Table S. 1. Hazard index of HMs for non-carcinogenic risk in adults and children in the study area.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| S.N. | HI | | | | | | | | | | | | | | | | | | | |
| As | | Cr | | Pb | | V | | Cu | | Ni | | Zn | | Co | | Fe | | Mn | |
| Adul. | Child. | Adul. | Child. | Adul. | Child. | Adul. | Child. | Adul. | Child. | Adul. | Child. | Adul. | Child. | Adul. | Child. | Adul. | Child. | Adul. | Child. |
| S1 | 0.0183 | 0.1708 | 0.0105 | 0.0982 | 0.0020 | 0.0183 | 0.0024 | 0.0228 | 0.0003 | 0.0031 | 0.0012 | 0.0115 | 0.0002 | 0.0018 | 0.0002 | 0.0019 | 0.0220 | 0.2050 | 0.0018 | 0.0172 |
| S2 | 0.0138 | 0.1281 | 0.0115 | 0.1068 | 0.0020 | 0.0183 | 0.0026 | 0.0242 | 0.0003 | 0.0031 | 0.0014 | 0.0128 | 0.0002 | 0.0020 | 0.0002 | 0.0019 | 0.0271 | 0.2526 | 0.0019 | 0.0178 |
| S3 | 0.0092 | 0.0854 | 0.0206 | 0.1922 | 0.0020 | 0.0183 | 0.0020 | 0.0185 | 0.0006 | 0.0059 | 0.0011 | 0.0102 | 0.0003 | 0.0026 | 0.0002 | 0.0019 | 0.0242 | 0.2251 | 0.0022 | 0.0200 |
| S4 | 0.0092 | 0.0854 | 0.0092 | 0.0854 | 0.0012 | 0.0110 | 0.0017 | 0.0157 | 0.0004 | 0.0041 | 0.0009 | 0.0083 | 0.0002 | 0.0023 | 0.0002 | 0.0019 | 0.0212 | 0.1977 | 0.0016 | 0.0150 |
| S5 | 0.0046 | 0.0427 | 0.0128 | 0.1196 | 0.0024 | 0.0220 | 0.0024 | 0.0228 | 0.0006 | 0.0052 | 0.0014 | 0.0128 | 0.0002 | 0.0023 | 0.0002 | 0.0019 | 0.0265 | 0.2471 | 0.0021 | 0.0198 |
| S6 | 0.0183 | 0.1708 | 0.0248 | 0.2306 | 0.0043 | 0.0403 | 0.0047 | 0.0441 | 0.0006 | 0.0059 | 0.0026 | 0.0243 | 0.0005 | 0.0043 | 0.0004 | 0.0038 | 0.0389 | 0.3624 | 0.0032 | 0.0299 |
| S7 | 0.0138 | 0.1281 | 0.0229 | 0.2135 | 0.0043 | 0.0403 | 0.0023 | 0.0214 | 0.0004 | 0.0035 | 0.0013 | 0.0122 | 0.0001 | 0.0013 | 0.0003 | 0.0026 | 0.0228 | 0.2123 | 0.0017 | 0.0163 |
| S8 | 0.0092 | 0.0854 | 0.0119 | 0.1110 | 0.0031 | 0.0293 | 0.0023 | 0.0214 | 0.0003 | 0.0031 | 0.0012 | 0.0115 | 0.0002 | 0.0014 | 0.0003 | 0.0026 | 0.0236 | 0.2196 | 0.0016 | 0.0148 |
| S9 | 0.0092 | 0.0854 | 0.0119 | 0.1110 | 0.0016 | 0.0146 | 0.0017 | 0.0157 | 0.0003 | 0.0024 | 0.0010 | 0.0090 | 0.0001 | 0.0007 | 0.0002 | 0.0019 | 0.0228 | 0.2123 | 0.0016 | 0.0145 |
