

History has arrived: Negotiating Transboundary Risks on the Nile River

The hydro-politics of Nile River has reached a boiling point, and the future management of the ancient waterway is deeply uncertain. At the center of the current debate is the Grand Ethiopian Renaissance Dam (GERD), which is currently being constructed 20 km upstream of the Ethiopian-Sudanese border on the Blue Nile. The GERD offers the promise of substantial benefits and opportunities for the countries of the Eastern Nile Basin, but also poses non-trivial risks and evokes fears that are deeply imbedded in historical tensions and cultural identities. The dam is scheduled to be completed within the coming year, and if risks to the downstream countries of Sudan and Egypt are to be minimized as international law would suggest, the concepts of cooperation must soon translate into the technical coordination of hydraulic infrastructure. This talk will first discuss the background of this complex issue, and will then describe research to develop and apply a modelling tool to identify politically feasible and incrementally cooperative solutions to fill and manage the expansive reservoir. This ongoing research then presents an analytical framework to incorporate flexible stochastic hydrologic scenarios and a multi-objective evolutionary algorithm to search for long-term agreements that considers the implications of upstream development and potential effects of climate changes. The focus of this work is to provide sound scientific knowledge to the inherently political process of transboundary negotiations.