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Number	AD3
Indicator name	Built-up, paved impermeable areas
Area	A
Indicator definition	<p>The indicator expresses the share of paved impermeable areas in the total area of the administrative territory of the city/city district/municipality. Paved, impermeable surfaces include, in particular, buildings, roads, courtyards, car parks and other paved surfaces that do not allow water to seep into the soil profile. If buildings have vegetation roofs, they are not included in the built-up area.</p>
Indicator unit	%
Key words	Rainwater, sustainable rainwater management, microclimate, paved impermeable area
Reason for tracking and usability	<p>Monitoring the indicator provides the city/city district/municipality with information on the total area of built-up and water-permeable areas. It is extremely important to monitor the ratio or whether these areas are increasing or decreasing (relatively or absolutely), as not only new development on the growing terrain but also the conversion of water-impermeable areas into permeable or construction of vegetation roofs on existing buildings is included.</p> <p>The ever-increasing share of built-up areas and sealing of land is a serious problem from several points of view. The European Commission has prepared a series of documents aimed at creating a soil protection directive.</p> <p>Soil is extremely important in the context of climate change. On the one hand, it is able to partially absorb greenhouse gas emissions, but its role in settlements is mainly in the area of adaptation to climate change, as it is of great importance especially for retention and rainwater.</p> <p>The information obtained will make it possible to respond to the deterioration of the situation and also to compare the situation in the given city/city district/municipality with other similar settlements. The negative development can be reacted not only by creating compensatory measures, especially in the form of vegetation roofs, vegetation walls, etc., or by legislative instruments (Generally Binding Regulation) to regulate and protect undeveloped land in the city/city district/municipality.</p>

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**Completeness, representativeness, validity**

The indicator is also closely related to the monitoring of the amount of greenery and green infrastructure, as well as the protection of biodiversity in settlements. The spatial planning coefficient is used in spatial planning, as is the green coefficient. These coefficients are indicative because they determine the future development in a given area from the point of view of development. A prerequisite for completeness and representativeness is a detailed analysis of the entire administrative territory and good knowledge of all areas. All data must be current, based on the actual state. Within Klimasken, the indicator is linked to descriptive indicators (area and share of different types of areas), exposure indicators (share of tropical days and nights, climatic drought), other indicators of sensitivity and adaptive capacity (retention capacity) and readiness indicators (area of areas converted to blue-green infrastructure). This indicator does not have significant limits.

**Description of data processing**

The area of paved and built impermeable areas calculated by a suitable method (spatial analysis) is divided by the total area of the administrative territory of the city/city district/municipality (the total area is also part of the descriptive indicators). The result is expressed as a percentage.

**Data source**

The source of data is the departments of the city/municipal office/local office of the city district (mainly the department of land usage plan, greenery or environment, general or passport greenery, map GIS data, freely available data including satellite imaging (CORINE, LandCover, Copernicus Land Monitoring Service – Urban Atlas ([land.copernicus.eu](http://land.copernicus.eu)), The Landsat Program ([landsat.gsfc.nasa.gov](http://landsat.gsfc.nasa.gov)), ESRI basemaps ([arcgis.com](http://arcgis.com)), Google maps ([maps.google.com](http://maps.google.com))).

**Tracking frequency**

1 x 2 years (or according to the frequency of Klimasken monitoring)

**Urban influence**

The indicator applies to all built-up and impermeable areas, regardless of the owner. The city/city district/municipality can influence the extent, condition, quality and character of the development and paved areas only in its administration. Other built-up and impermeable areas under the administration of other owners may be affected by the city/city district/municipality through the consistent application of the rules in spatial planning, the application of appropriate regulations of spatial development and construction, as well as educational activities.

**Presentation method**

The results will be presented in a single KLIMASKEN framework on a five-step scale according to specified intervals.

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**Responsibility**

Processor KLIMASKEN, city, city district, municipality

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