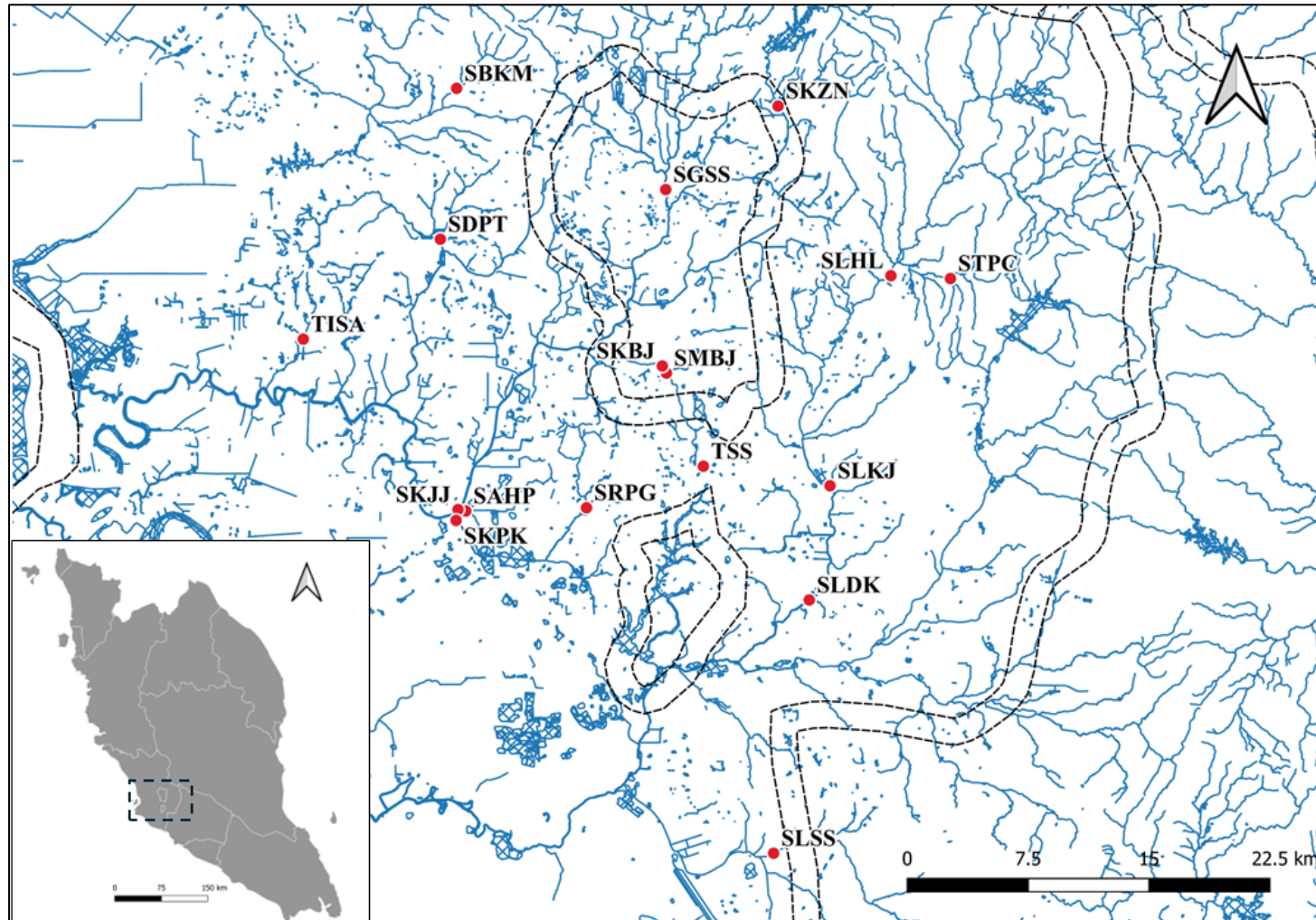


Supplementary files

Supplementary Figure 1. Location of the sampling sites within the Klang Valley. For the sampling sites' abbreviations, please refer to Table 1 (Geofabrik OpenStreetMap hydrology data).





Supplementary Figure 2. Representative images of sampling sites conditions across the study area. Sites are labelled as follows: 1: TSS; 2: SLDK; 3: SRPG; 4: SAHP; 5: SKJJ; 6: SMBJ; 7: SKBJ; 8: SKPK; 9: SDPT; 10: TISA; 11: SBKM; 12: SLSS; 13: SLKJ; 14: STPC; 15: SGSS; 16: SLHL; 17: SKZN. For the sampling sites' abbreviations, please refer to Table 1.

Supplementary Table 1. Table of preparation of heavy metal calibration standards.

