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Table S1: Coordinate points of the sampling sites

Sites	code	X	Y	Description of the code
Sululta	SS_1	37P 0473976	UTM 1016401	Tap water as the control site
	SS_2	37P 0474006	UTM 1016359	Allied chemical factory
	SS_3	37P 0473440	UTM 1016793	Around soap factory
	SS_4	37P 0470689	UTM 1028141	Sibilu downstream river
	SS_5	37P 0473024	UTM 1015381	Abattoir site
Laga Tafo Laga Dadi	$LLDS_1$	37P 0491810	UTM 1004028	Wako River before industrial waste contact
	$LLDS_2$	37P 0491473	UTM 1004292	Abattoir site
	$LLDS_3$	37P 0491017	UTM 1004547	Cattle fattening site
	$LLDS_4$	37P 0490832	UTM 1004669	MNS textile factory
	$LLDS_5$	37P 0491827	UTM 1003942	Downstream of Wako river after industrial waste
Galan	GS_1	37P 0480382	UTM 0977637	Dongora stream
	GS_2	37P 0480410	UTM 0977340	Plastic factory, Pulp, and paper factory
	GS_3	37P 0485780	UTM 0974979	Sago paper sheet factory
	GS_4	37P 0484571	UTM 0975470	DH.Geda paint factory
	GS_5	37P 0481731	UTM 0976147	Sofmore marble factory
Sabata	SbS_1	37P 0460919	UTM 0986567	Upstream of Sabata River
	SbS_2	37P 0462034	UTM 0985605	Buluko Textile Factory
	SbS_3	37P 0459635	UTM 0985028	Balazaf & National Alcohol and Liquor Factory
	SbS_4	37P 0457957	UTM 0982622	Arbaminch Textile Factory
	SbS_5	37P 0457632	UTM 0981046	Lower stream of Sabata River after industrial waste contact
Burayu	BuS_1	37P 0458460	UTM 0998551	Guje upper stream river of farm area
	BuS_2	37P 0458755	UTM 0998921	Industrial site
	BuS_3	37P 0461058	UTM 0998310	Spring water used for washing cloth
	BuS_4	37P 0460224	UTM 0998348	Cement, electric, transformer, and marble factory
	BuS_5	37P 0460315	UTM 0998585	Gypsum and food processing factory,

Table S2: Pearson Correlation Coefficient (r) of heavy metals in soil and vegetable

		Soil					
Soil	*Pb*	*Cr*	*Cd*	*Ni*	*Mn*	*Zn*	*Cu*
Pb	1						
Cr	0.394	1					
Cd	0.574	0.347	1				
Ni	0.266	0.266	-0.125	1			
Mn	-0.218	-0.348	-0.179	0.423	1		
Zn	-0.150	0.363	-0.321	0.727	0.189	1	
Cu	0.556	0.550	0.791	-0.030	-0.089	-0.183	1
		Vegetable					
Vegetable	*Pb*	*Cr*	*Cd*	*Ni*	*Mn*	*Zn*	*Cu*
Pb	1						
Cr	0.398	1.000					
Cd	0.737	0.439	1				
Ni	0.595	0.013	0.892	1			
Mn	0.717	0.762	0.732	0.451	1		
Zn	0.842	0.670	0.621	0.324	0.687	1	
Cu	0.392	0.020	-0.249	-0.289	0.024	0.466	1

Table S3: Pearson Correlation Coefficient (r) of the heavy metal concentration in water

	water						
Water	*Cr*	*Zn*	*Cu*	*Cd*	*Ni*	*Pb*	*Mn*
Cr	1						
Zn	-0.389	1					
Cu	0.339	-0.170	1				
Cd	-0.352	0.338	-0.417	1			
Ni	-0.345	0.132	-0.386	0.614	1		
Pb	-0.074	0.468	0.344	0.190	0.140	1	
Mn	0.461	-0.170	0.237	-0.345	-0.145	-0.242	1

Table S4: EDI of heavy metals by the study sites

Site	Vegetable	Human	EDI Pb	EDI Cr	EDI Cd	EDI Ni	EDI Mn	EDI Zn	EDI Cu
Sabata	Cabbage	Adult	0.0150	0.0001	0.0001	0.0000	0.0001	0.0000	0.0001
		Child	0.0164	0.0001	0.0001	0.0000	0.0001	0.0000	0.0001
	Garden cabbage	Adult	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0001
		Child	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0001
	Swiss chard	Adult	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0001
		Child	0.0000	0.0002	0.0002	0.0000	0.0002	0.0000	0.0001
	Lettuce	Adult	0.0161	0.0002	0.0001	0.0000	0.0001	0.0001	0.0001
		Child	0.0176	0.0002	0.0001	0.0000	0.0001	0.0001	0.0001
Burayu	Cabbage	Adult	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0001
		Child	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0001
	Lettuce	Adult	0.0193	0.0002	0.0002	0.0000	0.0001	0.0001	0.0001
		Child	0.0211	0.0002	0.0002	0.0000	0.0001	0.0001	0.0001
Gelan	Cabbage	Adult	0.0188	0.0003	0.0001	0.0000	0.0002	0.0001	0.0001
		Child	0.0188	0.0003	0.0002	0.0000	0.0002	0.0001	0.0001
	Lettuce	Adult	0.0222	0.0002	0.0000	0.0000	0.0001	0.0001	0.0002
		Child	0.0242	0.0002	0.0000	0.0000	0.0001	0.0001	0.0002

