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The critical parameters of the human health impact calculation

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There are many LCA methods and models (e.g. CML 1992, Eco-Indicator 95, IMPACT 2002+, TRACI, USEtox, etc.), used to characterize environmental impacts. Only four LCIA methods include spatial dimension at different geographical levels: Impact World+, LC-IMPACT, EDIP 2003 and USEtox (Bratec et al., 2019). Among these, three (Impact World+, EDIP 2003 and USEtox) include a human health impact category: human toxicity. The USEtox model, recommended by the European Commission, has already proved its efficiency for the coupling of environmental and geochemical studies. The Characterization factors of the USEtox describe environmental fate (FF) of the chemicals, their non- and carcinogenic effect (EF), direct and the indirect exposure (XF). All these factors vary depends on the applicable area. However, despite all advantages of the model, its geographical customization is rather generic. This paper presents the utilization of the already published case study (Belyanovskaya et al., 2019: 2020) with the indirect human exposure factor modification. The investigation present the modified biotransfer factor of the metals (Cr, Zn, Sb, As, Ba) of the meat product calculated specifically for different location inside the area “Central Asia”. The paper extends already published results with local data of the city of Vladivostok (Russia).

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