**INDICATOR 11: Accessibility as a Determinant of the Depopulation**

**File Name: Access\_and\_Pop\_Chg\_1975-2015**

* Coordinate Reference Systems: WGS 84 / UTM zone 34N (EPSG:32634)

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| **Attribute** | **Alias** | **Pseudonim** |
| MatBrO | Municipality identification number | Matični broj opštine |
| MatBrNas | Settlement identification number | Matični broj naselja |
| ImeNasCir | Name of the settlement in Cyrillic | Ime naselja (ćirilica) |
| ImeNasLat | Name of the settlement in Latin | Ime naselja (latinica) |
| ImeOpsCir | Name of the municipality in Cyrillic | Ime opštine (ćirilica) |
| ImeOpsLat | Name of the municipality in Latin | Ime opštine (latinica) |
| TT\_car\_min\* | Travel time to municipality center (min) | Vreme putovanja do opštinskog centara (min) |
| Decl/Grow | Population trend 1975–2015 | Trend promene broja stanovnika 1975–2015 |
| Acc\_key | Unique number for settlement class   1. Accessible areas with population growth 2. Accessible areas with population decline 3. Inaccessible areas with population growth 4. Inaccessible areas with population decline 5. Municipality centre 6. No permanent inhabitants 7. No data | Jedinstven broj za klasu naselja   1. Pristupačna područja sa populacionim porastom 2. Pristupačna područja sa populacionim padom 3. Nepristupačna područja sa populacionim porastom 4. Nepristupačna područja sa populacionim padom 5. Opštinski centar 6. Nema stalnih stanovnika 7. Nema podataka |
| Acc\_Name | Class of settlement according to accessibility and trend of change of population:   * Accessible areas with population growth * Accessible areas with population decline * Inaccessible areas with population growth * Inaccessible areas with population decline * Municipality centre * No permanent inhabitants * No data | Klasa naselja prema dostuposti i trendu promene broja stanovnika:   * Pristupačna područja sa populacionim porastom * Pristupačna područja sa populacionim padom * Nepristupačna područja sa populacionim porastom * Nepristupačna područja sa populacionim padom * Opštinski centar * Nema stalnih stanovnika * Nema podataka |

\**Note*. 0 = Municipality center; NULL = No data

**Description of Indicator:** Accessibility as a Determinant of the Depopulation is a complex indicator that simultaneously treats the importance of settlements, the quality and density of the traffic network, and population change. Accessibility or isolation expressed by the time distance from the municipal center indirectly indicates the degree of demographic vulnerability. Settlements that are temporally distant from the municipal center, as well as regional centers, are considered isolated, peripheral. The greater distance influences the more difficult conditions for the local population to meet the essential needs, and the availability of tertiary institutions (education, health, culture, administration) is significantly reduced. Such territories are directly exposed to the depopulation process. On the other hand, settlements that are at a smaller distance from the city, located near the modern traffic infrastructure, enable and facilitate the mobility of the population to meet business and personal needs in the nearest center. Starting from the assumption that the population change is directly affected by accessibility, both components are incorporated into this complex Indicator. The average time distance (in minutes) from the municipal center for each settlement was calculated following the European norms (for average speeds of motor vehicles on different categories of roads). The average time distance in Serbia (21.3 min) was used to classify settlements into two categories: accessible and inaccessible. The time distance of the settlement from the municipal center was compared with the population trend in the period 1975–2015 based on which settlements are divided into two categories: those with population growth and population decline. Finally, four classes were created: Accessible areas with population decline, Accessible areas with population decline, Inaccessible areas with population decline, and Inaccessible areas with population growth.

**Source data for Indicator calculation**

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| **Type of data** | **Source** |
| Time distance | [OpenStreetMap](https://www.openstreetmap.org/) |
| Population count\* | [GHS-POP R2019A dataset—GHS population grid multitemporal [European Commission, Joint Research Center, 2019], datasets for 1975 and 2015](https://data.jrc.ec.europa.eu/dataset/0c6b9751-a71f-4062-830b-43c9f432370f) |
| Administrative units\*\* | [GeoSrbija [Open data of the National Data Infrastructure, Republic Geodetic Authority, n.d.]](https://geosrbija.rs/usluge/otvoreni-podaci-nigp/) |

\* Population data for municipalites Preševo and Bujanovac are not included in datasets. Accordingly, the indicator values within these aministrative units are missing.

\*\* GeoSrbija (Open Data of the National Data Infrastructure, Republic Geodetic Authority, n.d.) from which the administrative settlements boundaries were taken have no data for the province Kosovo and Metohija. Accordingly, these administrative units were not included in the analysis.