

*Hydrology Seminar***Transboundary waters in a changing climate****Dr Marc Müller**Coupled Human-Water Systems, Group Leader  
EAWAG*Date: Tuesday 30 April 2024**Time: 17:00-18:00**Room: ETH Hönggerberg, HIF E 11***Abstract**

Climate change will alter the availability and demand for water in shared basins, potentially affecting existing transboundary water agreements that are based on historical flow records and usage. This talk explores these changes in the context of the current treaty that allocates dry season flows of the River Ganges between upstream India and downstream Bangladesh. Over the last few decades, the need for fresh water has significantly evolved in this area, partly to control increasing salinity in the Ganges Delta due to rising sea levels. First, we investigate how well the current treaty meets this emerging need. We use a natural experiment approach to estimate the treaty's causal effect on river salinity by inferring flow and salinity conditions in a fictitious counterfactual scenario without the treaty. Second, with the current treaty set to expire in 2027, we develop a policy search algorithm to identify robust, Pareto-optimal treaty options amidst uncertainties on both the effect of future climate conditions and on the water use objective of both countries.

**Short Bio**

Marc is head of the group Coupled Human-Water Systems in the Department of Systems Analysis, Integrated Assessment and Modelling at EAWAG from 2023. He has a MSc degree in civil engineering from EPFL, PhD from UC Berkley, and was Postdoc at Stanford University with Steven Gorelick. His four research domains are: modelling of coupled human-water systems, socio-environmental data science, food and water security and using gaming in water resources education.

<https://www.eawag.ch/en/about-us/portrait/organisation/staff/profile/marc-mueller/show/>

**For more info**

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