Review of: "Probabilistic Assessment of the Heavy Metal Pollution in Debrecen's Topsoil"

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Potential competing interests: No potential competing interests to declare.

The document review addresses a study on heavy metal pollution in soil in Debrecen, Hungary. It assesses the concentration of various toxic metals, utilizing pollution indices and multivariate statistical analyses to understand distribution and identify main pollutants. The review suggests specific improvements like clarifying abstract sections, detailing analytical procedures, adding specific values and references, explaining variations in analyzed samples, and elaborating on pollution sources and remediation strategies. These recommendations aim to clarify and enrich the study's results and analysis presentation.

In general, for future manuscripts, it would be appreciated if the text lines were numbered to facilitate referencing specific lines in revisions.

ABSTRACT

To clarify in the abstract:

- The methodological specifics of the "simulation procedure" could be briefly explained to enhance understanding of how patterns were analyzed.
- The significance of the "spatial diversity of health vulnerability" might be expanded upon to highlight its relevance to public health and policy.
- While results are summarized, clarifying the impact of these findings on environmental policy or health risk assessment strategies in Debrecen would be beneficial.

INTRODUCTION

There are numerous citations in the text that are not correctly formatted, for example, 'yang et al' instead of 'Yang et al.' I suggest a thorough review of the citations and bibliographic references.

MATERIALS AND METHODS

I cannot see Figure 1.

Figure 1 is not cited in the text.

How do you define the position of the sample in the field? We need more information (GPS, classic topographic

measures, etc), and you should add a figure with the soil samples' distribution in the field.

The samples were sieved at what particle size?

What is the limit of detection in measurements of each chemical element?

RESULTS

The format of the tables must be better in all the document.

Figures from 2 to 5 have some problems:

- Figure 2. The resolution should be better. The unit of the scale is km, not Km (according to I.S). The number of decimals in the legend should be the same for all the elements. VALUE doesn´t look nice in a scientific article; I suggest deleting it. The names of the variables are not OK; they should be the names of the elements with units between () and the mean specification must be in the description of the figure. The elements are not Mn., Zn., …; they are Mn, Zn, … Be careful with this. The geographic information system is mandatory.
- Figure 3. The resolution should be better. The elements are not Mn., Zn., …; they are Mn, Zn, … The number of decimals in the legend is a lot, and all the elements should be the same.
- Figures 4 and 5. The same as Figure 2.

CONCLUSIONS

They should be more extended.