European Commission

Green City Accord

Clean and Healthy Cities for Europe

1st Report 2020-2023

January 2025

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1. Introduction

1.1. About the GCA and this report

The Green City Accord (GCA) is a movement of European mayors committed to making cities cleaner and healthier. This ambitious initiative intends to empower cities across Europe in their efforts to confront pressing environmental challenges and accelerate the implementation of EU environmental laws. Launched by the European Commission in 2020, the GCA stands out among EU sustainability initiatives by recognising cities as crucial drivers of environmental action. By placing local governments at the centre of the transition towards a greener, more sustainable future, the GCA acknowledges their unique position to drive meaningful change at the local level.

Cities are often the epicentres of both the challenges and opportunities in combating climate change. They are responsible for a large share of Europe's greenhouse gas emissions due to high population densities, intense economic activities, and extensive infrastructure. However, cities also have the ability to implement powerful, localised solutions that can contribute meaningfully to broader environmental goals. This understanding forms the core of the GCA, which seeks to harness the potential of cities to drive the EU's ambitious environmental agenda forward.

By signing the Accord, cities commit to taking actions across five environmental management areas, with the aim of meeting ambitious targets by 2030 (Figure 1). As part of this commitment, signatory cities are expected to report their progress every three years, using a defined set of mandatory indicators for each policy area (see section 2: Five key policy areas of the GCA).

Figure 1: Five policy areas of the GCA

Air quality: GCA signatory cities commit to significantly improve air quality in cities, moving closer to respecting the World Health Organization's Air Quality Guidelines while ending exceedances of EU air quality standards as soon as possible.

Water management: GCA signatory cities commit to achieving progress in improving the quality of water bodies and the efficiency of water use.

Nature and biodiversity: Signatory cities are engaged in making considerable progress in conserving and enhancing urban biodiversity, including increasing the extent and quality of green areas in cities and halting the loss of and restoring urban ecosystems.

Circular economy and waste management: The GCA establishes a clear objective for cities to advance towards the circular economy by securing a significant improvement in the management of household municipal waste, an important reduction in waste generation and landfilling, and a substantial increase in re-use, repair and recycling.

Noise reduction: GCA signatory cities commit to significantly reduce urban noise pollution, moving closer to the levels recommended by the World Health Organization.

At the time of writing this report, there are 114 GCA signatory cities (Table 1). This baseline report presents data from 42 signatory cities, representing those that have submitted information on GCA indicators to date among all cities that joined the initiative before 2022. While additional data from other GCA cities will continue to be submitted, this report aims to provide a snapshot of current progress and insights into the ongoing environmental efforts across participating cities.

The majority of GCA signatory cities have a population size between 50,000 and 500,000, with sizes ranging from 2,500 (Alvito, Italy) to 3.3 million (Madrid, Spain).

