DESTATIS | **SUSTAINABLE DEVELOPMENT GOALS**
Statistisches Bundesamt

SDG Goal 11	**Sustainable cities and communities**
SDG Target 11.3	**By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries**
SDG Indicator 11.3.1	**Ratio of land consumption rate to population growth rate**
Time series	**Ratio of land consumption rate to population growth rate**

1. General information on the time series

- Date of national metadata: 7 July 2023
- National data: http://sdg-indicators.de/11-3-1/
- Definition: The time series measures the relation of land use and the development of the population. Land use, which shows the development of the settlement and transport area, includes the usage types buildings and open spaces, commercial/industrial land (except mining), transport land, recreational land and cemeteries. This indicator does not focus on sealed land, but also records undeveloped and non-sealed land such as gardens, yard areas and landscaping around transport infrastructure as well as open spaces such as parks and green spaces, allotments, garden landscape within towns and villages, sports and recreational facilities, camp sites as well as cemeteries.
- Disaggregation: presentation

2. Comparability with the UN metadata

- Date of UN metadata: March 2021
- UN metadata: https://unstats.un.org/sdgs/metadata/files/Metadata-11-03-01.pdf
- The time series is not compliant with the UN metadata, but provides additional information. It provides information on the ratio of land consumptionrate to population growth rate for the entire country and not only for urban areas.

3. Data description

- The settlement and transport area is derived from the area survey of the Federal Statistical Office, which categorizes the surface by land cover or land use. The main categories are settlement, transportation, vegetation and water surfaces, which are further subdivided into different subtypes. The area survey as a total calculation is based on administrative data of the Official Real Estate Cadastre of the Länder (federal states). Until 2015, the data was derived from the old Automated Real Estate Books (ALB). Since 2016 the Authoritative Real Estate Cadastre Information System (ALKIS) is used nation-wide in all Länder. With that semantic change a new land use type catalogue was applied. The results from 2016 onwards are therefore only comparable with previous years to a limited extend.

  The population data comes from the intercensal population updates, the basis of which is the last census conducted in 2011. The population data is rolled forward using statistical results on natural population change (births, deaths) and migrations. For calculating the 2010 and 2011 growth rates, the population was calculated backwards using the 2011 census data and migration, birth and death statistics.

  Due to the calculation method, there are sometimes strong outliers in the data, for example, when the divisor has values close to zero. These values are not shown here. In order to smooth out annual fluctuations in the data, the time series is also presented as a four-year moving average. This is calculated from the respective average values of the dividend and divisor and not as the average value of the quotient.

4. Access to data source

- Housing and transport area: reference date (until 2015-12-31) – GENESIS online 33111-0003:
  https://www-genesis.destatis.de/genesis//online?operation=table&code=331111-0003&bypass=true&levelindex=1&levelid=1630489451493

- Population: reference date – GENESIS online 12411-0006:
  https://www-genesis.destatis.de/genesis//online?operation=table&code=12411-0006&bypass=true&language=en

- Population data based on Census 2011 – 1991 to 2011 (only available in German):
  https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Bevoelkerungsstand/_inhalt.html

5. Metadata on source data

- Quality Report – Intercensal population updates:
  https://www.destatis.de/EN/Methods/Quality/QualityReports/Population/einfuehrung.html

- Quality Report – Area survey by Type of Actual Use (only available in German):
  https://www.destatis.de/DE/Methoden/Qualitaet/Qualitaetsberichte/Land-Forstwirtschaft-Fischerei/flaechenerhebung.pdf

6. Timeliness and frequency

- Timeliness: Land consumption rate: t + 11 months; Population growth rate: t + 8 months
- Frequency: Annual

7. Calculation method

- Unit of measurement: No unit
- Calculation:

$$\text{Ratio of land consumption rate to population growth rate} = \frac{\text{Land consumption rate [\%]}}{\text{Population growth rate [\%]}}$$

$$\text{Average ratio of land consumption rate to population growth rate} = \frac{\text{Average land consumption rate [\%]}}{\text{Average population growth rate [\%]}}$$

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SDG Indicator 11.3.1	**Ratio of land consumption rate to population growth rate**
Time series	**Proportion of settlement and transport areas to population**

1. General information on the time series

- Date of national metadata: 7 July 2023
- National data: http://sdg-indicators.de/11-3-1/
- Definition: The time series measures the ratio of the area used for settlement and transport to the population, or more precisely the number of square kilometers of settlement and transport area per inhabitant. The settlement and transport area cannot be compared with the sealed area, as it also includes undeveloped and unsealed areas, e.g. for sports or recreation.
- Disaggregation: presentation

2. Comparability with the UN metadata

- Date of UN metadata: March 2021
- UN metadata: https://unstats.un.org/sdgs/metadata/files/Metadata-11-03-01.pdf
- The time series is not compliant with the UN metadata, but provides additional information.

