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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Water resources management and dynamic changes in water politics in the transboundary river basins of Central Asia" *by* Xuanxuan Wang et al.

Anonymous Referee #1

Received and published: 11 February 2021

General comments: This paper focuses on the development of water policies in the Central Asian (CA) transboundary rivers. Using the Gini Coefficient, the matching coefficient, the water conflict events, and the structure of water management institutions as indicators, this study reveals the complex management dynamics among the transboundary river basins in CA. The paper is generally well-written and structured, covering a broad range of data sources from both qualitative and quantitative perspectives. However, there are some issues that need to be addressed before acceptance.

Specific comments: Firstly, what are the major implications this article can deliver in reporting different perspectives of water policies development in the CA? The connec-

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tions between the Gini coefficient, the matching coefficient, the number of water political events, and conflict/cooperative networks among the CA countries are not clear to me. One potential implication I can think of is that as the Gini coefficients and the matching coefficients indicate mismatches between water resources and socio-economic development, there is need to establish more cooperative network (rather than conflictive ones) among countries. A more elaborative discussion on how findings from the current situations in this paper should contribute to future management of transboundary rivers in the CA is needed.

Secondly, there is need for more justification about why these indicators are chosen in the method section. Why is the Gini Coefficient, combined with the matching coefficient good indicators for mismatches between water resources and socio-economic development? And how are changes of these coefficients impact on the water events? Are different countries showing different levels of impacts?

Thirdly, the flow among the three result sections should be strengthen. For example, what is the purpose of Section 3.1.1? I understand the authors want to provide a broad picture for the amount of water resources available in the CA river basins, but how this is connected to the remaining Sections 3.2 – 3.3 is not clear.

Technical corrections:

Line 110 onwards: There are brief introductions about the TFDD database but what about the World Water Conflict Chronology and the Interstate Commission for Water Coordination of Central Asia? Any issue when merging of data of different temporal periods?

Line 135 onwards: Clarifications about "what network" is needed: is the network only limited to among the five CA countries or other countries (as mentioned in Line 280) also included?

Line 347: Please clarify this sentence. Is water resources distribution unified in the

CA?

Line 626 (Figure 6): A timescale indicating which years these institutional changes occurred would be better.

Line 630 (Figure 7): It is clear that a single linear function is not suitable to represent the trend of the water events (Rˆ2 only 0.02). I would recommend using step-wise regression function.

Line 641 onwards (Figure 9): it would be clearer for the readers if the same map scale is used across all four figures.

The whole paper needs to be grammatically checked again.

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