Table S5: THQ values of heavy metals in different vegetables

Site	Vegetable		Target hazard ratio of trace metals							
		Human	Lead	Chromium	Cadmium	Nickel	Manganese	Zinc	Copper	Hazard index
Sabata	Cabbage	Adult	3.7589	0.0387	0.1050	0.0008	0.0005	0.0000	0.0015	3.9054
		Child	4.1023	0.0422	0.1146	0.0009	0.0006	0.0000	0.0017	4.2623
		Total	7.8612	0.0809	0.2196	0.0017	0.0011	0.0001	0.0032	8.1677
	Garden cabbage	Adult	0.0000	0.0405	0.0111	0.0003	0.0002	0.0000	0.0018	0.0539
		Child	0.0000	0.0442	0.0121	0.0003	0.0000	0.0000	0.0020	0.0586
		Total	0.0000	0.0847	0.0231	0.0006	0.0002	0.0001	0.0038	0.1124
	Swiss chard	Adult	0.0000	0.0497	0.0166	0.0003	0.0001	0.0000	0.0017	0.0684
		Child	0.0000	0.0553	0.1628	0.0003	0.0012	0.0000	0.0018	0.2214
		Total	0.0000	0.1050	0.1794	0.0006	0.0013	0.0001	0.0035	0.2898
	Lettuce	Adult	4.0241	0.0553	0.1160	0.0012	0.0008	0.0003	0.0029	4.2006
		Child	4.3918	0.0603	0.1266	0.0000	0.0009	0.0003	0.0032	4.5831
		Total	8.4159	0.1156	0.2427	0.0012	0.0017	0.0005	0.0061	8.7837
Burayu	Cabbage	Adult	0.0000	0.0589	0.0111	0.0003	0.0000	0.0001	0.0023	0.0727
		Child	0.0000	0.0643	0.0121	0.0003	0.0000	0.0001	0.0026	0.0794
		Total	0.0000	0.1233	0.0231	0.0006	0.0001	0.0001	0.0049	0.1521
	Lettuce	Adult	4.8226	0.0589	0.1879	0.0011	0.0005	0.0003	0.0017	5.0730
		Child	5.2632	0.0643	0.2050	0.0012	0.0005	0.0004	0.0018	5.5365
		Total	10.0858	0.1233	0.3929	0.0023	0.0010	0.0007	0.0035	10.609
Gelan	Cabbage	Adult	4.7093	0.1050	0.1492	0.0006	0.0013	0.0004	0.0018	4.9676
		Child	4.7093	0.1146	0.1628	0.0006	0.0015	0.0004	0.0020	4.9912
		Total	9.4186	0.2196	0.3120	0.0012	0.0028	0.0008	0.0038	9.9587
	Lettuce	Adult	5.5451	0.0589	0.0387	0.0003	0.0004	0.0004	0.0043	5.6481
		Child	6.0517	0.0643	0.0422	0.0003	0.0005	0.0004	0.0047	6.1641
		Total	11.5967	0.1233	0.0809	0.0006	0.0009	0.0008	0.0090	11.812

Table S6: Target carcinogenic risk analysis on variety of plant and spatial sites

Site	Vegetable	Human	CR of Pb	CR of Cr	CR of Cd	CR of Ni	TCR
Sabata	Cabbage	Adult	0.0001	0.0001	0.0000	0.0000	0.0003
	Garden cabbage	Adult	0.0000	0.0001	0.0000	0.0000	0.0001
	Swiss chard	Adult	0.0000	0.0001	0.0000	0.0000	0.0001
	Lettuce	Adult	0.0001	0.0001	0.0000	0.0000	0.0003
Burayu	Cabbage	Adult	0.0000	0.0001	0.0000	0.0000	0.0001
	Lettuce	Adult	0.0002	0.0001	0.0001	0.0000	0.0004
Gelan	Cabbage	Adult	0.0002	0.0002	0.0001	0.0000	0.0004
	Lettuce	Adult	0.0002	0.0001	0.0000	0.0000	0.0003