

Interactive comment on “Infrastructure sufficiency in meeting water demand under climate-induced socio-hydrological transition in the urbanizing Capibaribe River Basin – Brazil” by A. Ribeiro Neto et al.

Anonymous Referee #2

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General comments: The paper addresses important hydrologic questions, particularly in regards to hydrology under possible climate change scenarios. The use of a network flow model, with inputs from hydrologic models, is especially important to allow the paper to be considered for inclusion in the special issue “Predictions under change: water, earth, and biota in the Anthropocene.” The Conclusions section is fairly long, and I suggest the authors consider incorporating some of the discussion in the Conclusions section into the Discussion section. Towards the end of the Conclusions section there are some useful suggestions as to how individuals, water managers, and policy makers

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might deal with less water in the future. However, I wonder if a brief mention as to the predominant types of crops/agriculture under irrigation, as well as types of industry, might be mentioned in the Study area section (and then perhaps be referred to again in the Discussion or Conclusions in terms of possible changes/transitions with less available water)? I think this is worth considering in order to make the paper more relevant to a broader academic audience.

Although generally understandable, a number of phrases and word choices caused sentence meanings to be unclear to this reviewer.

Specific comments: p. 2796, line 3: “semi-arid” used here but also used “semiarid” in text. I suggest semiarid throughout; p. 2798, line 11: I suggest “the Capibaribe River basin is a basin” or “the Capibaribe River basin has characteristics typical”; p. 2798, line 18: delete “it”; p. 2798, line 25: I suggest replacing “maintaining” with “prevent”; p. 2799, lines 1 and 8: delete “of” from “Northeast of Brazil” (and elsewhere in the text where the phrase “in Northeast of Brazil” is used); p. 2800, lines 18-19: not entirely clear to me; if Recife is in the interior of the basin, why is it located outside of the river basin map of Figure 1?; p. 2801, line 12: I suggest replacing “in” with “into”; p. 2801, line 23: I suggest revising to “increased rate in water availability”; p. 2801, line 24: I suggest deleting “the” from “the groundwater”; p. 2802, line 3: no need for commas before and after “approximately”; p. 2802, line 11: here I believe “the” needs to be placed before “Northeast” to give “the Northeast”; p. 2802, line 14: I suggest dropping “the” from “The precipitation”; also, I suggest changing the word “hence” to “and” because “hence” implies that PET increases from east to west because precipitation decreases from east to west, and I question whether this implied cause-effect relationship always occurs (that decreased precipitation always increases PET); p. 2802, line 17: drop the “s” from contributions to make it singular; p. 2802, line 24: add “the” to give “the National Water Agency”; p. 2803, line 24: I suggest replacing “determine” with “estimate” because you are talking about future (line 25) discharge; p. 2804, line 1: can “reservoir” be a “process”?; p. 2804, line 27: I suggest changing

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to “This information was”; p. 2805, lines 20-22: Could this sentence be made more clear? For example, “. . .construction of reservoirs along the CRB at different times from the mid-1980s onwards.”; p. 2805, line 25: when reading “It was necessary...” I was waiting for a phrase to indicate why it was necessary; p. 2806, lines 6-9: because there are four time-slices listed (one in the past and three primarily in the future), line 8 needs to be clarified because when referring to the “first period” I believe the authors are actually referring to the second one listed; p. 2806, line 24: consider changing “was the same as” to “corresponded to”; p. 2806, line 28 to p. 2807, line 1: I suggest replacing “just a site each one,” to “just one site each,”; p. 2807, line 18: need a space between “the” and “HadAM3P”; p. 2808, line 12: Should this be Figure 3? Also, I suggest changing “use is connected” to “use is usually connected” because to me it appears at least one industrial has only one connection; p. 2808, line 14: I suggest changing “supply on the climate scenario” to “supply in the climate scenario”; p. 2808, lines 19-20: not sure what this last sentence in the paragraph is based on; the Australia study(?) – even though seems their study did not run a scenario towards “the end of the 21st century”); p. 2808, line 22: add “s” to “Unit”; p. 2808, lines 24-25: wording in this sentence not clear; p. 2809, line 2: would it be more common or acceptable to write “made it possible”?; p. 2810, line 1: I suggest changing “AU2 in a system” to “AU2 into a system”; p. 2810, line 6: revise to “despite whether the”; p. 2811, line 4: I suggest changing “drive forcing” to “driving force”; p. 2811, line 5: I suggest deleting “the” from “the sustainable”; p. 2811, line 17: in the context of this paper, I think “impact on climate change” should be changed to “impact of climate change”; p. 2818, Figure 1. In legend, I think “Streamgauge” should be split into two words;

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