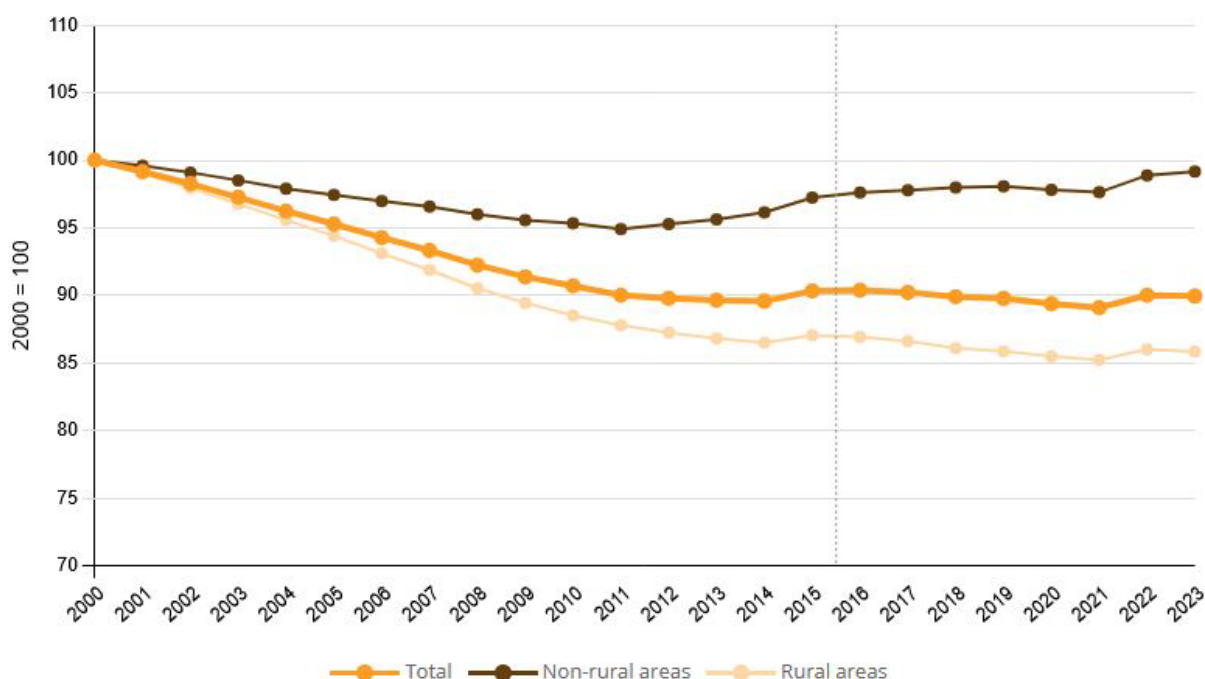Land use – *Using land sustainably*

11.1.c   Density of settlements

Inhabitants per square kilometre of settlement and transport area

Note(s):
The data is based on a special evaluation and is not publicly available. – From the 2016 reporting year onwards, the official land survey is based on the Official Real Estate Cadastre Information System (ALKIS). – With the changeover of the documentation for modelling the geoinformation of the official surveying system from version 6.0.1 to 7.1.2 in 2023, the list of land use types was expanded once again. This makes it harder to compare with previous years and calculate changes. The settlement and transport area determined after the changeover largely contains the same types of use as before. – The data on the annual values and the moving average for the years 2020 to 2022 have been corrected. For the period mentioned, the surveying administration carried out a large number of reclassifications from vegetation to transport areas, which do not correspond to any change in land use in reality. The present results have been adjusted for these reclassifications.

Data source(s):
Federal Statistical Office

Definition
The indicator shows the development of the population per square kilometre of settlement and transport area compared to the base year 2000.

Intention
The indicator provides information on the efficiency of settlement land utilisation. It is intended to reflect the effects of land-saving measures in new construction and internal development, such as the reduction of residential and commercial vacancies, redensification and increasing building density.

Target
No reduction in density of settlements

Content and progress

Settlement density describes the ratio of population to settlement and transport area (SuV) and thus differs from population density, which relates to the total area of the Federal territory. In addition to residential building land, settlement area also includes land with special uses such as hospitals, schools, industrial and commercial zones, mixed-use areas, as well as sports, leisure and recreational areas. Changes in both the population and the extent of SuV affect settlement density.

Settlement density varies significantly between rural and non-rural areas. The classification follows the typology of the Thünen Institute, which categorises districts (Kreise) and independent cities (kreisfreie Städte) based on criteria such as settlement density, the proportion of land used for agriculture and forestry, and accessibility of major centres. As the definition of rural already incorporates settlement density, differences in the indicator between rural and non-rural areas are partly due to the classification itself. For example, an increase in settlement density in a rural area may lead to its future classification as non-rural.

Between 2000 and 2011, settlement density decreased in both area types – by 12% in rural areas and by 5% in non-rural areas. Since 2011, the indicator value for Germany as a whole has remained relatively constant at around 1,670 inhabitants per square kilometre of SuV, corresponding to about 90% of the 2000 value. In non-rural areas, settlement density has been rising again since 2011, reaching 3,384 inhabitants per square kilometre of SuV in 2023, almost the same level as in 2000.

A comparison of the development of SuV and population figures reveals different trends for the two influencing factors: while SuV has been steadily expanding since 2000, the population declined between 2000 and 2011, explaining the decrease in settlement density. Since 2011, population numbers have been increasing again, which is why the indicator has remained largely constant since then. The proportion of SuV in total area in 2023 was considerably lower in rural areas, at 12.3%, than in non-rural areas, at 36.8%. The increase in SuV affected both area types, but was significantly greater in rural areas (up 17.4% in 2023 compared with 2000) than in non-rural areas (up 9.3%). At the same time, population growth since 2011 has been weaker in rural areas, resulting in a slight decline in settlement density there.

According to the Thünen Institute's definition, around 43% of the population lived in non-rural areas and 57% in rural areas in 2023. At the same time, around 80% of the settlement and transport area was located in rural areas. The politically defined target is to increase the number of inhabitants per square kilometre of SuV. However, due to the stagnation observed in recent years, this target is unlikely to be achieved or will be reached only to a limited extent.

The data sources are population statistics and the land survey by type of actual use (official land use statistics) of the Federal Statistical Office. The Länder are harmonising their cadastral systems, which in recent years has led to reclassifications of land – even without actual changes in use. In 2016, a new land-use classification was introduced, affecting the official land use statistics and limiting comparability with previous years. To still allow meaningful time series comparisons, the data were recalculated based on the 2011 Census and the 2016 land survey.

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A further extension of the land-use classification took place in 2023 with the introduction of a new modelling of the geospatial information of the official surveying system (GEOInfoDok), accompanied by changes to the modelling criteria for actual use. To minimise distortions to the land indicator caused by this methodological change, effects not corresponding to actual changes are excluded from the calculation. As migration to the new GEOInfoDok is completed at different times in the Länder surveying authorities, these effects may occur at different times depending on the Land and may influence results over several years. In the medium term, the methodological change will lead to significant quality improvements in land use statistics.

The indicator has substantive cross-references to indicator 11.1.a Increase in settlement and transport area.

Type of target
Directional target

Assessment
The number of inhabitants per square kilometre of settlement and transport areas should increase.

As the value of indicator 11.1.c declined in 2023 but rose on average over the past six years, the indicator is assessed as slightly cloudy for 2023.