Supporting information

Regional probabilistic risk assessment of heavy metals in different environmental media and land uses: An urbanization-affected drinking water supply area

Chi Peng[1], Yimin Cai[1], Tieyu Wang[1], Rongbo Xiao[2], Weiping Chen[1, *]

[1] State Key Laboratory of Urban and Regional Ecology, Research Center for Eco-environmental Sciences, Chinese Academy of Sciences, Beijing, 100085，People's Republic of China

[2] Guangdong Provincial Academy of Environmental Science, Guangdong 510045, China.

* corresponding author

Tel: +86-010-62843981

E-mail address: *wpchen@rcees.ac.cn* (*W.P. Chen*)

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Fig. S1 Distribution of sampling sites along the Shunde Waterway. (Map source: DigitalGlobe)

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34 Table S1 Mean, ranges and distribution of the exposure parameters.

Variables	Symbol	Range	Distribution
Average body weight (kg)	BW	58.4 (43-77.1)	LN
Exposure duration (yr)	ED	30	Deterministic
Averaging time (d)	AT	30×365	Deterministic
Exposure Frequency for indoor activities (day/yr)	EF_{ia}	350	Deterministic
Exposure Frequency for outdoor activities (day/yr)	EF_{oa}	225	Deterministic
Exposure Frequency for swimming (day/yr)	EF_{sd}	18 (0-79)	Triangular
Exposure time for swimming (hr/24 hr)	ET_{sd}	2/24	Deterministic
Leaf vegetable water content	θ_v	0.936 (0.905-0.956)	Triangular
Water-filled soil porosity (Lwater/Lsoil)	θ_w	0.25 (0.05-0.5)	LN
Dry soil bulk density (g/cm3)	ρ_b	1.5 (1.4-1.6)	Triangular
Dilution factor	DF	0.08 (0.022-0.27)	LN
Soil Ingestion Rate (mg/day)	IR_s	65 (1-200)	LN
Sediment Ingestion Rate (mg/day)	IR_{sd}	50 (1-100)	LN
Total Water Ingestion Rate (mL/day)	IR_w	1957 (788-3650)	Triangular
leaf vegetable ingestion rate (mg/day)	IR_v	295 (110-416) $\times 10^3$	Triangular
Air inhalation rate (m3/day)	IR_a	15.5 (11.6-19.7)	Triangular
Soil to skin adherence facotor for farmers (mg/cm2)	AF_{sf}	0.1 (0.01-0.4)	LN
Soil to skin adherence facotor for adults (mg/cm2)	AF_{sa}	0.07 (0.01-0.3)	LN
Sediment to skin adherence facotor (mg/cm2)	AF_{sd}	0.16 (0.01-1)	LN
Skin surface area available for exposure in outdoor Activities (m2)	SA_{oa}	0.495 (0.473-0.594)	Triangular
Skin surface area available for exposure in swimming (m2)	SA_{sd}	1.5 (1.3-1.8)	Triangular
Particulate Emission Factor (m³/kg)	PEF	1.36×10^{-9}	Deterministic

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37 Table S2 Mean and ranges of the contaminant-specific parameters.

	Hg	As	Cd	Zn	Pb	Cu	Cr	Ni
PUF (unitless)	0.01 (0.0005-0.0716)	0.007 (0.00015-0.103)	0.535 ± 0.667	0.176±0.191	0.019±0.01	0.116±0.054	0.016±0.017	0.074±0.058
K_d (L/kg)	150 (52-200)	606 (125-1780)	400 (75-4300)	130 (62-530)	46622 ± 27808	2805 ± 948	$3.7×10^6$ ($1.8×10^6$ - $4.3×10^6$)	250 (65-1900)
RfD_{ing}	$3.0×10^{-4}$	$3.0×10^{-4}$	$1.0×10^{-3}$	$3.0×10^{-3}$	$3.5×10^{-3}$	$4.0×10^{-3}$	$3.0×10^{-3}$	$2.0×10^{-2}$
RfD_{inhal}	$8.6×10^{-5}$						$2.9×10^{-5}$	
RfD_{dermal}	$2.1×10^{-5}$	$1.2×10^{-4}$	$1.0×10^{-5}$	$6.0×10^{-3}$	$5.3×10^{-4}$	$1.2×10^{-3}$	$6.0×10^{-5}$	$5.4×10^{-3}$
K_p	$1.00×10^{-3}$	$1.00×10^{-3}$	$1.00×10^{-3}$	$6.00×10^{-4}$	$1.00×10^{-3}$	$1.00×10^{-3}$	$1.00×10^{-3}$	$2.00×10^{-4}$
ABS	0.03	0.001	0.001	0.001	0.001	0.001	0.001	0.001

38 PUF (unitless): Plant uptake factor, RfD (mg kg^{-1} day^{-1}): Chronic oral reference dose, K_d (L/kg): Soil-water partition coefficient,

39 K_p (cm/hr): Dermal permeability constant, ABS (unitless): Dermal absorption factor

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