Elements	Standards	Concentration (mg/L)	Volume 10% stock solution (mL)	Volume 2% v/v nitric acid solution (mL)
Ni	1	0.75	3.75	46.25
	2	1.50	7.50	42.50
	3	3.00	15.00	35.00
	4	6.00	30.00	20.00
	QC	4.00	20.00	30.00
Pb	1	0.625	3.125	46.875
	2	1.250	6.250	43.750
	3	2.500	12.500	37.500
	4	5.000	25.000	25.000
	QC	3.000	15.000	35.000
Zn	1	0.125	0.625	49.375
	2	0.250	1.250	48.750
	3	0.500	2.500	47.500
	4	1.000	5.000	45.000
	QC	0.800	4.000	46.000
Cu	1	0.625	3.125	46.875
	2	1.250	6.250	43.750
	3	2.500	12.500	37.500
	4	5.000	25.000	25.000
	QC	3.000	15.000	35.000
Cd	1	0.0625	0.3125	49.6875
	2	0.1250	0.6250	49.3750
	3	0.2500	1.2500	48.7500
	4	0.5000	2.5000	47.5000
	QC	0.3000	1.5000	48.5000

QC-Quality control

Supplementary Table 2. Certified reference materials (CRMs) value recovery for heavy metals.

Heavy metals	CRM materials	GSD-11 (Sediment, IGGE)	DORM-4 (Fish protein, NRC)	PACS-2 (Sediment, NRC)
Cu	Reading (mg/kg)	64.773 ± 1.117	16.157 ± 0.261	258.427 ± 8.116
	Actual (mg/kg)	79.000 ± 3.000	15.700 ± 0.460	310.000 ± 12.000
	Recovery (%)	81.992 ± 1.414	102.909 ± 1.661	83.363 ± 2.618
Cd	Reading (mg/kg)	2.450 ± 0.077	0.288 ± 0.004	2.205 ± 0.071
	Actual (mg/kg)	2.300 ± 0.200	0.299 ± 0.016	2.110 ± 0.150
	Recovery (%)	106.522 ± 3.283	96.321 ± 1.533	104.502 ± 3.343
Pb	Reading (mg/kg)	579.450 ± 6.813	0.424 ± 0.006	168.800 ± 1.737
	Actual (mg/kg)	636.000 ± 22.000	0.404 ± 0.062	183.000 ± 8.000
	Recovery (%)	91.108 ± 1.071	104.868 ± 1.363	92.240 ± 0.949
Ni	Reading (mg/kg)	15.384 ± 1.445	1.462 ± 0.225	42.832 ± 3.508
	Actual (mg/kg)	373.000 ± 14.000	51.600 ± 2.800	364.000 ± 23.000
	Recovery (%)	107.583 ± 10.103	109.104 ± 16.808	108.435 ± 8.881
Zn	Reading (mg/kg)	318.500 ± 2.606	50.200 ± 0.400	324.500 ± 2.179
	Actual (mg/kg)	373.000 ± 14.000	51.600 ± 2.800	364.000 ± 23.000
	Recovery (%)	85.389 ± 0.699	97.287 ± 0.775	89.148 ± 0.599

GSD-11: Geochemical standard reference material (stream sediment), Institute of Geophysical and Geochemical Exploration, China; DORM-4: Dogfish muscle certified reference material for trace metals, National Research Council Canada; PACS-2: Marine sediment certified reference material, National Research Council Canada.

Supplementary Table 3. Values of oral reference dose (RfD, µg/kg body weight/day) and provisional tolerable weekly intakes (PTWI, mg/kg body weight/week) in the five potentially toxic metals used in the present study.

Metals	RfD* (µg/kg BW/day)	Intake	References	PTWI (per kg BW/week)	Allowed PTWI (62 kg adult)
Zn	300	PTDI (mg/kg bw/day) of Zn was calculated from a PMTDI of 1.00 mg/kg BW/day	JECFA (1982, 2021)	1.00 mg/kg BW/day × 7 days = 7.00 mg/kg BW/week	7.00 mg/kg BW/week × 62 kg = 434 mg/week (434000 µg/week)
Cu	40.0	A PMTDI of 0.50 mg/kg BW/day	JECFA (1982, 2021)	0.50 mg/kg BW/day × 7 days = 3.50 mg/kg BW/week	3.50 mg/kg BW/week × 62 kg = 217 mg/week (217000 µg/week)
Ni	20.0	A TDI of 13 µg/kg BW	EFSA (2020)	13 µg/kg BW × 7 days = 91 µg/kg BW/week	91 µg/kg BW × 62 kg = 5642 µg/week
Pb	3.50	For adults, the TDI (µg/kg bw/day) of Pb was calculated from the higher end of the range (3 µg/kg BW/day).	JECFA (2011)	3.00 µg/kg BW/day × 7 days = 21.0 µg/kg BW/week	21.0 µg/kg BW/week × 62 kg = 1302 µg/week
Cd	1.00	A PTMI of 25.0 µg/kg BW based on a month (30 day). Therefore, PTDI = (25 µg/kg BW/month)/30 days = 0.833 µg/kg BW/day	JECFA (2011, 2021)	0.833 µg/kg BW/day × 7 days = 5.83 µg/kg BW/week	5.83 µg/kg BW/week × 62 kg = 361.5 µg/week

*The values of oral reference dose (RfD) for all metals are specified by the USEPA regional screening level (USEPA, 2021). BW = body weight. TDI = tolerable daily intake; PTMI = provisional tolerable monthly intake; PTDI = provisional tolerable daily intake; PMTDI = provisional maximum tolerable daily intake.