

Author Response to Reviews of

Identifying regime transitions for water governance at a basin scale

Shuang Song, Shuai Wang

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RC: Reviewer Comment, AR Author Response, □ Manuscript text

1. Associate Editor

1.1. General comments

RC: *Dear Authors, thanks for the submission of the manuscript. We have asked two experts in the relevant fields to review the manuscript. Both reviewers overall find the merit in the manuscript however they also noted several major issues in the current manuscript. With my own reading, I fully agree with the reviewers and would like to highlight a few major issues:*

AR: Thank you for your constructive comments and for providing us with the opportunity to address the concerns raised by both reviewers. We appreciate the valuable feedback, which has helped us identify areas for improvement in our manuscript. We have carefully considered each point and have made substantial revisions to address these issues. Please find our detailed responses to the highlighted concerns below.

1.2. Issue #1

RC: *overall the results and discussion are relatively shallow and I would encourage the authors to do deep dive into the results, e.g. change points, as also pointed out by both reviewers,*

AR: We acknowledge the need for a more in-depth analysis of our results. We have re-evaluated our data and expanded the results and discussion sections to include a deeper dive into the findings, specifically regarding the change points mentioned by both reviewers. We have also provided more context and explanation for these changes in the manuscript, which can be found on pages 1416 and 1821.

1.3. Issue #2

RC: *I fully agree with Reviewer #2 that more thorough review of existing and relevant indicators with IWGI,*

AR: We agree with Reviewer #2's suggestion to include a more thorough review of existing and relevant indicators with IWGI. We have added a new section in the manuscript discussing these indicators, comparing and contrasting their strengths and weaknesses, and explaining how our approach fills the gaps in the current literature. This new section can be found on pages 57.

1.4. Issue #3

RC: *I would encourage the authors to look into more recent data (beyond 2013) as pointed out by Reviewer 1. In addition, I find the data in supplementary materials is not accessible, which should be amended. The*

data access and reproduction of the methodology/results are very important for WRR and our scientific community, so we take the issue related with data accessibility very seriously.

Overall, based on the reviewers' recommendations, I would like to ask the authors to submit a suitably revised manuscript in due course.

AR: We appreciate the importance of using up-to-date data in our research. We have now included more recent data in our analysis, extending our dataset up to 2021. The updated data, along with the revised results and discussion, can be found on pages 11-13 and 18-21.

We apologize for the inconvenience caused by the inaccessibility of the supplementary materials. We have rectified this issue by ensuring that all supplementary data and files are now accessible and properly linked within the manuscript. We have also provided a clear description of the data and methodology in the supplementary materials to facilitate reproducibility of our results.

We hope that these revisions address the concerns raised by both reviewers and the associate editor. We are confident that these changes have significantly improved the quality of our manuscript and made it more relevant and valuable to the scientific community. We look forward to your further feedback and the possibility of our manuscript being accepted for publication.

2. Reviewer #1

2.1. Overall comments

RC: *This study proposed an integrated index that incorporates water resources, water use, and water allocation to represent the water governance regime in the Yellow River basin. The authors showed an in-depth understanding of the water governance in this basin and made a great effort to represent the status of water governance straightforwardly with the integrated index. The figures were generally well-designed and presented clearly. But I feel the paper lacks details of the results which makes it difficult to understand the paper. Specific comments are listed below.*

AR: Thank you for your valuable feedback and for acknowledging our efforts in understanding the water governance in the Yellow River basin. We appreciate your comments regarding the clarity of the figures and our integrated index. Sorry about the lack of details in the results section may have made it difficult to fully comprehend our study. In response to your concerns, we have revised our manuscript and provided a more detailed explanation of the results. Please find our point-by-point response to your specific comments below.

2.2. Major concern #3

RC: *Climate change is not explicitly represented in the index, which might play a key role in the streamflow recovery in the Yellow River in this century. Climate change would be a great challenge in the basin in the future. Significant climate change may affect the adaptive capacity of a basin and thus require different governance strategies.*

AR: Ok, I changed this:

2.3. Specific comments #4

RC: *The results are summative. I would suggest providing more information on the results of the three indices and the IWGI. For example, the results of the three indices, and the results for the sub-regions. And please explain the range of the three indicators, IS, IP, IA, and the IWGI, and the meanings of different values. These details could help readers understand the reasonability of the results.*