3. Data description

- The settlement and transport area is derived from the area survey of the Federal Statistical Office, which categorizes the surface by land cover or land use. The main categories are settlement, transportation, vegetation and water surfaces, which are further subdivided into different subtypes. The area survey as a total calculation is based on administrative data of the Official Real Estate Cadastre of the Länder (federal states). Until 2015, the data was derived from the old Automated Real Estate Books (ALB). Since 2016 the Authoritative Real Estate Cadastre Information System (ALKIS) is used nation-wide in all Länder. With that semantic change a new land use type catalogue was applied. The results from 2016 onwards are therefore only comparable with previous years to a limited extend.

  The population data comes from the intercensal population updates, the basis of which is the last census conducted in 2011. The population data is rolled forward using statistical results on natural population change (births, deaths) and migrations. For calculating the 2010 and 2011 growth rates, the population was calculated backwards using the 2011 census data and migration, birth and death statistics.

  Due to the calculation method, there are sometimes strong outliers in the data, for example, when the divisor has values close to zero. These values are not shown here. In order to smooth out annual fluctuations in the data, the time series is also presented as a four-year moving average. This is calculated from the respective average values of the dividend and divisor and not as the average value of the quotient.

4. Access to data source

- Housing and transport area: reference date (until 2015-12-31) – GENESIS online 33111-0003:
  https://www-genesis.destatis.de/genesis//online?operation=table&code=331111-0003&bypass=true&levelindex=1&levelid=1630489451493
- Population: reference date – GENESIS online 12411-0006:
  https://www-genesis.destatis.de/genesis//online?operation=table&code=12411-0006&bypass=true&language=en
- Population data based on Census 2011 – 1991 to 2011 (only available in German):
  https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Bevoelkerungsstand/_inhalt.html

5. Metadata on source data

- Quality Report – Intercensal population updates:
  https://www.destatis.de/EN/Methods/Quality/QualityReports/Population/einfuehrung.html
- Quality Report – Area survey by Type of Actual Use (only available in German):
  https://www.destatis.de/DE/Methoden/Qualitaet/Qualitaetsberichte/Land-Forstwirtschaft-Fischerei/flaechenerhebung.pdf

6. Timeliness and frequency

- Timeliness: Settlement and transport area: t + 11 months; Population: t + 8 months
- Frequency: Annual

7. Calculation method

- Unit of measurement: 2015 = 100
- Calculation:

$$\text{Proportion of settlement and transport area} = \frac{\text{Settlement and transport area}_t \, [\text{km}^2]}{\text{Settlement and transport area}_{2015} \, [\text{km}^2]} \cdot \frac{\text{Population}_{2015} \, [\text{number}]}{\text{Population}_t \, [\text{number}]} \cdot 100 \, [\%]$$

$$\text{Average Proportion of settlement and transport area} = \frac{(SaT_{t-3} + SaT_{t-2} + SaT_{t-1} + SaT_t)[\text{km}^2]}{(SaT_{2012} + SaT_{2013} + SaT_{2014} + SaT_{2015})[\text{km}^2]} \cdot \frac{(Pop_{2012} + Pop_{2013} + Pop_{2014} + Pop_{2015})[\text{number}]}{(Pop_{t-3} + Pop_{t-2} + Pop_{t-1} + Pop_t)[\text{number}]} \cdot 100 \, [\%]$$

Sat = Settlement and transport area
Pop = Population

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SDG Indicator 11.3.1	**Ratio of land consumption rate to population growth rate**
Time series	**Land consumption rate**

1. General information on the time series

- Date of national metadata: 7 July 2023
- National data: http://sdg-indicators.de/11-3-1/
- Definition: The time series measures the annual rate at which cities uptake land for urbanized usage. Human settlement areas in this context include the land use types of dwelling and housing, commercial and industrial sites (except open pit mining areas), transportation networks, and sport, leisure, cultural and recreational areas as well as cemeteries. These areas include buildings and associated land as well as open spaces under the named usages. The time series does not focus only on sealed surfaces, but also includes non-sealed and directly associated land of the above mentioned land use types. It contains also gardens, yard areas, parks and green spaces, allotment gardens, or camp sites.
- Disaggregation: presentation

2. Comparability with the UN metadata

- Date of UN metadata: March 2021
- UN metadata: https://unstats.un.org/sdgs/metadata/files/Metadata-11-03-01.pdf
- The time series is not compliant with the UN metadata, but provides additional information. It represents the numerator for the calculation of the ratio.

