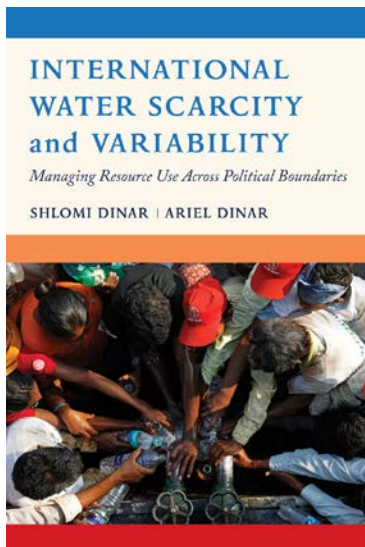


## Scarcity is the Mother of Invention: Water Policy Implications in an International Setting

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*Water management challenges created by scarcity and environmental change may lead to conflict or cooperation. While the popular press suggests that water shortages lead toward armed conflict and war, findings published in the recently published book International Water Scarcity and Variability: Managing Resource Use Across Political Boundaries (2017) by S. Dinar and A. Dinar demonstrate that there are many mechanisms to allow peaceful conflict resolution and joint use of shared water resources in the face of water paucity and climate change. Using global empirical analyses and case studies from North America, Europe, Central Asia, and the Middle East, the authors argue that strategies and incentives exist to help lessen conflict and motivate cooperation over shared scarce water resources.*

A world facing population growth and climate change can also expect an increase in water scarcity, measured by reduced quantity per capita and increased supply variability. Indeed, available water per capita in some countries has been reduced by 50-75% during the period 1950-2015 due to just population increase. In some other countries, the variability of inter-annual water supply increased by up to 30%. Given these environmental changes, it is no surprise that world leaders as well as some in the press contend that “the next war will be over water”. However, as reflected in the findings of Dinar and Dinar (2017) there is growing evidence that while climate change-induced scarcity and water variability may lead to forms of conflict and insecurity, states have tended to cooperate over their shared water resources. They develop a theory of conflict and cooperation under conditions of scarcity and variability, analyzing the effectiveness of cooperative agreements, and providing evidence from various international river basins around the world on how riparian countries have successfully been able to address water scarcity and variability.



### Key Findings:

- The claim that climate change (in the form high water variability) could destabilize international river basins or existing water governance regimes is supported.
- Robust treaties facilitate basin cooperation. However, specific treaty mechanisms that facilitate enforcement, adaptability to variability, and coordination of domestic policies, combined with specific water allocation regimes and incentives such as side-payments and benefit-sharing opportunities have a significant effect on the level of and effectiveness of cooperation.
- States facing scarcity and variability have come up with innovative coping strategies. Case studies point to such approaches as demand-side and supply side solutions as well as inter-basin transfers.

### Implications for Policy

Despite common claims that there exists a positive relationship between environmental change and conflict, findings suggest that water scarcity and variability contribute to inter-state cooperation in the form of water treaties. That being said, very high levels of scarcity and variability can complicate cooperative efforts of riparian governments and third parties as they attempt to negotiate treaties. Designing treaties with particular water allocation and institutional mechanisms is imperative to treaty effectiveness. Policy makers and treaty negotiators should heed not only the general and cross-national results identified in the book but also specific examples as they relate to how states (individually or jointly) deal with scarcity and variability.