

## ***Interactive comment on “Evaluation of human risks of surface and groundwater contaminated with Cd and Pb south of El-Minya Governorate, Egypt” by Salman Salman et al.***

### **Anonymous Referee #1**

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This paper deals with monitoring of Cd and Pb levels in surface and groundwater of area in between El-Minya and Assuit Governorates, Egypt. The hazard quotient for each contaminant was calculated for investigating the health risk assessment. There is a lack of novelty and the risk of Cd and Pb in the surface water was ignored, while it was mentioned in the aim. Therefore, this paper could not publish in Drink. Water Eng. Sci. journal in the current quality. This decision is according to the following comments: (1) The aim of this study in the title and in the Abstract is for evaluation of human risks of surface and groundwater contaminated with Cd and Pb. The value of this risk is not emphasized, as it was calculated only for the groundwater that be used with unidentified inhabitants and the treatment of the surface water did not put

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into account.

(2) In the Abstract, authors referred to the hazard index (the summation of HQ) (Page 1, Line 15), while there is no information in the whole manuscript about this parameter and how they calculate it.

(3) In the Introduction: # (Page 3, Line 10), the aim should be the same as written in the Abstract. Also, authors did not show the novelty of the work. What is done before in risk assessment research work? # (Page 3, Line 22 until the end of the paragraph) the description of the nature of rocks and stones in the area did not connected with the presence of the Cd and Pb problem.

(4) Materials and Methods: # (Page 4, Line 14) the samples were taken in November 2014. The results must be up-to-date, unless the authors mention that there is no action or changing for the situation yet. # Authors mentioned that they filtered the collected samples and then digested them with nitric acid. This is give the concentration of heavy metals in the water filtrate (dissolved heavy metals). The samples should acidified first or digested and then filtered to have the total and exact heavy metal concentration. Also, the standard method that they refer for this analysis is not up-to-date. APHA, 2017 is recommended. # (Page 5, Line 5), the exposure frequency is 350 day/year. # (Page 5, Line 6), how much lifetime is used for the calculations? # (Equation 3), the slope factor (SF) is not defined and the reference for SF values used for Cd and Pb is missed.

(5) Results and Discussion # (Page 6, Line 5), Why the Cd concentrations in the River Nile (S6, S7) are lower than that for River Nile (S2, S3)?. While S2 and S3 are from the southern part and even S6 and S7 sites are near to Abu Qurqas Sugar Factory. Authors claim that this Sugar Factory is a source of Cd pollutants. # Authors did not explain the source of Pb in the River Nile, especially at S2 and S3 sites. # S4 appears in the map (Fig. 1) as a canal site and written in the Table 2 as a drain site. # Authors refer in Page 5, Line 17 to the unity of Cd and Pb source and they mentioned in the same page 5,

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Line 23 that the agricultural activities (Fertilizers and pesticides) are the main sources for Cd. Then they mentioned in Page 6 Line 21 that the Cd and Pb concentrations in the River Nile and canals are higher than that in the drains. They explained that due to the high human activities. Actually, what is the main source of Cd and Pb pollution? # What is the source of Pb in the River Nile samples (S2&S3)? # The area under study is covered by drinking water distribution network. There is no information about that. In Page 7, Line 4, how many inhabitants not covered by the DW network and safe potable water? And how they are far from the distribution system? # Why the levels of Cd and Pb in the groundwater sites near to the Western Deseret Road are close to that in River Nile while these wells are far from the River by about 25 Km and far from the canal (Bahr El Youssif) by about 15 Km. # The health risk assessment in this research article is based only on the exposure of some inhabitants in some villages on the study area with Cd and Pb via ingestion of contaminated groundwater. The study ignored the contact with the surface water in irrigation activities and did not give full picture for the potable water resources, especially that there are water treatment facilities covering the area. # The resolution of maps is so low.

(6) The number of references (40) is so high for research article.

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