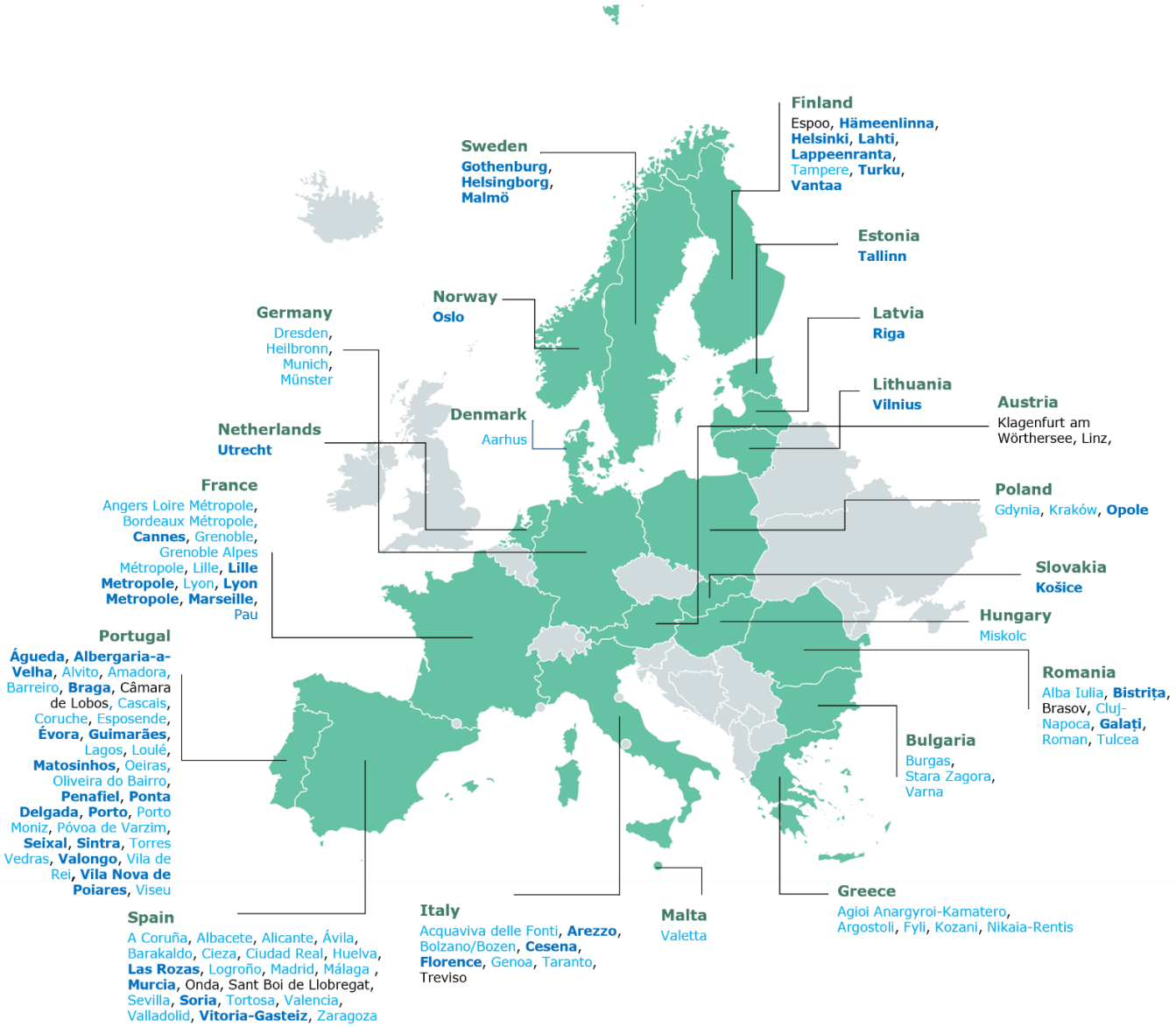
Table 1: GCA signatory cities

City population size	No. of cities	Cities
< 20,000	6	Acquaviva delle Fonti, Alvito, Coruche, Porto Moniz, Vila de Rei, Vila Nova de Poaires
20,000 – 50,000	14	Agioi Anargyroi-Kamatero, Águeda, Albergaria-a-Velha, Argostoli, Cieza, Esposende, Fyli, Lagos, Câmara de Lobos*, Oliveira do Bairro, Onda*, Roman, Soria, and Tortosa
50,000 – 100,000	24	Alba Iulia, Arezzo, Ávila, Barreiro, Bistrița, Cannes, Cesena, Ciudad Real, Évora, Hämeenlinna, Kozani, Lappeenranta, Las Rozas, Loulé, Pau, Penafiel, Ponta Delgada, Póvoa de Varzim, Sant Boi de Llobregat*, Torres Vedras, Treviso*, Tulcea, Valongo, Viseu.
100,000 – 500,000	50	A Coruña, Aarhus, Albacete, Alicante, Amadora, Angers Loire Métropole, Barakaldo, Bolzano/Bozen, Braga, Brașov*, Burgas, Cascais, Cluj-Napoca, Espoo*, Florence, Galați, Gdynia, Grenoble, Guimarães, Heilbronn, Helsingborg, Huelva, Klagenfurt am Wörthersee*, Košice, Lahti, Lille, Linz*, Logroño, Malmö, Matosinhos, Miskolc, Münster, Murcia, Nikaia Rentis, Oeiras, Opole, Porto, Seixal, Sintra, Stara Zagora, Tallinn, Tampere, Taranto, Turku, Utrecht, Valletta, Valladolid, Vantaa, Varna, Vitoria-Gasteiz.

> 500,000	20	Bordeaux Métropole, Dresden, Genoa, Gothenburg, Grenoble Alpes Métropole, Helsinki, Kraków, Lille Métropole, Lyon, Málaga, Madrid, Marseille, Métropole de Lyon, Munich, Oslo, Riga, Seville, Valencia, Vilnius, Zaragoza.

Note: Cities marked with a * signed the Accord after 2022 and are not included in this report.

