

IRSA - CONGRESSO MUNDIAL DE SOCIOLOGIA RURAL (01/10/2025 A  
20/01/2026) - IRSA 25 - HYDROSOCIAL TERRITORIES AND WATER  
(IN)JUSTICE IN RURAL WORLDS

**THE EPISTEMOLOGICAL CHASM IN TRANSBOUNDARY WATER  
GOVERNANCE: THE CASE OF TIME-LAG IN ZAMBEZI FLOOD DATA**

*Kiran Odhav (kiran.odhav@gmail.com)*

*Ritik Patel (kiran.odha@gmail.com)*

The integration of data-driven tools and remote sensing analytics into environmental policy, assumes 'real-time' data can produce actionable governance. This assumption is examined through transboundary flood management in the Zambezi River Basin (ZRB), impacting 8 countries, 2, 500 km and 40 million livelihoods. The focus is on hydrological relationship between ZRB's headwaters (Angola) and its primary downstream Mozambique as an impact zone. We hypothesize Angola's rainfall as a fundamental, time-delayed, contributor to Mozambique's delta flooding. With interventions this can be avoided. Same day correlation analysis of both countries sees a 'zero' relationship (Pearson's correlation of 0.19), making the Angolan floodwaters irrelevant to the Mozambique flood proxy. A time lagged cross correlational analysis seeks to map known multi-week hydrological transport across the vast ZRB (maximum correlation: 0,126, on a 27 day lag). Significance is added with

exclusions of critical, often politicized, intervening variables: Zambian rainfall, localized cyclonic events and operational politics of major reservoirs (Kariba and Cahora Bassa dams). Transboundary ZRB power relations and responsibility means have biased location specific readings (not counting upstream contributions), lead to undermine sustainability transitions. Environmental data thus needs re-ontologizing. Community ecosystems need greater sustainability in and across national borders. Progressive efforts need to re-ontologize environmental data, as temporally continuous and with policy-aware metrics that integrate all political and physical complexities of shared water systems, and to include buried rivers, dams, and to use geo-data and sociological scenario analyses of communities there.

Palavras-chave: water; sadc; rainfall; environmental policy; sustainability.