Reviewer's report

Title: Easier said than done: applying the Ecohealth principles to a study of heavy metals exposure among indigenous communities of the Peruvian Amazon

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Reviewer: Francoise Barten

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This article examines the application of Ecohealth principles in practice: an epidemiological study of heavy metals exposure among indigenous communities of the Peruvian Amazon - in the context of "unprecedented" exploration and development of oil activity and increasing concern and popular mobilization in regards to the existing environmental and potential health impacts.

The authors first contextualize the research, briefly introduce the Ecohealth principles and explain the rationale for selecting this framework in an epidemiological study conducted in 2008 to clarify the connection between the exposure to heavy metals (lead and cadmium) and oil activity.

It is worth noting that previous studies had associated elevated levels of lead and cadmium to oil-activity related pollution. The new study (2008) however, suggested that oil contamination was not a relevant source for the high blood lead levels found in the group of 0 to 17 years, in both exposed and non-exposed communities. Older age, male gender and mother's BLLs were identified as risk factors. It is worth noting that samples of dust, fish and other food were not examined.

This paper focuses on the research process. It critically examines the collaborative partnership that was established engaging a variety of actors with different values, interests, knowledge, competences, power. The authors then reflect on the main challenges, the implications and attempted strategies for resolution.

The paper is without doubt of great interest to authors with similar research interests, in particular in methods for enhancing knowledge translation into policy and practice. It is well written, the flow of the argument is logical and the dilemmas for researchers are clear.

However, I also missed critical information in order to fully comprehend the process- and I herewith recommend the authors to clarify these aspects.

Considering the unprecedented exploration and development of oil activity in the Amazon region - the entirely preventable nature of this public health problem and and the irreversible long-term health impact of environmental lead exposure on children, it appears that raising awareness, national leadership and ownership are critically important.
The principal investigators represent/belong to a foreign university. Would it have made a difference if a Peruvian university ie the national health institute and the national Ministry of Health had participated in the partnership? Why was there no involvement of local epidemiologists? What is the relevance of ownership in this particular? To what extent has this influenced the research process and the challenges that were faced?

Secondly, research funding is another important issue. It is not clear how decisions were taken and which actor controlled the research-funding or maintained the relation with the funder. Power assymetries in this regards tend to be important.

Finally, the study focused in particular on lead and cadmium exposure. It could be debated if "safe" blood lead levels exist and to what extent the reference limit for blood lead levels is sufficiently safe in this population, exposed to variety of other health hazards - that produce synergy and interconnect in terms of health effects. As the authors describe, the indigenous communities are concerned about the wider and more profound long-term impact on their habitat.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I have no competing interests in relation to this paper.

However, I wish to notify that I have acted as examiner of a PhD thesis (promotor Dr M San Sebastian) at UMEA university.