Figure 2: Map of 114 GCA signatories, 2020-2024



Note: Cities highlighted in dark blue signed the Accord between 2020-22 and submitted baseline report, cities highlighted in light blue signed the Accord between 2020-22 and are still in the process of preparing their baseline report, and cities highlighted in grey signed the Accord after 2022 and are not expected to submit their reports this round.

1.2. Executive Summary

This report provides an overview of the performance of GCA signatories in relation to the five key environmental objectives, the targets which the city has set for itself to meet by 2030, and an overview of the next steps (measures and actions) that the city intends to take in order to achieve its targets. For air quality, cities are largely aligned with EU regulations and targets for 2030, though they fall short of meeting the stricter WHO guidelines. In water management, baseline values for the Urban Waste Water Treatment Directive (UWWTD) currently fall short of EU targets, but cities have established ambitious goals to achieve compliance by 2030. Waste management and the circular economy, however, remain areas for improvement, with fewer than half of cities on track to meet the 2025 recycling target of 55% and uncertainties surrounding the 2030 goal of 60%. These findings underscore the importance of continued commitment and enhanced efforts to ensure cities meet their sustainability goals and align with the objectives set out by the European Green Deal.

2. Five key policy areas

2.1. Air Quality

Air pollution is considered the number one health problem in the EU, causing serious illnesses such as asthma, cardiovascular problems, and lung cancer[1]. According to latest estimates by the EEA, at least 253,000 premature deaths in the EU in 2021 can be attributed to $PM_{2.5}$ pollution above the WHO guideline level of 5 µg/m³[2]. For the same year, 52,000 premature deaths were attributable to nitrogen dioxide (NO_2)[3]. Under the European Green Deal (EGD)'s Zero Pollution Action Plan[4], the European Commission has set an interim target for 2030, aiming to improve air quality and reduce premature deaths attributed to air pollution by 55%, relative to those in 2005[5].

The GCA assesses progress vis-à-vis air quality by tracking the concentration of key pollutants in ambient air across the signatory cities. These concentrations are compared against the standards set out in the Ambient Air Quality Directive (AAQD) (Directives 2008/50/EC and 2004/107/EC until 31 December 2029 and (EU) 2024/2881 as of 11 December 2026) and the 2021 World Health Organisation (WHO) global air quality guidelines[6] (Table 2). In October 2024, the AAQD was revised (2024/2881), introducing stricter and more ambitious standards for air quality to be achieved by 2030. The pollutants monitored under the GCA framework are fine particulate matter ($PM_{2.5}$), particulate matter (PM_{10}), and nitrogen dioxide (NO_2).

Table 2: Limit values for the protection of human health under Ambient Air Quality Directive(s)

	Limit Value

[1] https://environment.ec.europa.eu/topics/air_en
[2] https://www.eea.europa.eu/en/analysis/indicators/health-impacts-of-exposure-to
[3] The burden of disease estimations are made individually for the respective air pollutants. They cannot be added together as they exhibit some degree of correlation. This is the case especially for the burden of disease due to fine particles and NO2.
[4] https://environment.ec.europa.eu/strategy/zero-pollution-action-plan_en
[5] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021DC0400&qid=1623311742827
[6] https://www.who.int/publications/i/item/9789240034228/

	Current EU Directive (2008/50/EC)	Revised EU Directive (2024/2881)	WHO Guidelines
$PM_{2.5}$			
Highest annual mean	25 µg/m³	10 µg/m³	5 µg/m³
PM_{10}			
24-hour mean	50 µg/m³ not to be exceeded more than 35 days per calendar year	45 µg/m³ not to be exceeded more than 18 days per calendar year	45 µg/m³ not to be exceeded more than 3-4 days per calendar year
Nitrogen dioxide (NO_2)			
Daily concentration	40 µg/m³	20 µg/m³	10 µg/m³

Note: Limit values of current Directive (2008/50/EC) applicable until 31 December 2029. Limit values set out in the revised EU Directive (2024/2881) to be attained by 1 January 2030.

— **$PM_{2.5}$ concentration levels [highest annual mean observed at (sub)urban background stations]**

$PM_{2.5}$ refers to fine particulate matter, which consists of airborne particles with a diameter of 2.5 micrometres (µm) or smaller. These particles are mostly absorbed through the respiratory system, where it can infiltrate the lung alveoli and reach the bloodstream[7], posing risks to human health. The $PM_{2.5}$ concentration indicator allows cities to monitor whether they have met the EU standards or the WHO Air Quality Guidelines, in addition to helping them assess exposure levels. Monitoring $PM_{2.5}$ levels is particularly important for urban areas, where sources such as traffic, industrial activities, and residential heating contribute significantly to particulate pollution.

