ADAPTIVE MANAGEMENT AND INTEGRATED DECISION MAKING

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CEQ is “pushing” appropriate inclusion of AM in the NEPA process
USEPA is increasingly commenting on need for many DEISs to include AM
AM can be used to address uncertainties in CEA, including incomplete and unavailable information (CEQ 1502.22)
AM could be used in CEs mitigation and management
● Seen as a follow-on to initial EIS document completion; however, there are pros and cons
● AM results are not instantaneous
● AM could be required via permits associated with EIS process
● AM is more appropriate for larger-scale studies
Definitions

- No single definition; had earlier usage in natural resources management
- Phrases from AM definitions
  -- systematic process
  -- test and adjust policies, practices, actions
  -- AEM – plan, act, monitor, evaluate
  -- learn from outcomes
  -- adjust policies, practices, actions
• CAMNet
• Numerous relevant reports and papers on AM
• Use of case studies from EI&Ss and EAs (untapped at this time)
• Collaboration will probably be required; and considerable information is available on this topic
NEPA (EIA) Models

- Traditional
  - predict-mitigate-implement

- Emerging
  - predict-mitigate-implement-monitor-adapt
Concerns About AM

- Agencies could use to “sidestep” EIA requirements and analyses
- Agencies have a poor track record of long-term funding for and conduction of monitoring program (permittees in the private sector generally meet these stipulations)
- Would AM actions require additional EIA documentation? Would this increase litigation?
- Guidance on AM in EIA process is limited
Benefits of AM

- Reduce CEA-related uncertainties
- Stakeholder involvements would be helpful
- Could be used as a tool for CEs mitigation and management
- Should lead to reduced CEs
- Could be integrated with EMS
- Would move NEPA in the direction of a substantive statute (not just a procedural one)
Element No. 1

- Management objectives that are regularly revisited and accordingly revised
  -- Needed for an integrative approach
  -- Identify key questions to be addressed
  -- Provides operational framework

- Agencies have program and management objectives
Element No. 2

- A model(s) of the system being managed
  -- Provides a foundation for learning
  -- Aid in understanding system responses
  -- Tailor model complexity to the situation
  -- Conceptual and diagrammatic models can be useful
  -- Model assumptions and limitations must be understood by users

- Agencies have numerous natural resources and environmental processes models
A range of management choices
-- A single best choice may not be known
-- Trade-offs may need to be considered across the choices
-- Combinations of choices may represent a useful approach

Some Agencies have numerous management plans with defined choices – USFS, NPS, USFWS, DOD, etc.
Element No. 4

- Monitoring and evaluation of outcomes
  - Enables testing of alternative hypotheses
  - Facilitates enhanced knowledge
  - Focus on selected indicators
  - Should be included from the outset of an AM program

- Agencies could modify and focus existing monitoring programs, and collaborate with other agencies on their programs
Element No. 5

- A mechanism for incorporating learning into future decisions
  -- Need a “decision process”
  -- Political commitment is required
  -- Need a “streamlined” process for considering the environmental consequences of the decisions

- Agencies already utilize results in continuing decision-making; perhaps recognition and formalization is needed
Element No. 6

- A collaborative structure for stakeholder participation and learning
  -- Stakeholder involvement is included in the practices of many agencies
  -- Must disseminate AM program findings and decisions
  -- Flexibility by all parties is desirable
- Agencies already share information; perhaps should be more proactive for AM
Other “Elements”

- Assemblage and continuation of a focused “information database” (environmental and institutional)
- Collaborative long-term agreements; and program decision-making and management board
- Adequate budgetary and personnel resources (blend with existing efforts)
- Peer group of advisors (SMEs)
Case Studies

- SOTEAG example, Shetland Islands
- Several are related to large-scale water resources management – Columbia River Basin, Glen Canyon Dam, Ohio River navigation system, upper Mississippi River system, Everglades restoration program, and Missouri River ecosystem
USDOI Guidance (2007)

- Set-up phase and iterative phase
- Five steps in set-up phase and three steps in iterative phase
- Criteria for judging the success of AM
- Appendix on case studies
- Other agencies beginning to adapt USDOI guidance to their needs
AM in EIA Documents

- AM for proposed action only or all alternatives
- No specified protocol – from brief promise to detailed information
- Separate chapter and commitments in ROD (or other approval document)
- Integrate AM through out the document (NPS-RMNP-elk and vegetation management, 2006)
Needs

- Recognize that natural resources agencies are ahead of other agencies in AM application.
- Comparative case studies on how to incorporate AM in NEPA documents.
- AM without EMS, and vice versa; recognize benefits via comparative case studies of blended approaches.
- Careful development of regional model for AM planning, implementation, and decision making
- Recognize inclusion of AM without nomenclature; also recognize ranges of practices and documentation
- Need careful documentation of benefits and costs of AM in comparative case studies
- Review agencies prepared to move from “calls” to “volunteering aid”