



INDICATOR 11: Accessibility as a Determinant of the Depopulation

File Name: Access_and_Pop_Chg_1975-2015.shp

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

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 growth, Inaccessible areas with population decline, and Inaccessible areas with population growth.

Source data for Indicator calculation

Type of data	Source
Time distance	OpenStreetMap
Population count*	GHS-POP R2019A dataset—GHS population grid multitemporal [European Commission, Joint Research Center, 2019], datasets for 1975 and 2015
Administrative units**	GeoSrbija [Open data of the National Data Infrastructure, Republic Geodetic Authority, n.d.]

* Population data for municipalities Preševsko and Bujanovac are not included in datasets. Accordingly, the indicator values within these administrative 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.