

Interactive comment on “Riverbank filtration for treatment of highly turbid Colombian rivers” by Juan Pablo Gutiérrez et al.

Anonymous Referee #3

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Manuscript title: Riverbank filtration for treatment of highly turbid Colombian rivers
General comment This work discusses various studies where performed using river bank filtration (RBF) technology was used to purify surface water and has the inherent advantage of reducing the utilization of chemicals during water treatment. The presented studies showed effective removal of dissolved and suspended sediments and removal pollutants and pathogens. It also, to a limited extent explains the various purification mechanisms involved during RBF. The manuscript is well written and chronologically presented and presents areas for furthers studies that could improve the fundamental understanding of river bank filtration. However, I still think the discussion could have been made more informative by including details in some of the discussed processes and removal mechanisms as indicated in the specific comments.

Specific comments 1. The abstract needs to be revised to give brief highlights of

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all the findings discussed in this review not just limited to suspended solid removal. 2. Page 4 lines 11-15 reports that heavy metals are mainly removed through ion exchange, is it that extensive as reported and what exactly could be possible for this property (which part of the filter bed does this occurs). I understand the bed is mainly made of sand which mainly utilizes size exclusion as a removal mechanism. 3. How does variation in seasons influence the RBF performance and other influential factors such as clogging (due to high load of suspended solids). Do the authors have some information/comments on this? 4. Page 7, section 3.1 the reported clogging was is it only a function of the deposition of suspended colloidal matter? What about dissolved organic micro-molecules such as polysaccharides or extracellular polymeric substances? 5. Section 2.6 summarizes some interesting findings on micro pollutant removal, the discussion could have been clearer if the mechanisms of removal were also discussed because I don't believe size exclusion played a significant role in removal. Generally micro-pollutants are removed through three possible routes: charge interactions (electrostatic interactions), pollutant-substrate interactions (hydrophobic/hydrophilic interactions) and non-electrostatic interactions (acid-base interactions). Can the authors comment on this? 6. The impressive removal of some micro-pollutants; could it have been due to the microbial degradation/microbial activity? 7. And if it is degradation, what intermediates/metabolites are formed? Did these studies determine the degradation products.

Please also note the supplement to this comment:

<http://www.drink-water-eng-sci-discuss.net/dwes-2017-10/dwes-2017-10-RC3-supplement.pdf>

Interactive comment on Drink. Water Eng. Sci. Discuss., doi:10.5194/dwes-2017-10, 2017.

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