

Supplementary Materials: Comprehensive Evaluation and Source Apportionment of Potential Toxic Elements in Soils and Sediments of Guishui River, Beijing

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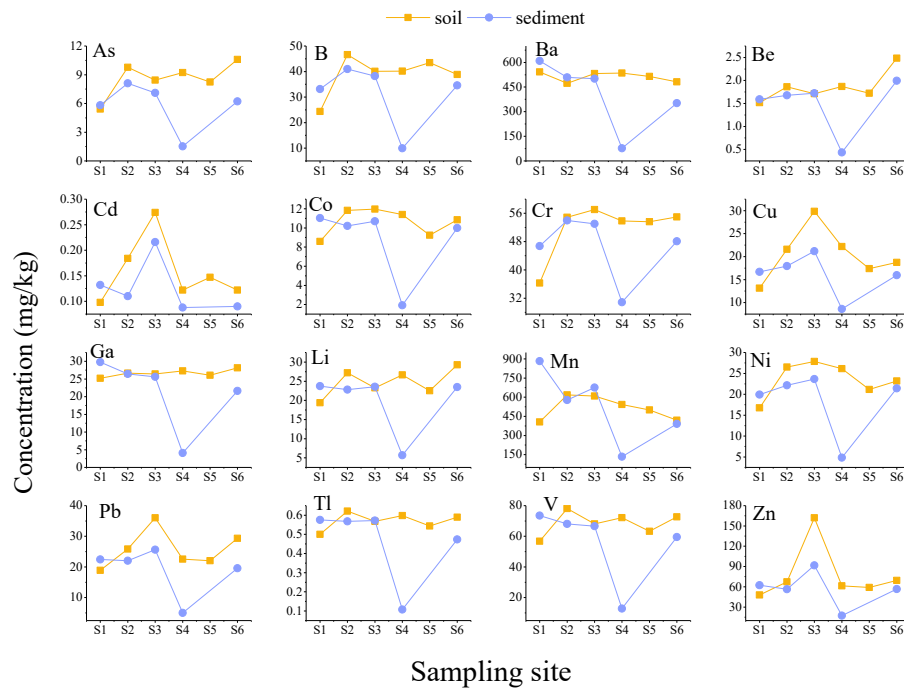


Figure 1. Concentration variation of potential toxic elements in soils and sediments of the Guishui River.

Table S1. The relative error of each element in certified reference material of stream sediment (GSD–10, GBW07310).

	As	B	Ba	Be	Cd	Cr	Co	Cu	Ga	Li	Mn	Ni	Pb	Tl	V	Zn
Measured value (mg/kg)	24.13	27.08	37.01	0.77	1.17	140.13	15.84	23.25	6.89	13.52	1014.94	30.86	24.98	0.22	109.88	43.76
Reference value (mg/kg)	25	26	42	0.9	1.12	136	15.3	22.6	6.4	13	1010	30	27	0.21	107	46
Relative error (%)	−3.46	4.16	−11.88	−14.89	4.29	3.03	3.54	2.88	7.66	3.98	0.49	2.86	−7.47	4.76	2.70	−4.87

Table S2. Values of I_{geo} and the pollution level.

I_{geo} rank	I_{geo}	Pollution Level
0	<0	Uncontaminated
1	0–1	Uncontaminated to moderately contaminated
2	1–2	Moderately contaminated
3	2–3	Moderately to strongly contaminated
4	3–4	Strongly contaminated
5	4–5	Strongly to extremely strongly contaminated
6	>5	Extremely contaminated

Table S3. Category of potential ecological risk factor.

Potential ecological risk factor (EI)	RI	Category
$E_i \leq 40$	$RI \leq 150$	Low ecological risk
$40 < E_i \leq 80$	$150 < RI \leq 300$	Moderate ecological risk
$80 < E_i \leq 160$	$300 < RI \leq 600$	Considerable ecological risk
$160 < E_i \leq 320$	$600 < RI$	High ecological risk
$320 < E_i$		Very high ecological risk

Table S4. Pearson correlation analysis.