— **PM_{10} daily concentration levels [highest number of days exceeding the WHO recommendation of 45 µg/m³ per year, observed at any (sub) urban background or traffic station]**

PM_{10} refers to coarse particulate matter consisting of particles with an aerodynamic diameter of 10 micrometres (µm) or less. These particles are generally released through the combustion of fuels for domestic heating, with significant contributions from industrial activity, agriculture, and road transport[8]. This indicator for PM_{10} measures the number of days exceeding the WHO recommendation of 45 µg/m³ per year, observed at any (sub) urban background or traffic station.

[7] https://www.eea.europa.eu/en/topics/in-depth/air-pollution/eow-it-affects-our-health
[8] https://www.eea.europa.eu/publications/air-quality-in-europe-2021/air-quality-status-briefing-2021

- **NO_2 concentration levels (highest annual mean observed at traffic stations)**

Nitrogen dioxide (NO_2) emission concentrations are recognised as indicators that have the potential to help assess the effectiveness of sustainable transport policies at the local level. NO_2 is primarily emitted from combustion processes, especially those associated with motor vehicles, power plants, and industrial activities. The monitoring of NO_2 concentrations is essential for evaluating the effectiveness of sustainable transport policies at the local level, as it directly reflects emissions from road traffic.

2.2. Water

Water is an indispensable resource for life and plays a fundamental role in regulating the climate[9]. In Europe, approximately 88.2% of freshwater usage, including drinking water, is drawn from rivers and groundwater[10]. The remaining supply comes from reservoirs (10.3%) and lakes (1.5%), leaving these resources vulnerable to the impacts of overuse, pollution, and climate change. As water shortages become an increasing concern due to the rising risk of droughts driven by climate change, effective management and regulation of water resources are vital to environmental protection. Water stress in Europe affects 20% of Europe's territory and 30% of the population every year and are likely to increase as the impacts of climate change get worse[11].

The GCA Water policy area assesses the progress in improving the quality of water and the efficiency of water use according to the Water Framework Directive (WFD) (2000/60/EC), the recast Drinking Water Directive (DWD) (2020/2184), and the Urban Waste Water Treatment Directive (UWWTD) (91/271/EEC). The WFD has served as the blueprint of water protection legislation in Europe, promoting an integrated approach to water management by regulating specific pollutants and establishing corresponding regulatory standards. Similarly, the recast DWD focuses on ensuring high standards for drinking water quality across the EU, incorporating measures to improve the access to clean water, protect human health, and enhance public trust in water safety. The EU's UWWTD was adopted in 1991, establishing standards for the collection, treatment, and discharge of urban wastewater, which has contributed to reduce organic pollutions and improve wastewater treatment. In 2024 the Directive was revised (2024/3019), extending its scope to include smaller

[9] https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Water_statistics#Water_uses
[10] https://www.eea.europa.eu/signals-archived/signals-2018-content-list/articles/water-use-in-europe-2014
[11] https://www.eea.europa.eu/en/analysis/publications/europes-state-of-water-2024

agglomerations, addressing additional pollutants such as micropollutants, and promoting energy neutrality. The revised UWWTD entered into force on 1 January 2025. Progress in the Water policy area is assessed using the following three key indicators:

- **Domestic water consumption**

The indicator *domestic water consumption* (litres/capita/day) measures the average daily water usage per person for all domestic purposes, excluding industrial use. This figure is typically derived from the recorded volume of water supplied to the city's inhabitants. It includes data on the amount of water supplied, consumed, and paid for by domestic end users.

- **Infrastructure Leakage Index (ILI)**

The indicator *infrastructure leakage index (ILI)* serves as a performance indicator for water leakage management. Developed by the International Water Association (IWA), the ILI accounts for both service pressure and the length of the distribution network, allowing for standardised, comparable results across different utilities and regions. The ILI measures how effectively water infrastructure activities—such as repairs, active leakage control, and pipeline management—are managed under current operating conditions. The ILI is especially useful because it acknowledges that some level of real water loss is inevitable, even in the most efficiently managed systems.

