



## **An assessment of potential hydro-political tensions in transboundary river basins using environmental, political, and economic indicators**

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Globally 286 river basins extend across international borders, covering over 61.9 million km<sup>2</sup> of the earth's surface and hosting a total of approximately 2.7 billion people. In these basins, transboundary water resources support an interdependent web of environmental, political, and economic systems that can enhance or destabilize a region. We present an integrated global-scale assessment of transboundary watersheds to identify regions more likely to experience hydro-political tensions over the next decade and beyond based upon environmental, political, and economic indicators. We combine NASA's Gravity Recovery and Climate Experiment (GRACE) measurements of changes in terrestrial water storage with metrics of projected climate change impacts on water variability, the institutional capacity of countries to manage shared water resources, the development of new water infrastructure, per capita gross national income, domestic and international armed conflicts, and recent history of disputes over transboundary waters. The construction of new water-related infrastructure is on-going or planned in many basins worldwide. New water infrastructure is foreseen also in areas where instruments of international cooperation are still absent or limited in scope, e.g. in Southeast Asia, South Asia, Central America, the northern part of the South American continent, and the southern Balkans as well as in different parts of Africa. Moreover, in Central and Eastern Africa, the Middle East, and Central, South and South-East Asia there is a concomitance of several political, environmental and socioeconomic factors that could exacerbate hydro-political tensions. Our analysis integrates political, economic and environmental metrics and is part of the United Nation's Transboundary Waters Assessment Programme to provide the first global-scale assessment of its type.