3. Data description

- The settlement and transport area is derived from the area survey of the Federal Statistical Office, which categorizes the surface by land cover or land use. The main categories are settlement, transportation, vegetation and water surfaces, which are further subdivided into different subtypes. The area survey as a total calculation is based on administrative data of the Official Real Estate Cadastre of the Länder (federal states).

  Until 2015, the data was derived from the old Automated Real Estate Books (ALB). Since 2016 the Authoritative Real Estate Cadastre Information System (ALKIS) is used nation-wide in all Länder. With that semantic change a new land use type catalogue was applied. The results from 2016 onwards are therefore only comparable with previous years to a limited extend.

4. Access to data source

- Soil area (actual use): types of use – GENESIS online 33111-0007:
  https://www-genesis.destatis.de/genesis//online?operation=table&code=33111-0007&bypass=true&language=en
- Soil area (actual use): types of use (2016-12-31 to 2022-12-31) – GENESIS online 33111-0005:
  https://www-genesis.destatis.de/genesis//online?operation=table&code=33111-0005&bypass=true&language=en
- Soil area (actual use): reference date (until 2015-12-31), types of use – GENESIS online 33111-0001:
  https://www-genesis.destatis.de/genesis//online?operation=table&code=33111-0001&bypass=true&language=en
- Housing and transport area: reference date (until 2015-12-31) – GENESIS online 33111-0003:
  https://www-genesis.destatis.de/genesis//online?operation=table&code=331111-0003&bypass=true&levelindex=1&levelid=1630489451493

5. Metadata on source data

- Quality Report – Area survey by Type of Actual Use (only available in German):
  https://www.destatis.de/DE/Methoden/Qualitaet/Qualitaetsberichte/Land-Forstwirtschaft-Fischerei/flaechenerhebung.pdf

6. Timeliness and frequency

- Timeliness: t + 11 months
- Frequency: Annual

7. Calculation method

- Unit of measurement: Percentage
- Calculation:

$$\textbf{Land consumption rate} = \left(\frac{\text{Settlement and transport area}_t \ [\text{km}^2]}{\text{Settlement and transport area}_{t-1} \ [\text{km}^2]} - 1 \right) \cdot 100 \ [\%]$$

$$\textbf{Average land consumption rate} = \left(\left(\frac{\text{Settlement and transport area}_t \ [\text{km}^2]}{\text{Settlement and transport area}_{t-4} \ [\text{km}^2]} \right)^{1/4} - 1 \right) \cdot 100 \ [\%]$$

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SDG Indicator 11.3.1 | **Ratio of land consumption rate to population growth rate**

Time series | **Population growth rate**

1. General information on the time series

- Date of national metadata: 7 July 2023
- National data: http://sdg-indicators.de/11-3-1/
- Definition: The time series measures the annual increase or decrease of the population in a germany.
- Disaggregation: presentation

2. Comparability with the UN metadata

- Date of UN metadata: March 2021
- UN metadata: https://unstats.un.org/sdgs/metadata/files/Metadata-11-03-01.pdf
- The time series is not compliant with the UN metadata, but provides additional information. It represents the denominator for the calculation of the ratio.

3. Data description

- Population growth rate is the increase of a population in a country during a period, usually one year, expressed as a percentage of the population at the start of that period.The population data comes from the intercensal population updates, the basis of which is the last census conducted in 2011. The population data is rolled forward using statistical results on natural population change (births, deaths) and migrations. For calculating the 2010 and 2011 growth rate, the population was calculated backwards using the 2011 census data and migration, birth and death statistics.

4. Access to data source

- Population: reference date – GENESIS online 12411-0006: https://www-genesis.destatis.de/genesis//online?operation=table&code=12411-0006&bypass=true&language=en
- Population data based on Census 2011 – 1991 to 2011 (only available in German): https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Bevoelkerungsstand/_inhalt.html

5. Metadata on source data

- Quality Report – Microcensus (only available in German): https://www.destatis.de/DE/Methoden/Qualitaet/Qualitaetsberichte/Bevoelkerung/einfuehrung.html

6. Timeliness and frequency

- Timeliness: t + 8 months
- Frequency: Annual

7. Calculation method

- Unit of measurement: Percentage
- Calculation:

$$\textbf{Population growth rate} = Ln\left(\frac{\text{Population}_t \text{ [number]}}{\text{Population}_{t-1} \text{ [number]}}\right) \cdot 100 \text{ [\%]}$$

$$\textbf{Average population growth rate} = \left(\left(\frac{\text{Population}_t \text{ [number]}}{\text{Population}_{t-4} \text{ [number]}}\right)^{1/4} - 1\right) \cdot 100 \text{ [\%]}$$