- **Percentage of urban wastewater meeting the requirements of the Urban Wastewater Treatment Directive (UWWTD)**

Urban wastewater is one of the main sources of water pollution when not collected and treated according to EU rules[12]. It contains organic matter, nitrogen, and phosphorus, which, if not removed through proper treatment, can lead to eutrophication and harms aquatic ecosystems. Furthermore, urban wastewater can be contaminated with harmful chemicals, bacteria, and viruses that pose serious risks to human health.

The indicator *percentage of urban wastewater meeting the requirements of the UWWTD* measures a city's capacity to comply with wastewater collection (Article 3) and secondary treatment (Article 4). The UWWTD establishes minimum requirements for the collection and treatment of urban wastewater across Europe, focusing on safeguarding public health and protecting the environment.

[12] https://environment.ec.europa.eu/topics/water/urban-wastewater_en#law

2.3. Nature and Biodiversity

The objective of the Nature and Biodiversity policy area is to achieve considerable progress in the conservation and enhancement of urban biodiversity. This includes not only halting the decline in the quality of urban ecosystems but also initiating efforts to restore them by increasing the quantity and quality of green spaces within them. Urban biodiversity is vital for maintaining ecological balance and supporting healthy cities. By prioritising the expansion of green spaces, cities can create more resilient ecosystems that provide essential services, such as improved air and water quality, temperature regulation and flood protection. In line with these goals, the EU Biodiversity Strategy for 2030 and the Nature Restoration Regulation (2024/1991) aim to further protect and restore biodiversity across Europe, including in urban areas. Progress in the Nature and Biodiversity policy area within GCA is assessed using the following three key indicators:

- **Percentage of protected natural areas on public land in municipality**

The indicator *percentage of protected natural areas in the municipality* measures the share of protected natural areas in the municipality. Urban ecosystems, which include cities and their surrounding socio-ecological landscapes, are largely artificial but can encompass a variety of natural ecosystems, such as forests, rivers, lakes, and agricultural areas along the urban fringe. Protected urban areas, including those designated as *NATURA 2000 sites*, range from nearly pristine environments with minimal human intervention to heavily modified areas that continue to foster biodiversity despite significant urban development. This indicator highlights the critical role these protected spaces play in sustaining ecological balance and enhancing urban biodiversity.

- **Percentage of tree canopy cover within the municipality**

Urban tree cover provides multiple benefits that enhance environmental quality the overall well-being of city residents. Trees play an essential role in climate change adaptation by reducing urban temperatures through shading and evapotranspiration[13]. Studies have shown that trees can cool city temperatures by an average of 1.1°C, with potential reductions reaching up to 2.9°C in certain European cities[14]. Trees also help regulate water flow in cities, slowing down the rate in which storm water run-off occurs significantly. This helps reduce flood risk and river pollution, when sewage is overflowed into the environment. In addition, trees

[13] https://www.eea.europa.eu/en/analysis/maps-and-charts/urban-tree-cover-dashboards
[14] https://www.sciencedirect.com/science/article/pii/S2210670721008301

can act as a carbon sinks, helping to capture and store CO_2 and thereby contributing to climate change mitigation efforts. Beyond climate benefits, trees, in general, can improve public health by filtering harmful pollutants from the air (provided their canopies do not trap air pollutants at hotspot locations), reducing exposure to toxic particles. They also promote biodiversity, providing habitats for various wildlife species and fostering a more resilient urban ecosystem. The Nature Restoration Regulation sets rules to prevent any further loss of tree canopy cover at national level in urban areas between now and 2030, and after that to ensure and increasing trend of tree cover in all cities, towns and suburbs

The indicator *percentage of tree canopy cover within the city* looks at the total area of tree cover in urban areas, including cities, towns, and suburbs. The EU Forest Strategy[15], which integrates targets for biodiversity and climate neutrality, outlines a roadmap to plant at least 3 billion additional trees across the EU by 2030, ensuring that these efforts adhere to ecological principles.

- **Change in number of bird species in urban/built-up areas in the city**

Preserving and restoring biodiversity is a key priority for the EU, recognising wild birds as an integral part of Europe's natural and cultural heritage. However, habitat loss and degradation pose significant threats to bird conservation, with one-third of species now classified as threatened or having poor conservation status[16]. Urban sprawl and expansive transport networks have fragmented and diminished essential bird habitats, while intensive agricultural practices, forestry, and pesticide use have reduced food sources, nesting sites, and safe resting areas. The Birds Directive (79/409/EEC) provides a legislative framework for all EU countries to protect threatened biodiversity. Under the Directive, Member States must preserve, maintain and re-establish bird habitats to ensure a sufficient diversity and area of habitats.

