Facilitation

Best Practices in Dam and Levee Safety Risk Analysis
Part A – Risk Analysis Basics
Chapter A-11
Last modified June 2017, presented July 2019
Objectives and Key Concepts: Facilitation (A-11)

Objectives
• Role of facilitators
• Necessary skill set
• Training/experience requirements
• Responsibilities

Key Concepts
• Facilitation concepts/ideas
• Various types of facilitation
• Understanding of agency guidelines
• Ability to lead diverse teams
Facilitation

• Process by which an individual(s) lead a group in solving problems and reaching consensus in order to meet the necessary objectives for the evaluation being undertaken

• Objective facilitation is a key element of dam and levee safety risk analysis

• Important for all phases of investigation from screening level evaluations to detailed risk analysis and scenario evaluation procedures
Role of Facilitators

• Serve as leader of group that has been assembled for a specific task.
  • a comprehensive and multi-discipline team
  • varying levels of risk estimates

• Ensure that needed information/analyses are available, checked and peer reviewed prior to the risk analysis meeting.

• Lead team in development of PFMs. Directs team in risk estimate procedures.

• Allow and encourage discussion and documentation of alternative viewpoints.

• Review and certify report.
Skills for Successful Facilitation

• Objectivity
• Open minded
• Leadership
  ✓ diverse teams with varying opinions
  ✓ discuss wide range of issues but stay focused
• Diplomatic
  ✓ re-direct team and individuals towards necessary objectives
  ✓ buffer dominant members, encourage quieter members
• Technical Expertise
  ✓ understand varying engineering principles & disciplines
  ✓ keep big picture perspective and contextualize the evaluation
Knowledge and Skills Required

• Know agency guidelines and procedures
• Screen long list of PFMs down to those considered risk-drivers for the evaluation
• Develop PFMs from initiation through failure in a step-by-step progression (event trees)
• Understand loading scenarios (seismic, hydrologic, etc.)
• Understand consequence estimation and procedures (life loss, economics)
• Understand risk analysis calculation tools such as @Risk, Precision Tree, and DAMRAE
• Understand uncertainty and confidence for the purposes of the analyses
• Understand how to weight results for a given load range or how to determine if additional load ranges are needed
Facilitator Training/Experience

• No single training course, university degree program, or series of classes that can be completed to fully develop a qualified facilitator

• Learn-by-doing (dam/levee safety and risk analysis)

• 20+ years of dam/levee engineering experience coupled with about 10+ years of attending, estimating, facilitating, and writing risk assessments reports.

• Minimum requirements:
  • Licensed engineer and/or geologist
  • Diverse experience in dam and levee safety engineering
  • Active participation as technical expert on two RA
  • Write main aspects of report for two RA (can be concurrent)
  • Facilitate two risk assessments while monitored and assisted by an experienced facilitator
Opportunities for Development

• Federal agencies (USBR, USACE, FERC, TVA) Best Practices Manual and Training Course
• Understand dam and levee safety tolerable risk guidelines
• Develop a better understanding of various dam and levee failure modes across multiple disciplines
• Active participation as technical expert on risk analysis team including PFMA, risk estimating, and report writing
• Co-facilitate with multiple experienced facilitators to learn different methods and procedures
Facilitator Responsibilities

- Coordinate efforts between dam owner/operator and risk team
- Facilitate the PFMA and team risk analysis
- Ensure agency’s methodologies are followed to develop risk estimates
- Review for methods consistent with best practices in field
- Ensure the RA team is diverse and experienced enough for the project and type of evaluation
- Review report for clear documentation of all underlying assumptions and ‘building the case’ for the risk estimate
- Participate in higher level review and necessary modifications
- Present (or participates) in presentation of results to management
Types of Facilitation in Dam/Levee Safety

• Potential Failure Modes Analysis (PFMA) and PFM Classification
  ✓ Applicable to all agencies

• Screening Level Risk Estimates
  ✓ Periodic Assessment (USACE)
  ✓ Semi-Quantitative Risk Assessment (USACE)

• Detailed Risk Estimating (QRA)
  ✓ Comprehensive Facility Review (Reclamation)
  ✓ Issue Evaluation Studies & Dam Safety Modification Studies (USACE and Reclamation)
Summary

• Facilitation plays a key role in U.S. Federal Dam Safety Programs
• Requires a combination of technical expertise and people skills
• See the risk assessment from start-to-finish with the PFMA, PFM screening, consequence estimate, risk calculations, report, review, and presentation
• Serve as the ‘team captain’ coordinate between the dam owner/operator, reviewers, management, and the risk team
Questions, Comments, or Discussion

Thank you for your attention.