**Data description for**

**Global mapping of urban–rural catchment areas reveals unequal access to services**

**DATASET S0 – Urban-Rural Catchment Areas (URCA).tif**

**Summary description:** Urban-Rural Catchment Areas (URCA) is a raster dataset of the 30 urban–rural catchmentareas showing the catchment areas around cities and towns of different sizes. Each rural pixel is assigned to one defined travel time category: less than one hour, one to two hours, and two to three hours travel time to one of seven urban agglomeration sizes. The agglomerations range from large cities with i) populations greater than 5 million and ii) between 1 to 5 million; intermediate cities with iii) 500,000 to 1 million and iv) 250,000 to 500,000 inhabitants; small cities with populations v) between 100,000 and 250,000 and vi) between 50,000 and 100,000; and vii) towns of between 20,000 and 50,000 people. The remaining pixels that are more than 3 hours away from any urban agglomeration of at least 20,000 people are considered as either hinterland or dispersed towns being that they are not gravitating around any urban agglomeration. The raster also allows for visualizing a simplified continuum created by grouping the seven urban agglomerations into large cities (population greater than 1 million), intermediate cities (250,000 to 1 million inhabitants), and small cities and towns (20,000 to 250,000 inhabitants). A layer file is provided for the simplified continuum (Urban-Rural Catchment Areas.lyr).

Urban-Rural Catchment Areas (URCA) is in GeoTIFF format, band interleaved with LZW compression, suitable for use in Geographic Information Systems and statistical packages. The data type is byte, with pixel values ranging from 1 to 30. The no data value is 128. It has a spatial resolution of 30 arc seconds, whichis approximately 1km at the equator. The spatial reference system (projection) is EPSG:4326 - WGS84 - Geographic Coordinate System (lat/long). The geographic extent is 83.6N - 60S / 180E - 180W. For more information on the methods, see the Supplementary Information.

**Meta-data** - Table A1 shows how the urban–rural catchment areas may be visualized in a full (label\_full) or simplified continuum, as seen in Figure 1 (label\_aggr). URCAhierar refers to the hierarchy of cities and towns by population size and catchment areas by travel times (see also Table SI in the Supplementary Information). URCAmapord lists the agglomerations and their catchment areas in order of agglomeration size and proximity, starting from the largest cities to the towns and then followed by their catchment areas in order of nearest to farthest.

**Table A1 Urban-Rural Catchment Areas (URCA).tif attribute table**

|  |  |  |  |
| --- | --- | --- | --- |
| **URCAhierar** | **URCAmapord** | **label\_full** | **label\_aggr** |
| 1 | 1 | Large city (> 5 million) | Large city (>1 mil.) |
| 2 | 2 | Large city (1 – 5 million) | Large city (>1 mil.) |
| 3 | 3 | Intermediate city (500,000 – 1 million) | Intermediate city (0.25 - 1 mil.) |
| 4 | 4 | Intermediate city (250,000 – 500,000) | Intermediate city (0.25 - 1 mil.) |
| 5 | 5 | Small city (100,000 – 250,000) | Small cities and towns (0.02 - 0.25 mil.) |
| 6 | 6 | Small city (50,000 – 100,000) | Small cities and towns (0.02 - 0.25 mil.) |
| 7 | 7 | Town (20,000 – 50,000) | Small cities and towns (0.02 - 0.25 mil.) |
| 8 | 8 | <1 hour to large city (> 5 million) | <1 hour to large city |
| 9 | 9 | <1 hour to large city (1 – 5 million) | <1 hour to large city |
| 10 | 10 | <1 hour to intermediate city (500,000 – 1 million) | <1 hour to intermediate city |
| 11 | 11 | <1 hour to intermediate city (250,000 – 500,000) | <1 hour to intermediate city |
| 12 | 12 | <1 hour to small city (100,000 – 250,000) | <1 hour to small city or town |
| 13 | 13 | <1 hour to small city (50,000 – 100,000) | <1 hour to small city or town |
| 201\* | 14 | <1 hour to town (20,000 – 50,000) | <1 hour to small city or town |
| 14 | 15 | 1-2 hours to large city (> 5 million) | 1-2 hours to large city |
| 15 | 16 | 1-2 hours to large city (1 – 5 million) | 1-2 hours to large city |
| 16 | 17 | 1-2 hours to intermediate city (500,000 – 1 million) | 1-2 hours to intermediate city |
| 17 | 18 | 1-2 hours to intermediate city (250,000 – 500,000) | 1-2 hours to intermediate city |
| 18 | 19 | 1-2 hours to small city (100,000 – 250,000) | 1-2 hours to small city or town |
| 19 | 20 | 1-2 hours to small city (50,000 – 100,000) | 1-2 hours to small city or town |
| 202\*\* | 21 | 1-2 hours to town (20,000 – 50,000) | 1-2 hours to small city or town |
| 21 | 22 | 2-3 hours to large city (> 5 million) | 2-3 hours to large city |
| 22 | 23 | 2-3 hours to large city (1 – 5 million) | 2-3 hours to large city |
| 23 | 24 | 2-3 hours to intermediate city (500,000 – 1 million) | 2-3 hours to intermediate city |
| 24 | 25 | 2-3 hours to intermediate city (250,000 – 500,000) | 2-3 hours to intermediate city |
| 25 | 26 | 2-3 hours to small city (100,000 – 250,000) | 2-3 hours to small city or town |
| 26 | 27 | 2-3 hours to small city (50,000 – 100,000) | 2-3 hours to small city or town |
| 27 | 28 | 2-3 hours to town (20,000 – 50,000) | 2-3 hours to small city or town |
| 28 | 29 | Dispersed towns (>3 hours to any city) | Dispersed towns |
| 29 | 30 | Hinterland (>3 hours to any city) | Hinterland |

Note: Large, intermediate and small cities are from the GHS-SMOD “urban centres” (also known as typology 30), which have a minimum of 50,000 inhabitants in high-density grids of at least 1,500 people per km2. Towns refers to the GHS-SMOD “dense towns” or typology 23, however we only include the agglomerations that have between 20,000 and 50,000 inhabitants rather than all typology 23 towns (which range from 5,000 to 50,000 inhabitants). We established this population threshold in order to differentiate towns of a size that may draw in rural residents for goods and services. Dispersed towns refers to towns of at least 5,000 inhabitants (including typology 23 towns with less than 20,000 inhabitants and lower-density towns known as typologies 22 and 21) that are located over 3 hours travel time to any agglomeration with over 20,000 inhabitants. \*, \*\* Refers to 20a and 20b in Table S1.