The indicator *change in number of species of birds in urban/built-up areas in the city* serves as a trend indicator that offers insights into changes in species diversity as a proxy of habitat quality. Cities could also choose to incorporate butterfly species into their assessments. Rather than focusing on absolute numbers, this indicator emphasises changes in species diversity over time, allowing for the recognition of successful species recovery, re-introduction, and restoration efforts. By monitoring these trends, urban areas can better understand the health of their ecosystems and the effectiveness of conservation initiatives.

[15] https://environment.ec.europa.eu/strategy/forest-strategy_en
[16] https://environment.ec.europa.eu/topics/nature-and-biodiversity/birds-directive_en

2.4. Waste and Circular Economy

The EU is committed to transitioning towards a circular economy, aiming to decouple economic growth from resource consumption to protect its natural resources while boosting sustainable growth. This new economic model represents a shift from linear production and consumption models to a system that extends the life of products and materials and minimises waste[17]. To accelerate this transition, the European Commission adopted the new Circular Economy Action Plan (CEAP)[18] in March 2020. This action plan provides a strategic roadmap to advance circular processes across sectors, promote sustainable consumption, and ensure that waste is minimised.

The GCA Waste and Circular Economy policy area aims to advance a sustainable and circular economy through improved waste management practices. This involves reducing municipal waste generation and minimising landfill disposal while significantly increasing re-use, repair, and recycling initiatives. By prioritising effective waste management strategies, cities can cultivate a culture of responsible resource use, extending product life cycles and minimising waste. This approach not only conserves valuable resources but also contributes to a cleaner, healthier urban environment. Progress in this policy area within GCA is assessed using the following three key indicators:

- **Municipal waste generated per capita (tons)**

The indicator *municipal waste generated per capita (tons)* measures the weight of municipal waste generated by households, including waste prepared for export before treatment. According to the Waste Framework Directive (2008/98/EC), municipal waste is defined as mixed waste and separately collected waste from households, such as paper and cardboard, glass, metals, plastics, bio-waste, wood, textiles, packaging, waste electrical and electronic equipment, waste batteries, accumulators, and bulky items like mattresses and furniture. This indicator[19] plays a vital role in understanding municipal waste generation patterns and informs strategies for improving waste management practices.

- **Recycling rate of municipal waste (%)**

[17] https://www.eea.europa.eu/en/topics/in-depth/circular-economy
[18] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1583933814386&uri=COM:2020:98:FIN
[19] It excludes waste generated from production, agriculture, forestry, fishing, septic tanks, sewage networks and treatment (including sewage sludge), end-of-life vehicles, as well as construction and demolition waste.

The indicator *recycling rate of municipal waste (%)* measures the share of the total municipal waste generated that is recycled. This includes both material recycling and the reprocessing of organic materials, such as composting and anaerobic digestion.

Recycling plays a crucial role in generating secondary raw materials, which can then be reprocessed into new products, thereby contributing to a more sustainable economy. Under the Waste Framework Directive (2008/98/EC), Member States are mandated to meet specific recycling targets: a minimum of 55% by 2025, 60% by 2030, and 65% by 2035. Tracking this indicator is essential for assessing the effectiveness of recycling initiatives and guiding cities toward achieving these ambitious goals.

- **Percentage of municipal waste landfilled**

Another key goal of the EU waste policy is to limit the amount of waste sent to landfill, as landfilling poses serious risks to both human health and the environment. Waste in landfills can produce leachate, which can contaminate groundwater, and methane, a potent greenhouse gas contributing to climate change[20]. The indicator *percentage of municipal waste landfilled* quantifies the proportion of waste generated by households that is landfilled. In accordance with the EU Waste Framework Directive, municipalities are required to adhere to stringent landfill reduction targets. By 2035, the amount of municipal waste sent to landfills must not exceed 10%, and there is a strict prohibition on landfilling separately collected waste. Monitoring this indicator is critical for assessing the effectiveness of waste management strategies.

2.5. Noise

Noise pollution, also known as environmental noise, is a major environmental health concern in Europe, with at least one in five people exposed to noise levels considered harmful to their health[21]. Noise pollution is generally caused by road, rail and airport traffic, as well as industrial constructions. Prolonged exposure to high noise levels can severely impact health, contributing to high blood pressure, cardiovascular disease, and even premature mortality, while also affecting mental well-being by causing chronic disturbances such as sleep disruption, stress, and general annoyance. According to the WHO, noise pollution is the second biggest environmental cause of health problems after air pollution[22].

