Socio-hydrological approach to understand conflict and cooperation dynamics in transboundary rivers

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Transboundary river basins share a complex network of environmental, economic, political, social and security interdependencies. Consequently, transboundary river systems are characterized by evolving conflict and cooperation dynamics between riparian states. The current literature on transboundary watersheds does not identify the key feedback loops between interconnected political, cultural, institutional and socioeconomic factors. This work compares sociohydrological models of three transboundary rivers (Nile River, Columbia River, and Lancang-Mekong River) with distinct characteristics in terms of hydrological processes and socioeconomic conditions. Conflict/cooperation dynamics within these three models were found to be driven by hydrological regime, economic benefits, power imbalance and institutional capacity. By comparing the contextual factors of the emergent conflict/cooperation dynamics across these three river basins, our synthesis study aims to present a general framework that explains how conflict/cooperation dynamics emerge from the interaction between human and hydrological systems.