

**ICOLD2026 Guadalajara, Mexico, International Symposium**  
**Theme | Water, Energy, and Society: The Evolving Role of Dams in a Changing World**  
**ABSTRACT TEMPLATE**

**PAPER TITLE**

Risk Analysis of Dam Overtopping – Comparison Between Semi-Quantitative and Quantitative Approaches

**Relevant Topic:**

- *Water Planning, Water Management, and Climate Resilience*
- ***Dam Safety Policy and Governance***
- *Dam Construction and Rehabilitation: Innovation and Lifecycle Extension*
- *Dam Performance Monitoring*
- *Flood Resiliency in Developed and Developing Countries*
- *Sedimentation Management and Reservoir Longevity*
- *Fish Passage, Biodiversity & Environmental Integration*
- *Community Engagement in Dam Development*
- *Tailings Dam Safety*
- *Dam Decommissioning & Removal*

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**ABSTRACT**  
**PUBLISHED PAPER**

or  
**PRESENTATION ONLY**

Both options are highlighted, as we intend to publish the paper and give an oral presentation at the conference.

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**ENGLISH VERSION OF ABSTRACT:**

In the 55 large dams managed by the Guadalquivir River Basin Authority (Confederación Hidrográfica del Guadalquivir), an integrated safety management system based on risk analysis is being implemented. This methodology is structured into two phases: a semi-quantitative phase, focused on the identification and qualitative assessment of failure modes risk through group sessions, and a quantitative phase, which uses specialized software tools to model and numerically quantify the probabilities and consequences associated with those failure modes.

This report compares the probabilities and consequences obtained in both phases for several dams. It studies the alignment and discrepancies between qualitative assessments and quantitative calculations, with the aim of evaluating the robustness of the semi-quantitative phase as a preliminary decision-making tool in dam safety management. Additionally, it seeks to identify the key factors that lead to the most significant discrepancies, in order to optimize the overall process.

**SPANISH TRANSLATION OF ABSTRACT:**

En las 55 grandes presas de la Confederación Hidrográfica del Guadalquivir se está implantando un sistema de gestión integral de la seguridad basado en el análisis de riesgos. Esta metodología se estructura en dos fases complementarias: una semicuantitativa, centrada en la identificación y valoración cualitativa del riesgo de modos de fallo mediante sesiones grupales, y otra cuantitativa, que emplea herramientas de software para modelizar y cuantificar numéricamente las probabilidades y consecuencias asociadas a dichos modos de fallo.

En el presente artículo se comparan las probabilidades y consecuencias obtenidas en ambas fases para varias presas. Se examinan las coincidencias y desviaciones entre las valoraciones cualitativas y los cálculos cuantitativos, con el objetivo de evaluar la robustez de la fase semicuantitativa como herramienta preliminar para la toma de decisiones en la gestión de la seguridad de presas e identificar los factores que generan mayores discrepancias para optimizar el proceso.