The GCA Noise policy area is designed to track a reduction in noise pollution, bringing European cities closer to the WHO Guidelines for Noise. This involves mitigating noise

[20] https://environment.ec.europa.eu/topics/waste-and-recycling/landfill-waste_en
[21] https://www.eea.europa.eu/en/topics/in-depth/noise
[22] https://www.euro.who.int/__data/assets/pdf_file/0008/383921/noise-guidelines-eng.pdf

sources, such as traffic, construction, and industrial activities. Reducing noise pollution is essential for improving public health and enhancing the overall well-being of citizens. Progress in this policy area within GCA is assessed using the following three key indicators:

- **Percentage of the population exposed to average day-evening-night noise levels (Lden) ≥ 55 dB**

The indicator *percentage of the population exposed to average day-evening-night noise levels (Lden) ≥ 55 dB* was established under the Environmental Noise Directive (END) (2002/49/EC), which mandates national authorities to develop noise management action plans. Lden measures the average noise exposure experienced by individuals throughout the day, evening, and night over the course of a year. The Directive adopts a threshold of 55db, while the WHO has set a lower threshold of 53 db.

- **Percentage of the population exposed to night-time noise levels (Lnight) ≥ 50**

The indicator *percentage of the population exposed to night-time noise (Lnight) ≥ 50 dB* refers to the average annual exposure to noise during nighttime hours. According to this END, exposure to night-time noise levels exceeding 50 dB is deemed harmful to health, establishing it as the reporting threshold. The WHO recommends a lower threshold of 45 dB to protect human health effectively.

- **Percentage of (adult) population with High Sleep Disturbance**

The indicator *percentage of (adult) population with High Sleep Disturbance (HSD)* is closely related to indicator 5.2 and offers additional insights into the health impacts resulting from noise exposure. This indicator focuses on sleep disturbances, which significantly affect individuals' quality of life and can lead to a range of health issues, including cardiovascular disease. By monitoring this indicator, cities can better understand the broader health implications of noise pollution and prioritise strategies to mitigate its impact on residents' well-being.

3. Trends reported in GCA signatory cities

Methodology

The data for the GCA indicators is collected and submitted by the GCA signatory cities with each city responsible for monitoring and reporting the indicators across the five policy areas: *Air Quality*, *Water*, *Nature and Biodiversity*, *Waste and Circular Economy*, and *Noise*. Cities use standardised monitoring methods, mandated either at the national or European level, to ensure consistency. To gather the data, cities can collaborate with environmental agencies and local authorities to ensure the accuracy and reliability of the reported data.

After collecting their findings, cities compile and submit the data to the GCA Secretariat via a dedicated reporting platform. The GCA Secretariat then carries out a validation process to ensure the data consistent and accurate. This involves identifying anomalies such as outliers or discrepancies, cross-referencing publicly available databases, and liaising with the cities to resolve any issues. Key resources for validation include European Environmental Agency (EEA) databases, which encompass many GCA indicators with city-level data, as well as national databases from Member States and reports from relevant authorities. Once validated, the data is aggregated to provide an overview of environmental conditions across the signatory cities.

Limitation of analysis

Out of the 105 cities that signed the Accord between 2020 and 2022 and committed to voluntarily report data, 42 have submitted their baseline values and targets to date. As more cities gradually submit their data, the scope and representativeness of the analysis will improve. In its current form, this report provides a snapshot of the data available across GCA cities so far, offering insights into trends and progress while acknowledging the incomplete nature of the dataset. It serves as a foundation for understanding urban environmental performance and a benchmark for encouraging further data submission and participation in future reporting cycles.

