the study team should give early attention to developing topical outlines which are focused on information gathering, selection of VECs, and the incorporation of direct, indirect, and cumulative effects.

OTHER PLANS

- Preparing new book entitled Emerging Technologies in EIA (spring, 2016)
- Preparing the third edition of Environmental Impact Assessment (spring, 2016)

Visit www.eiacampus.com for online training courses including:

- CEA: Principles, Processes and Documentation
- CEA: Addressing Past, Present, and Reasonably Foreseeable Future Actions
- CEA: Special Considerations Related to Describing the Affected Environment
- CEA: Connecting Actions with Consequences on VECs
- CEA: Mitigation, Monitoring and Collaborative Management
- Emerging Best Practice Principles in Cumulative Effects Assessment
- EIA Process: NEPA, CEQ Regulations, and Agency Regulations
- EIA Process: Impact Study Planning and Scheduling
- EIA Process: Integrating a Public Scoping Program with an Agency Scoping Process
- EIA Process: Methodologies for Environmental Impact Assessment
- EIA Process: Identification and Evaluation of Alternatives
- Principles of Technical Writing Applied to the EIA Process
- Special Topical Issues Related to Writing and Reviewing EIA Documents
- Adaptive Management: Fundamental Aspects of Planning
- Adaptive Management: Case Studies
- Climate Change within the EIA/NEPA Process
- Prediction and Assessment of Groundwater Impacts - Fundamentals
- Process for Groundwater Impact Studies

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Cumulative Effects Assessment and Management
Larry Canter 446 pp. \$119 USD
Available at www.eiatraining.com

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