		Li	Be	B	V	Cr	Mn	Co	Ni	Cu	Zn	Ga	As	Cd	Ba	Tl	Pb	pH	OM
soil	Li	1	0.791*	0.643	0.912**	0.711*	0.451	0.803*	0.762*	0.510	0.141	0.900**	0.951**	0.083	−0.773*	0.926**	0.471	−0.024	−0.066
	Be		1	0.311	0.609	0.420	0.006	0.434	0.355	0.183	−0.015	0.926**	0.783*	−0.058	−0.670	0.587	0.397	0.268	−0.306
	B			1	0.708*	0.906**	0.721*	0.620	0.731*	0.565	0.244	0.459	0.783*	0.413	−0.652	0.759*	0.387	−0.215	0.268
	V				1	0.680	0.736*	0.919**	0.885**	0.661	0.250	0.740*	0.923**	0.322	−0.755*	0.965**	0.503	0.012	0.064
	Cr					1	0.644	0.707*	0.809*	0.729*	0.501	0.612	0.808*	0.494	−0.534	0.760*	0.646	−0.488	0.472
	Mn						1	0.823*	0.877**	0.840**	0.553	0.225	0.568	0.727*	−0.358	0.712*	0.529	−0.315	0.544
	Co							1	0.977**	0.880**	0.572	0.639	0.804*	0.542	−0.527	0.897**	0.710*	−0.302	0.403
	Ni								1	0.918**	0.606	0.592	0.803*	0.595	−0.480	0.881**	0.704	−0.420	0.490
	Cu									1	0.858**	0.422	0.585	0.812*	−0.210	0.661	0.851**	−0.606	0.764*
	Zn										1	0.134	0.219	0.876**	0.050	0.252	0.903**	−0.658	0.934**
	Ga											1	0.874**	0.051	−0.59	0.769*	0.490	−0.039	−0.115
	As												1	0.256	−0.792*	0.916**	0.534	−0.025	0.025
	Cd													1	−0.092	0.308	0.798*	−0.411	0.850**
	Ba														1	−0.727*	−0.307	−0.425	0.210
	Tl															1	0.503	−0.112	0.114
	Pb																1	−0.443	0.730*
	pH																	1	−0.771*
	LOI																		1
sediment	Li	1	0.968**	0.959**	0.979**	0.932*	0.793	0.996**	0.982**	0.902*	0.843	0.959**	0.922*	0.430	0.898*	0.976**	0.965**	0.708	−0.675
	Be		1	0.928*	0.899*	0.899*	0.619	0.943*	0.961**	0.841	0.782	0.859	0.891*	0.318	0.759	0.896*	0.895*	0.591	−0.660
	B			1	0.946*	0.994**	0.718	0.954*	0.985**	0.933*	0.831	0.922*	0.994**	0.449	0.864	0.965**	0.957*	0.631	−0.590
	V				1	0.919*	0.886*	0.992**	0.951*	0.896*	0.826	0.996**	0.914*	0.456	0.967**	0.995**	0.969**	0.794	−0.690
	Cr					1	0.695	0.929*	0.977**	0.953*	0.855	0.895*	0.994**	0.512	0.842	0.948*	0.954*	0.560	−0.503
	Mn						1	0.841	0.734	0.764	0.751	0.919*	0.675	0.575	0.967**	0.873	0.847	0.793	−0.531

Co	1	0.975**	0.911*	0.855	0.978**	0.917*	0.467	0.932*	0.988**	0.976**	0.734	−0.666
Ni		1	0.952*	0.889*	0.924*	0.962**	0.510	0.860	0.967**	0.976**	0.593	−0.558
Cu			1	0.970**	0.879*	0.917*	0.738	0.851	0.933*	0.977**	0.454	−0.320
Zn				1	0.811	0.797	0.839	0.790	0.863	0.935*	0.340	−0.185
Ga					1	0.890*	0.465	0.985**	0.989**	0.957*	0.821	−0.688
As						1	0.428	0.835	0.939*	0.929*	0.602	−0.561
Cd							1	0.516	0.517	0.633	−0.030	0.315
Ba								1	0.961**	0.927*	0.828	−0.630
Tl									1	0.985**	0.740	−0.626
Pb										1	0.622	−0.500
pH											1	−0.909*
OM												1

** Significant at 0.01 levels; * Significant at 0.05 levels