

Title: Transboundary water sharing policies conditioned on hydrologic variability to inform reservoir operations

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Reviewer: Michael J Tumbare

1. General Comments

The Article is well written, and is technically and scientifically sound.

2. Review Comments/Discussion Points

- a. The scenario relating to the reservoir operation rule curve regards spillage, in which case they could be adverse flooding both upstream and downstream of GERD, has not been dealt with to the same detail and effort as the drought scenario.
- b. It would be interesting to see and compare the results of the resultant water sharing policies if they are applied to, and compared with, other reservoir operation rule curves and water sharing policies for existing dams such as Kariba and Akosombo.
- c. The concepts of “benefit sharing” and “water sharing” are being intermixed in the Article and yet result in different end states. The concept of “benefit sharing” should also be followed to its logical conclusion in the Article, such as optimizing the reservoir operating rules incorporating derived benefits from “benefit sharing” policies and thereafter compare with “water sharing” policies.
- d. How do the drought-focused water sharing policy results compare with the natural minimum flow policy criteria for passage of water to downstream users (Equation 10)?
- e. Page 18, Lines 289 to 290. It is proffered that the passage of the natural minimum flow rule/policy should apply in the case that downstream releases should not be less than the natural minimum flows or inflows into the GERD.
- f. Demonstration of reservoir release benefits in drought years should also be shown and compared with those before the GERD impoundments. In any case, the comparison should not only be based on corresponding power generation alone (Page 19, Lines 302 to 303).
- g. Page 24, Lines 362 to 364. The logic here inclines towards the need for negotiations. If GERD was not there, were they going to be “release” negotiations during droughts or the natural minimum flows would have been expected out of Ethiopia for that drought period?
- h. The final optimal operational rule curve and policy for the GERD is not apparently given.

3. Technical Corrections

Remove third tense throughout the Article e.g. Page 1, Line 9 “we”.