

USACE Asset Management Risk and Reliability Workshop
15-18 August, 2006
Executive Summary
8/31/06

Background

A workshop was held August 15-18 in Alexandria, Virginia to begin the dialog on the methodologies available and the status of how the US Army Corps of Engineers assesses its Civil Works infrastructure and applies risk and reliability in the management of that infrastructure. The workshop was organized by the US Army Engineer Research and Development Center (ERDC) in collaboration with Headquarters, USACE and in support of the initiatives on asset management. Over 75 people attended representing 6 of 8 Corps divisions, many districts, HQ, ERDC, Institute for Water Resources and academia. The group included a diverse representation of planners, economists, engineers, operators, researchers and managers.

The reliability of many USACE structures has been reduced and the risk of failure has been increased due to age and insufficient funds for proper maintenance and rehabilitation. A sustainable infrastructure plan based on intelligent asset management, is the fundamental principal of both the USACE Campaign Goal 3C and the Presidents' initiative through Executive Order 13327, Federal Real Property Asset Management. Implementation of a robust plan is the best way to prioritize needed infrastructure improvements with limited funds. A critical component in establishment of an asset portfolio and an adaptive management strategy is the knowledge of an assets' condition, its' functional reliability, and the risks and consequences of poor performance or failure.

A plan for Intelligent Asset Management does not exist for the entire portfolio of Corps assets at this time due to lack of assembled information, standardized assessment practices, and integrated policies for addressing information about structures' condition, functional reliability and the risks and consequences of failure.

Workshop Purpose: The workshop objectives were centered around the current condition assessment methodologies and risk and reliability (R&R) tools available for the complex mix of USACE assets focusing on a subset of the Corps business lines, Navigation, Flood and Storm Damage Protection, and Hydropower. It was recognized that the entire portfolio of assets were not represented and would be the topic of future discussions. Status of existing R&R tools and recommended needs for future development were presented and documented. Potential policy issues were identified.

Objectives of the workshop were:

- Standardize terminology and understanding related to condition assessment and risk and reliability.
- Discuss current and future challenges related to portfolio assessment and risk management;
- Provide a forum for sharing lessons learned, partnering, and collaboration;

- Evaluate applicability of existing tools and data requirements for different business lines; and
- Identify technical gaps and corresponding R&D requirements across business lines.

One objective of the workshop was to share best practices across business lines, identify commonalities, and look for opportunities for future sharing of these techniques. A full day and a half was devoted to informing participants of current practices through presentations and raising issues important to each business line in a plenary format to establish a common base of understanding and finding common ground for the work ahead.

Break out sessions focused on prioritizing the issues surfaced during the plenary sessions within each business line and “data mining” the tools, data gaps, research needs, and opportunities for collaboration that exist both for Condition Assessment and Risk and Reliability incorporating condition assessment. The workshop attendees were separated into four groups according to business line areas: deep draft navigation, inland navigation, hydropower, and flood and coastal storm damage reduction. Detailed results of the workshop and break out sessions can be found at <http://chl.erdc.usace.army.mil/chl.aspx?p=s&a=ARTICLES;689>

On the final day there was one final breakout session where each group was asked to provide one goal and one action item. These were presented back to the entire group and included in a plenary summary where information from previous sessions was synthesized and consolidated to develop high priority issues and to begin formulating a strategy for moving forward. Assignments were made in each group and an upcoming meeting was identified to share their action item with their community of practice. Each group will report to their business line leaders at HQ and back to the Workshop coordinators by October 31, 2006.

Workshop Takeouts

The following represents the some of the recommendations or takeouts from the workshop captured during the discussions:

Program Integration

- What is question(s) we are trying to answer? From Operators? Users? Managers? Decision Makers? OMB? Congress?
- Needs strategic vision
- Develop integrated framework for Asset Management with direction from Senior leadership
- Create portfolios for each class of asset (to include important non-Corps owned assets)
- Prioritize funds for completing each portfolio assessment
- Integrate programs and tools

- May NOT have one common Condition assessment across business lines or class of assets
- Tie smart tools into budget development
- Centralize AM activities
- Process mapping critical in assessments
- Must have standardized inspection and assessment processes and centrally trained cadres

IT systems integration

- IT systems rules/guidelines should be centralized
- IT/IM requirements complex and costly
- Integrate IT systems
- FEM integrates across business lines but for facilities and equipment only
- Centralized data: One-time data entry must be a rule

Communications

- Need AM Gateway
- Must have common terminology- develop dictionary of terms
- Centers of Expertise must integrate across business lines, not be ‘stove-piped’; this should include all the ‘centers’ within the corps
- Make best use of centers of expertise
- Introduce AM to CoPs
- Communication systems can solve many integration problems
- Next workshops need to include stakeholders and more operators

Workshop Conclusions

The presentations and the discussions pointed out that 1) condition assessment and risk and reliability analysis can vary from the simple to the complex and is not a “one-size-fits-all” process; 2) different business lines and certain classes of assets have more complete assessment methodologies in place than others, but in general the Corps does not have a national picture of the condition of its assets; 3) the Corps must complete assessments across its portfolio of major assets before risk management can be used in decision making.

Effective risk management will require as first steps an inventory of each class of assets, some form of standardized condition assessment, and a method to evaluate the reliability of these assets and consequences of unsatisfactory performance. But to effectively balance tradeoffs and integrate mission objectives through a risk management approach will require some common objectives or metrics and an integrated framework. During the workshop, a recurring discussion came back to the connection between Corps’ mission and value to the nation, and the need to establish minimal expectations and acceptable thresholds of risk. From the workshop, expectations regardless of business line or mission fell in to the following categories of national value:

- Economic

- Environment
- Life safety
- Security
- Societal

Establishing common metrics for these categories and establishment of minimal expectations for categories of assets and acceptable thresholds of risk will help to maximize outputs. A common set of expectations would help decision makers manage risk within and across business lines.

A Corps' Asset Management Center of Expertise/Program must coordinate and integrate all stovepipes and business line activities with focus on assets and:

- their condition,
- the acceptable reliability (tolerable risk),
- the value of the assets,
- their role in supporting the mission performance,
- clear metrics to support performance based budget process

It will be important that this program has buy-in from the Administration and Congress and that the program provides a credible method to request funds and assure the assets provide value to the nation and stakeholders.

As stewards to the nations' largest portfolio of water resources infrastructure, the Corps' needs consistent and robust methods for assessing the condition of these assets and a risk management strategy that minimizes risk and optimizes reliability within budget constraints. The Risk and Reliability Workshop provided an important opportunity to take a holistic look at the status of our ability to quantify the condition of the water resources infrastructure. Next steps for success will be establishment of a more permanent asset management program, development of an integrated framework for risk management, and establishing a consistent and robust strategy for condition assessment across the entire portfolio of Corps assets.

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