

Small Sponge Towns and Metropolises Under Pressure. The Many Faces of European Cities in the New COOLCITY Index 2026 Report

Polish and international media recently reported that Piwniczna-Zdrój achieved the highest score in the COOLCITY Index, which covers more than 11,000 European cities and towns and assesses their adaptive potential to climate change. Now, the project team is publishing a Report that puts these data into a broader perspective: it compares cities across all 27 European Union Member States, highlighting characteristic patterns and challenges in different countries and regions. How does Poland compare?

The report “COOLCITY Index 2026: Adaptive potential of 11,041 European Union cities” is the first comprehensive overview of the data available on the coolcity.eu platform. While the platform allows users to check the score of an individual city or town, The COOLCITY Index 2026 Report places these results in a broader context, revealing differences between regions, types of urban areas and cities of different sizes.

11,000 cities, 27 countries, 4 regions

“In the Report, we analyse more than 11,000 urban areas using the same methodology and comparable data on surface permeability, vegetation state, biodiversity, water conditions and thermal conditions. We integrate the results into our proprietary COOLCITY Index (CCI), which provides a composite assessment of a city’s adaptive potential on a scale from 1 to 10 — the higher the score, the greater the potential. This enables us not only to compare individual cities and towns, but above all to identify patterns: how similar phenomena manifest themselves across different countries, regions and types of urban areas,” says Dominik Kopeć, PhD, DSc, Deputy Director of the Remote Sensing Department at MGGP Aero.

Analysing data at this scale makes it possible to identify relationships that can easily be overlooked when looking at a single city — including some that may seem counterintuitive. One example can be found in the section of The COOLCITY Index 2026 Report devoted to Northern Europe. A cooler climate does not mean that the largest cities are free from phenomena such as the urban heat island effect. Among large urban centres, including Stockholm, Helsinki and Copenhagen, the average surface temperature is as much as 1.7°C higher than the average for cities in the region.

A different pattern can be observed in France. As city size increases, the average COOLCITY Index score decreases markedly — from 5.7 CCI in towns with fewer than 10,000 inhabitants to 3.5 CCI in the largest metropolitan areas. France is not an isolated case: similar relationships between city size and environmental conditions can also be observed in other parts of Europe.

12 blue-green city profiles

The COOLCITY Index 2026 Report goes beyond country-level comparisons. Based on CCI values and key socio-geographical data, the authors grouped EU cities and towns into 12 distinctive profiles. They range from cool, exceptionally green “Blue-Green Towns of the North” and Western European “Small Sponge Towns”, characterised by very high natural retention, to highly sealed “Western Metropolises Under Pressure” and the most densely populated “Heated Centres of the South” — compact, intensively developed cities particularly vulnerable to overheating.

“The profiles reflect specific local conditions, and their names already indicate what the cities within each group have in common and what challenges they face. They also provide an indication of the direction adaptation efforts should take: where protecting existing blue-green infrastructure should be the priority, and where improving it or introducing new solutions will be necessary,” notes Zuzanna Kunert, Data Analyst at MGGP Aero and co-author of The COOLCITY Index 2026 Report.

Differences between the profiles also point to specific living conditions and residents’ exposure to phenomena such as overheating and drought. According to The COOLCITY Index 2026 Report, 31% of residents of the analysed cities live in areas belonging to profiles with unfavourable environmental conditions, while only 17% live in profiles with the most favourable conditions.

Poland in the European context

The average CCI score for Polish cities is 6.2, placing Poland second among the eight countries in Central-Eastern Europe. The COOLCITY Index 2026 Report analysed 574 of Poland’s largest towns and cities. What stands out in these data?

On average, 74% of urban areas in Poland are covered by vegetation, providing more than 500 m² of green space per resident. However, these conditions vary depending on city size. In very small towns with fewer than 10,000 inhabitants, blue-green infrastructure is in significantly better condition than in larger urban centres. This is where the greatest adaptive potential is concentrated, and the priority should therefore be to protect existing natural assets and ecological connectivity. There are more than 670 m² of green space per resident.

More than 3 million people in Poland live in cities belonging to the previously mentioned “Upland Cities of Green Advantage” profile. The adaptive potential of these towns and cities is 0.8 CCI points higher than the average for Central-Eastern Europe. One of them is Piwniczna-Zdrój, which, with a score of 8.5 CCI, ranked first in the entire COOLCITY Index.

The greatest challenges are concentrated in the largest cities, with populations above 100,000. One of the key issues is the high proportion of sealed surfaces — excessive surface sealing intensifies urban overheating — as well as declining biodiversity and ecological connectivity.

From a regional perspective, however, Poland and the Czech Republic have the smallest share of their populations living in “Dense Warm Cities” — cities with the least favourable conditions for building resilience through nature — at below 1% of the population.

“There is no single solution that works for every city, but we can understand the relationships involved and have access to good data, knowledge and tools. The Report provides a starting point and a broader context, while the wider COOLCITY toolset goes further: from data and diagnosis, through assessment, to recommendations and the design of specific measures,” emphasises Łukasz Sławik, Member of the Management Board of MGGP Aero and Strategic Director of the COOLCITY project.

An expert team behind a European initiative

Behind COOLCITY is an interdisciplinary team of experts with expertise in GIS, remote sensing, data analysis, environmental sciences and spatial planning. The project is implemented by a consortium led by MGGP Aero, whose members are the University of Warsaw, the University of Łódź, Sieker and the City of Wrocław.

The COOLCITY project is developing a suite of tools to help cities better understand their environment, identify challenges more accurately and plan more effective measures related to urban greenery, water management and resilience to the impacts of climate change.

The LIFE COOLCITY project, “Use of Remote Sensing for the Management of Urban Blue-Green Infrastructure in Climate Change Adaptation Processes”, is being implemented from 2023 to 2029 and is co-funded by the European Union under the LIFE Programme and by the National Fund for Environmental Protection and Water Management of Poland.

Full COOLCITY Index 2026 Report: <https://coolcity.eu/en/index/2026/report/>

Interactive results map: <https://coolcity.eu/en/index/2026/map/>