

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

PAPER TITLE (Capitalize the first letter of all major words)

Challenges Of Implementing Dam Safety Policy And Governance For Large Transboundary Dams:
The Tale Of Lake Kariba

Relevant Topic: (Highlight Selected Topic in Bold font)

- *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: Abstract shall be no more than 300 words and cannot include figures, tables, drawings, references, or equations. Abstracts should provide a brief overview of the paper, highlighting relevance to the selected topic, key findings/conclusions, and significance to the industry. Provide Spanish translation of abstract in the provided space to aid in review and selection.

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ENGLISH VERSION OF ABSTRACT:

Whilst largely beneficial, the existence of large transboundary dams poses a huge risk to downstream human settlements, infrastructure, livelihoods, and the environment, in the event of dam failure. In the case of Lake Kariba, a dam failure would result in an estimated 500,000 fatalities, impacting nearly 3,000,000 people, and resulting in an economic loss exceeding US\$ 20,000,000,000. The damage would extend beyond the borders of Zambia and Zimbabwe, to Malawi and Mozambique. Unfortunately, the treaties that establish the framework for management of transboundary water resources mainly focus on cooperation protocols, corporate governance and financial matters and rarely provide for dam safety issues. The governance framework for Lake Kariba, a bilateral treaty signed in 1987, is no different. Because it is a creature of a bilateral treaty, domestic laws have no application to the management of Lake Kariba, and as a direct consequence, the Zambezi River Authority, the dam manager for Lake Kariba, is therefore a self-regulating entity with full autonomy. It can be argued that a more ideal state of affairs requires the existence of a legislated governance framework with detailed safety standards, compliance obligations and penal provisions enforced by a competent independent body. What then is the ideal approach when dealing with a transboundary water resource? Given that domestic law is not applicable, is significantly varied in terms of the environmental, safety and pollution standards making compliance virtually impracticable, is the solution to harmonize the two laws and create uniform standards applicable to the management of Lake Kariba? If so, in terms of enforcement, will this be done independently by the domestic water management authorities or jointly? If enforcement is jointly done, what mechanism is required to create an effective enforcement framework? An alternative and simpler solution would be establishment of a supranational regulatory body, under the current treaty and provision of detailed safety policy and standards.

SPANISH TRANSLATION OF ABSTRACT:

Aunque en gran medida beneficiosas, la existencia de grandes represas transfronterizas plantea un enorme riesgo para los asentamientos humanos, la infraestructura, los medios de vida y el medio ambiente aguas abajo, en caso de fallo de la represa. En el caso del Lago Kariba, una falla de la presa resultaría en aproximadamente 500,000 muertes, afectando a casi 3,000,000 de personas y causando una pérdida económica que superaría los 20,000,000,000 de dólares estadounidenses. El daño se extendería más allá de las fronteras de Zambia y Zimbabwe, hasta Malaui y Mozambique. Desafortunadamente, los tratados que establecen el marco para la gestión de los recursos hídricos transfronterizos se centran principalmente en los protocolos de cooperación, la gobernanza corporativa y los asuntos financieros, y rara vez abordan cuestiones de seguridad de las represas. El marco de gobernanza para el Lago Kariba, un tratado bilateral firmado en 1987, no es diferente. Debido a que es una creación de un tratado bilateral, las leyes nacionales no se aplican a la gestión del Lago Kariba, y como consecuencia directa, la Autoridad del Río Zambezi, el gestor de la presa del Lago Kariba, es por lo tanto una entidad autorregulada con plena autonomía. Se puede argumentar que un estado de cosas más ideal requiere la existencia de un marco de gobernanza legislado con estándares de seguridad detallados, obligaciones de cumplimiento y disposiciones penales aplicadas por un organismo independiente competente. ¿Cuál es entonces el enfoque ideal al tratar con un recurso hídrico transfronterizo? Dado que la ley nacional no es aplicable, varía significativamente en términos de estándares ambientales, de seguridad y de contaminación, lo que hace que el cumplimiento sea prácticamente impracticable, ¿es la solución armonizar las dos leyes y crear estándares uniformes aplicables a la gestión del Lago Kariba? Si es así, en términos de aplicación, ¿se llevará a cabo de manera independiente por las autoridades nacionales de gestión del agua o de manera conjunta? Si la aplicación se realiza de manera conjunta, ¿qué mecanismo se requiere para crear un marco de aplicación efectivo? Una solución alternativa y más sencilla sería el establecimiento de un organismo regulador supranacional, bajo el tratado actual y la provisión de políticas y estándares de seguridad detallados.