| S10 | 0.0183 | 0.1708 | 0.0270 | 0.2519 | 0.0024 | 0.0220 | 0.0023 | 0.0214 | 0.0004 | 0.0035 | 0.0014 | 0.0135 | 0.0001 | 0.0012 | 0.0003 | 0.0026 | 0.0202 | 0.1885 | 0.0016 | 0.0152 |
| S11 | 0.0092 | 0.0854 | 0.0078 | 0.0726 | 0.0020 | 0.0183 | 0.0011 | 0.0100 | 0.0002 | 0.0017 | 0.0006 | 0.0051 | 0.0001 | 0.0007 | 0.0001 | 0.0013 | 0.0165 | 0.1537 | 0.0011 | 0.0105 |
| S12 | 0.0046 | 0.0427 | 0.0101 | 0.0939 | 0.0012 | 0.0110 | 0.0015 | 0.0142 | 0.0007 | 0.0062 | 0.0000 | 0.0070 | 0.0003 | 0.0023 | 0.0002 | 0.0019 | 0.0287 | 0.2672 | 0.0022 | 0.0203 |
| S13 | 0.0092 | 0.0854 | 0.0119 | 0.1110 | 0.0016 | 0.0146 | 0.0015 | 0.0142 | 0.0006 | 0.0059 | 0.0009 | 0.0083 | 0.0003 | 0.0029 | 0.0002 | 0.0019 | 0.0222 | 0.2068 | 0.0019 | 0.0176 |
| S14 | 0.0092 | 0.0854 | 0.0197 | 0.1836 | 0.0024 | 0.0220 | 0.0028 | 0.0256 | 0.0003 | 0.0024 | 0.0012 | 0.0109 | 0.0001 | 0.0005 | 0.0002 | 0.0019 | 0.0187 | 0.1739 | 0.0013 | 0.0123 |
| S15 | 0.0046 | 0.0427 | 0.0289 | 0.2690 | 0.0028 | 0.0256 | 0.0023 | 0.0214 | 0.0007 | 0.0062 | 0.0012 | 0.0109 | 0.0020 | 0.0191 | 0.0001 | 0.0013 | 0.0218 | 0.2031 | 0.0015 | 0.0139 |
| S16 | 0.0046 | 0.0427 | 0.0055 | 0.0512 | 0.0016 | 0.0146 | 0.0012 | 0.0114 | 0.0002 | 0.0021 | 0.0006 | 0.0051 | 0.0001 | 0.0009 | 0.0001 | 0.0006 | 0.0138 | 0.1281 | 0.0010 | 0.0092 |
| S17 | 0.0092 | 0.0854 | 0.0110 | 0.1025 | 0.0024 | 0.0220 | 0.0020 | 0.0185 | 0.0004 | 0.0035 | 0.0011 | 0.0102 | 0.0001 | 0.0013 | 0.0002 | 0.0019 | 0.0200 | 0.1867 | 0.0014 | 0.0135 |
| S18 | 0.0092 | 0.0854 | 0.0101 | 0.0939 | 0.0016 | 0.0146 | 0.0017 | 0.0157 | 0.0003 | 0.0031 | 0.0011 | 0.0102 | 0.0002 | 0.0018 | 0.0002 | 0.0019 | 0.0279 | 0.2599 | 0.0019 | 0.0178 |
| S19 | 0.0092 | 0.0854 | 0.0353 | 0.3288 | 0.0039 | 0.0366 | 0.0029 | 0.0270 | 0.0005 | 0.0048 | 0.0017 | 0.0154 | 0.0002 | 0.0019 | 0.0003 | 0.0026 | 0.0228 | 0.2123 | 0.0019 | 0.0181 |
| S20 | 0.0092 | 0.0854 | 0.0060 | 0.0555 | 0.0012 | 0.0110 | 0.0011 | 0.0100 | 0.0004 | 0.0035 | 0.0004 | 0.0038 | 0.0001 | 0.0008 | 0.0001 | 0.0013 | 0.0222 | 0.2068 | 0.0014 | 0.0129 |
