Accepted Manuscript

The reach of human health risks associated with metals/metalloids in water and vegetables along a contaminated river catchment: South Africa and Mozambique

Bettina Genthe, Thandi Kapwata, Wouter Le Roux, Jessica Chamier, Caradee Y. Wright

PII: S0045-6535(18)30177-2

DOI: 10.1016/j.chemosphere.2018.01.160

Reference: CHEM 20741

To appear in: *ECSN*

Received Date: 29 June 2017

Revised Date: 24 January 2018

Accepted Date: 29 January 2018

Please cite this article as: Genthe, B., Kapwata, T., Le Roux, W., Chamier, J., Wright, C.Y., The reach of human health risks associated with metals/metalloids in water and vegetables along a contaminated river catchment: South Africa and Mozambique, *Chemosphere* (2018), doi: 10.1016/j.chemosphere.2018.01.160.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

The reach of human health risks associated with metals/metalloids in water and vegetables along a contaminated river catchment: South Africa and Mozambique

Bettina Genthe[a], Thandi Kapwata[b], Wouter Le Roux[c], Jessica Chamier[a] and Caradee Y. Wright[d,e*]

[a] Natural Resources and the Environment, Council for Scientific and Industrial Research, PO Box 320, 7599, Stellenbosch, South Africa.

[b] Environment and Health Research Unit, South African Medical Research Council, Corner of Sherwell and Beit Streets, Health Clinic Building, University of Johannesburg, Johannesburg, South Africa.

[c] Natural Resources and the Environment, Council for Scientific and Industrial Research, POX Box 395, 0001, Pretoria, South Africa.

[d] Environment and Health Research Unit, South African Medical Research Council, Pretoria, Private Bag x385, 0001, Pretoria, South Africa.

[e] Department of Geography, Geoinformatics and Meteorology, Private Bag X20, Hatfield, 0028, Pretoria, South Africa.

Corresponding author.

Physical address: South African Medical Research Council, 1 Soutpansberg Road, Pretoria, South Africa. Email address: cwright@mrc.ac.za (CY Wright).

ABSTRACT

Background: Anthropogenic pollution was identified as an environmental problem of concern when, in 2008, dozens of crocodiles died in the Olifants River catchment near the border of South Africa and Mozambique. Given the close proximity of households to the river and their making use of river water, we aimed to determine to what extent water pollution has an impact on health of indigent communities in South Africa and Mozambique in the catchment area.

Methods: Water and vegetable samples were collected from the study areas. Biota samples were washed with double de-ionized Milli-Q water and freeze-dried. Heavy metal analyses in water and vegetables were done by means of Inductively Coupled Plasma Optical Emission Spectroscopy. Metal concentrations were applied in a human health risk assessment to estimate health risks.

Download English Version:

https://daneshyari.com/en/article/8851752

Download Persian Version:

https://daneshyari.com/article/8851752

Daneshyari.com