Reviewer's comments on manuscript no: dwes-2017-10

Title: Riverbank filtration for treatment of highly turbid Colombian rivers

General comments

This review discusses 'riverbank filtration for treatment of highly turbid Columbian waters'. This is a very important contribution which makes use of banks of rivers to purify water. Utilization of river bank filtration still remains a thorny issue since the removal efficiency depends not only o the contaminants, but also the hydraulic and chemical characteristics, local discharge conditions and biochemical processes. These is need thus need for increased knowledge and understanding of the practicability of riverbank filtration for highly polluted waters. I have specific comments that will help improve the manuscript.

Specific comments

Abstract

- Lines 6-8-the first sentence is not clear. It is rather too long and compounded.
- I suggest that the entire abstract should be re-written to give the reader a clear picture of the problem that led the authors to come up with the review, why is the problem a problem, what were the objectives of the review, summary of methods used, summary of major findings of the review and conclusions as well as recommendations in logical sequence.

Introduction

- Page 2, line 16-authors ought to give examples of the 'mutagenic compounds' and 'certain organic and inorganic micropollutants' being referred to here. This is a review article, there is no need to speculate.
- What are the reported removal efficiencies of the 'mutagenic compounds' and 'certain organic and inorganic micropollutants' by riverbank filtration?
- Page 2, line 17-which are some of these 'specific micropollutants that remain mobile, and why?
- Page 2, lines 20-21, what is the feasibility of using riverbank filtration as a pretreatment method considering rate of productivity and revel time of water along flow paths?
- Page 2, lines 24-25-how high were the reported turbidity values? There is need for actual figures here. What do authors mean by 'contamination events'?
- Page 6-lines 23-25- out of 247 micro-pollutants only 14 were completely removed, what were the removal efficiencies of the remaining ones?

- Page 6-lines 23-25-what were the chances of the 14 compounds reported to have been completely removed undergoing transformations and forming degradates? 3.6 years looks like a longer period considering increased demand for water of good quality and quantity?
- How about adsorption and complexation of the pollutants to the soil along flow paths which could result into soil pollution and groundwaters at the expense of purifying surface water using riverbank filtration. Consider investigating chances of creating another problem at the expense of solving other problems

Discussion

- Table 1-What were the chances of using one sample of water to compare the maximum turbidity levels in Source water and river bank filtration system?
- Was there any relationship between orientation, slope, type of soil within the riverbanks, travel time and turbidity removal percentages? What other factors need to be carefully considered in order to improve efficiency and productivity of the riverbank filtration systems.
- Page 10, line 29-very good point, but are there any suggestions to that effect?
- What is the relationship between the removal period/residence time of contaminants by river bank filtration and sustainability considering the ever increasing demand for water worldwide? Is riverbank filtration a feasible option to solve water quality changes at a larger scale?
- How does use of riverbank filtration (whose efficiency is site and substance specific) compare with other equally important methods of water purification such as use of sand filtration, activated carbon etc that are used in the treatment of highly turbid and polluted waters? There is need for a discussion and comparative assessment on the productivity/production capacity and performance of the riverbank filtration method versus other methods in removal of turbidity, organic and in organic compounds, otherwise making conclusions out of this consideration is somehow questionable.