| S21 | 0.0138 | 0.1281 | 0.0119 | 0.1110 | 0.0028 | 0.0256 | 0.0024 | 0.0228 | 0.0004 | 0.0035 | 0.0012 | 0.0115 | 0.0001 | 0.0009 | 0.0003 | 0.0026 | 0.0251 | 0.2343 | 0.0019 | 0.0179 |
| S22 | 0.0092 | 0.0854 | 0.0069 | 0.0641 | 0.0020 | 0.0183 | 0.0012 | 0.0114 | 0.0003 | 0.0031 | 0.0007 | 0.0064 | 0.0002 | 0.0019 | 0.0001 | 0.0013 | 0.0230 | 0.2141 | 0.0018 | 0.0171 |
| S23 | 0.0092 | 0.0854 | 0.0050 | 0.0470 | 0.0008 | 0.0073 | 0.0008 | 0.0071 | 0.0001 | 0.0014 | 0.0003 | 0.0032 | 0.0001 | 0.0008 | 0.0001 | 0.0006 | 0.0206 | 0.1922 | 0.0013 | 0.0120 |
| S24 | 0.0046 | 0.0427 | 0.0073 | 0.0683 | 0.0012 | 0.0110 | 0.0015 | 0.0142 | 0.0002 | 0.0021 | 0.0006 | 0.0058 | 0.0002 | 0.0019 | 0.0001 | 0.0013 | 0.0177 | 0.1647 | 0.0014 | 0.0127 |
| S25 | 0.0183 | 0.1708 | 0.0083 | 0.0769 | 0.0016 | 0.0146 | 0.0018 | 0.0171 | 0.0003 | 0.0028 | 0.0010 | 0.0090 | 0.0001 | 0.0010 | 0.0002 | 0.0019 | 0.0271 | 0.2526 | 0.0017 | 0.0158 |
| S26 | 0.0229 | 0.2135 | 0.0105 | 0.0982 | 0.0020 | 0.0183 | 0.0014 | 0.0128 | 0.0005 | 0.0048 | 0.0007 | 0.0064 | 0.0003 | 0.0025 | 0.0002 | 0.0019 | 0.0222 | 0.2068 | 0.0018 | 0.0170 |
| S27 | 0.0092 | 0.0854 | 0.0096 | 0.0897 | 0.0016 | 0.0146 | 0.0014 | 0.0128 | 0.0003 | 0.0024 | 0.0007 | 0.0064 | 0.0001 | 0.0007 | 0.0001 | 0.0013 | 0.0189 | 0.1757 | 0.0014 | 0.0127 |
| S28 | 0.0092 | 0.0854 | 0.0110 | 0.1025 | 0.0012 | 0.0110 | 0.0011 | 0.0100 | 0.0002 | 0.0021 | 0.0006 | 0.0058 | 0.0001 | 0.0011 | 0.0001 | 0.0013 | 0.0198 | 0.1848 | 0.0014 | 0.0128 |
| S29 | 0.0046 | 0.0427 | 0.0069 | 0.0641 | 0.0016 | 0.0146 | 0.0011 | 0.0100 | 0.0009 | 0.0086 | 0.0006 | 0.0051 | 0.0006 | 0.0054 | 0.0002 | 0.0019 | 0.0307 | 0.2855 | 0.0027 | 0.0251 |
| S30 | 0.0092 | 0.0854 | 0.0073 | 0.0683 | 0.0016 | 0.0146 | 0.0014 | 0.0128 | 0.0003 | 0.0024 | 0.0007 | 0.0064 | 0.0002 | 0.0015 | 0.0001 | 0.0013 | 0.0259 | 0.2416 | 0.0016 | 0.0146 |

Table S. 2. Total lifetime cancer risk for As, Cr, and Pb in the study area.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S.N. | LCR | | | | | |
| As | | Cr | | Pb | |
| Adults | Children | Adults | Children | Adults | Children |
| S1 | 8.25E-06 | 7.69E-05 | 1.58E-05 | 0.000147 | 5.85E-08 | 5.44E-07 |
