

# International Water Resource Management in Central Asia:

An Evaluation of Past Performance and Projections for an  
Uncertain Future

Sarah J. Hummel

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Water basin politics in Central Asia

Patterns of cooperation and noncooperation

The impact of water scarcity

Conclusion

## The upstream-downstream divide

- ▶ Politics in international water basins are influenced by two factors:
  - ▶ Different levels of dependency
    - ▶ The downstream territory is usually more conducive to agriculture, which comes earlier in development than upstream-specific uses like hydropower
  - ▶ Different positional power
    - ▶ Water use by upstream states is limited only by the natural flow of the river, while downstream states are also constrained by the actions of those upstream
- ▶ There is an inherent tension between the dependency of downstream states and the positional power of upstream ones

## Cotton dependency and the Soviet water management regime

- ▶ These problems were alleviated during Soviet times because water management occurred at a basin-wide level
- ▶ Water dependency of the downstream regions was increased through collectivization and the development of the cotton monoculture
  - ▶ Cotton production increased from 662,600 tons in 1913 to 9,078,000 tons in 1980
- ▶ An irrigation-focused water management regime was designed to cope with the increased demand
  - ▶ Construction reservoirs in upstream areas (Toktogul, Nurek)
  - ▶ Release of water in summer for irrigation
  - ▶ Provision of fuel energy to the upstream regions in the winter

## Post-Soviet developments

- ▶ After the Soviet Union's collapse there was no longer a central government to guarantee adherence to contracts
  - ▶ Water management became a question of *international cooperation* rather than internal regulation
- ▶ Conflicts emerged over the optimal water management regimes
  - ▶ Upstream states want to release water for the production of hydroelectricity in winter when demand for energy is highest
  - ▶ Downstream states want to release water for irrigation in summer when it is needed for agriculture
- ▶ Success of cooperation varies over time and among pairs of countries

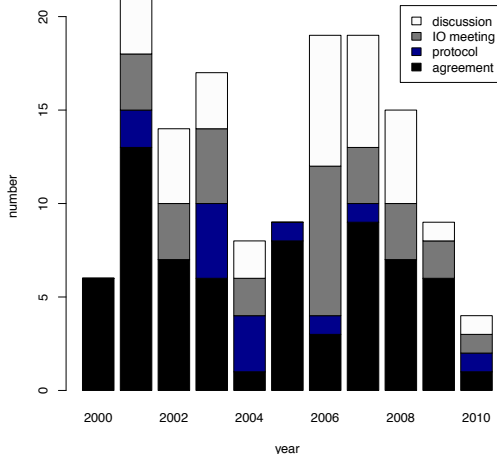
## Description of dataset

- ▶ Dataset contains 229 events occurring between 1 January 2000 and 31 December 2010
  - ▶ 161 cooperative events
  - ▶ 68 noncooperative events
- ▶ Dataset provides information on different aspects of the events
  - ▶ Cooperative: type of event, level of government, participants, other issues addressed, terms (for agreements)
  - ▶ Noncooperative: type of event, aggressor/ non-aggressor(s), severity, resolution

## Cooperative and noncooperative events

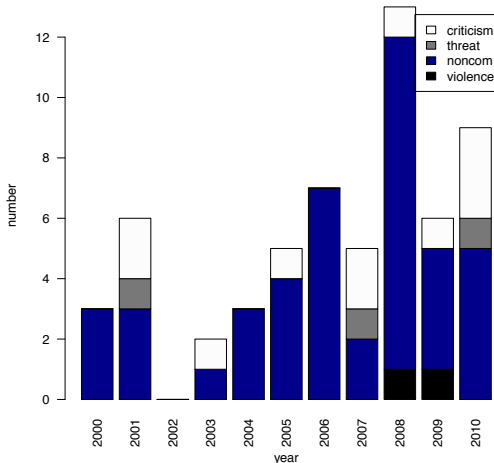
- ▶ Four types of cooperative events:
  - ▶ Formal agreements
  - ▶ Joint statements/protocols
  - ▶ Meetings of International Organizations
  - ▶ Official discussions outside the purview of IOs
- ▶ Four types of noncooperative events:
  - ▶ Violence
  - ▶ Nonfulfillment of contract
  - ▶ Threat of nonfulfillment
  - ▶ Official criticism

## Cooperation over time

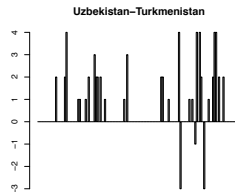
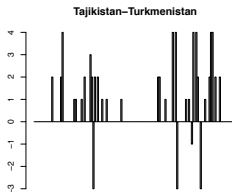
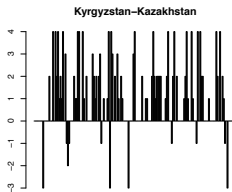




## Noncooperation over time



# Cooperation and noncooperation among major dyads



## Scarcity and cooperation

- ▶ There are two competing theories of the relationship between water scarcity and cooperation:
  - ▶ Higher water scarcity → less cooperation (more conflict)
  - ▶ Higher water scarcity → more cooperation (less conflict)

## Some preliminary statistics

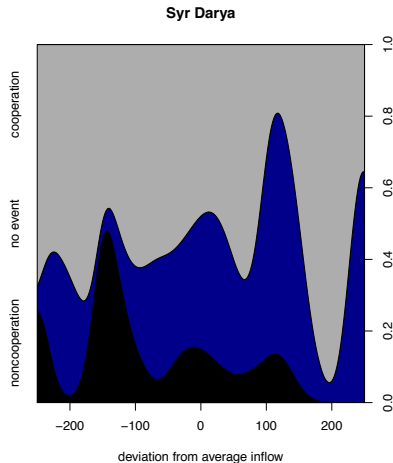
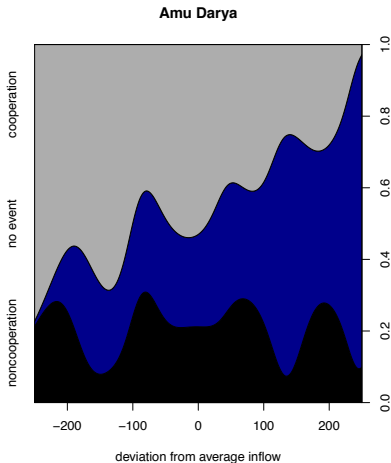
Amu Darya (N=178)

	Noncoop. → Coop.
Inflow (deviation from 20 year monthly average)	-0.0017 (0.0011)

Syr Darya (N=181)

	Noncoop. → Coop.
Inflow (deviation from 20 year monthly average)	0.0004 (0.0011)

## Predicted probabilities of different events



## Conclusion

- ▶ No lasting regime of water and energy management has been achieved in the post-Soviet period
- ▶ Variation in cooperation and noncooperation exists both over time and among dyads
- ▶ The effect of relative scarcity on cooperation is ambiguous, although the data for the Amu Darya basin suggest that cooperation may be more likely when scarcity is high