| S2 | 6.19E-06 | 5.76E-05 | 1.72E-05 | 0.00016 | 5.85E-08 | 5.44E-07 |
| S3 | 4.13E-06 | 3.84E-05 | 3.09E-05 | 0.000288 | 5.85E-08 | 5.44E-07 |
| S4 | 4.13E-06 | 3.84E-05 | 1.38E-05 | 0.000128 | 3.51E-08 | 3.27E-07 |
| S5 | 2.06E-06 | 1.92E-05 | 1.93E-05 | 0.000179 | 7.01E-08 | 6.53E-07 |
| S6 | 8.25E-06 | 7.69E-05 | 3.71E-05 | 0.000346 | 1.29E-07 | 1.2E-06 |
| S7 | 6.19E-06 | 5.76E-05 | 3.44E-05 | 0.00032 | 1.29E-07 | 1.2E-06 |
| S8 | 4.13E-06 | 3.84E-05 | 1.79E-05 | 0.000167 | 9.35E-08 | 8.71E-07 |
| S9 | 4.13E-06 | 3.84E-05 | 1.79E-05 | 0.000167 | 4.68E-08 | 4.36E-07 |
| S10 | 8.25E-06 | 7.69E-05 | 4.06E-05 | 0.000378 | 7.01E-08 | 6.53E-07 |
| S11 | 4.13E-06 | 3.84E-05 | 1.17E-05 | 0.000109 | 5.85E-08 | 5.44E-07 |
| S12 | 2.06E-06 | 1.92E-05 | 1.51E-05 | 0.000141 | 3.51E-08 | 3.27E-07 |
| S13 | 4.13E-06 | 3.84E-05 | 1.79E-05 | 0.000167 | 4.68E-08 | 4.36E-07 |
| S14 | 4.13E-06 | 3.84E-05 | 2.96E-05 | 0.000275 | 7.01E-08 | 6.53E-07 |
| S15 | 2.06E-06 | 1.92E-05 | 4.33E-05 | 0.000404 | 8.18E-08 | 7.62E-07 |
| S16 | 2.06E-06 | 1.92E-05 | 8.25E-06 | 7.69E-05 | 4.68E-08 | 4.36E-07 |
| S17 | 4.13E-06 | 3.84E-05 | 1.65E-05 | 0.000154 | 7.01E-08 | 6.53E-07 |
| S18 | 4.13E-06 | 3.84E-05 | 1.51E-05 | 0.000141 | 4.68E-08 | 4.36E-07 |
| S19 | 4.13E-06 | 3.84E-05 | 5.3E-05 | 0.000493 | 1.17E-07 | 1.09E-06 |
| S20 | 4.13E-06 | 3.84E-05 | 8.94E-06 | 8.33E-05 | 3.51E-08 | 3.27E-07 |
| S21 | 6.19E-06 | 5.76E-05 | 1.79E-05 | 0.000167 | 8.18E-08 | 7.62E-07 |
| S22 | 4.13E-06 | 3.84E-05 | 1.03E-05 | 9.61E-05 | 5.85E-08 | 5.44E-07 |
| S23 | 4.13E-06 | 3.84E-05 | 7.56E-06 | 7.05E-05 | 2.34E-08 | 2.18E-07 |
| S24 | 2.06E-06 | 1.92E-05 | 1.1E-05 | 0.000102 | 3.51E-08 | 3.27E-07 |
| S25 | 8.25E-06 | 7.69E-05 | 1.24E-05 | 0.000115 | 4.68E-08 | 4.36E-07 |
| S26 | 1.03E-05 | 9.61E-05 | 1.58E-05 | 0.000147 | 5.85E-08 | 5.44E-07 |
| S27 | 4.13E-06 | 3.84E-05 | 1.44E-05 | 0.000135 | 4.68E-08 | 4.36E-07 |
| S28 | 4.13E-06 | 3.84E-05 | 1.65E-05 | 0.000154 | 3.51E-08 | 3.27E-07 |
| S29 | 2.06E-06 | 1.92E-05 | 1.03E-05 | 9.61E-05 | 4.68E-08 | 4.36E-07 |
| S30 | 4.13E-06 | 3.84E-05 | 1.1E-05 | 0.000102 | 4.68E-08 | 4.36E-07 |