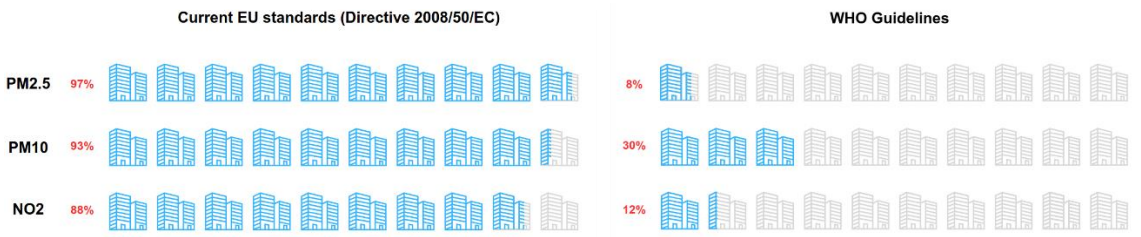
In addition to reporting gaps, the analysis is further complicated by the variability in the methods cities use to report data. Not all cities currently measure the GCA indicators due to differences in monitoring capacity, resource availability, or local priorities. In such cases, cities can report alternative indicators to provide relevant data. For instance, cities unable to measure the infrastructure leakage index (ILI) have instead reported metrics such as annual average loss, Linear Network Losses Index, or total losses in water distribution systems. Moreover, cities that are unable to carry out field surveys to measure the number of observed bird species can use

citizen reporting tools. These differences are highlighted throughout the report to provide context for the data presented. However, they introduce challenges in maintaining data comparability and complicate efforts to assess uniform trends across those environmental areas.

3.1. Air Quality

Based on the data reported by the GCA signatory cities, this section assesses the concentration of air pollutants ($PM_{2.5}$, PM_{10}, and NO_2) in ambient air across cities, comparing them against current EU standards (Directive 2008/50/EC) and the 2021 WHO global air quality guidelines (Figure 3). It also compares the 2030 targets set by cities to the revised Directive (2024/2881)[23] to align EU air quality standard more closely with the recommendations of the WHO.

Figure 3: Share of GCA cities that meet current EU standards (Directive 2008/50/EC) and WHO guidelines



Notes: Exposure above current EU standards (Directive 2008/50/EC): $PM_{2.5}$ annual concentrations above 25 µg/m³; PM_{10} daily concentrations above 50 µg/m³ for more than 35 days per year; and NO_2 annual concentrations above 40 µg/m³.

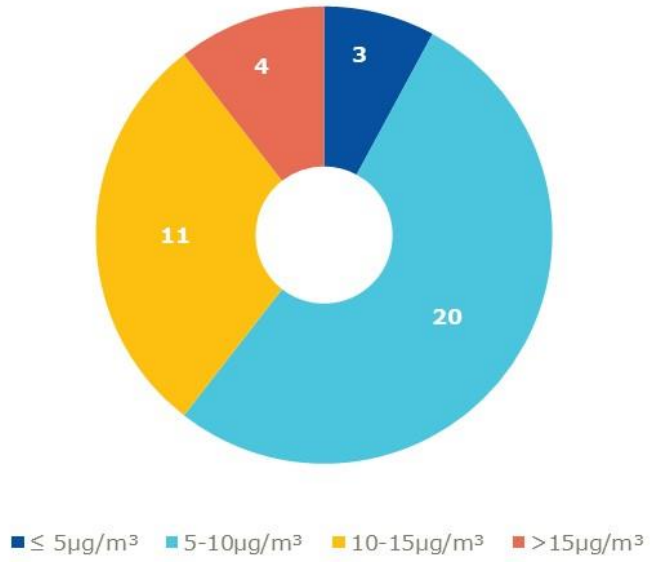
Exposure above WHO guidelines: $PM_{2.5}$ annual concentrations above 5 µg/m³; PM_{10} daily concentrations above 45 µg/m³; and NO_2 annual concentrations above 10 µg/m³.

— PM2.5 concentration levels

Nearly all cities (38 out of 42) provided baseline data on $PM_{2.5}$ concentration levels, providing an overview of air quality performance among GCA signatories relative to both EU limit values and WHO air quality guidelines (Figure 4). In total, 37 out of the 38 cities providing this data reported $PM_{2.5}$ concentrations below or equal the EU's annual limit of 25 µg/m³. In addition, the average PM2.5 concentration across these cities was reported at 9.7 µg/m³, significantly below the EU limit value. However, despite this compliance with EU regulations, only 3 cities meet the WHO's recommended guideline of ≤5 µg/m³.

[23] Directive (EU) 2024/2881 of the European Parliament and of the Council of 23 October 2024 on ambient air quality and cleaner air for Europe (recast); https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L_202402881

Figure 4: $PM_{2.5}$ highest annual mean concentration levels [µg/m3] - number of cities



Notes: 38/42 cities reported baseline concentration levels. Valongo, Braga and Matosinhos do not currently have monitoring stations that measure for $PM_{2.5}$. Data for Soria is currently under review.

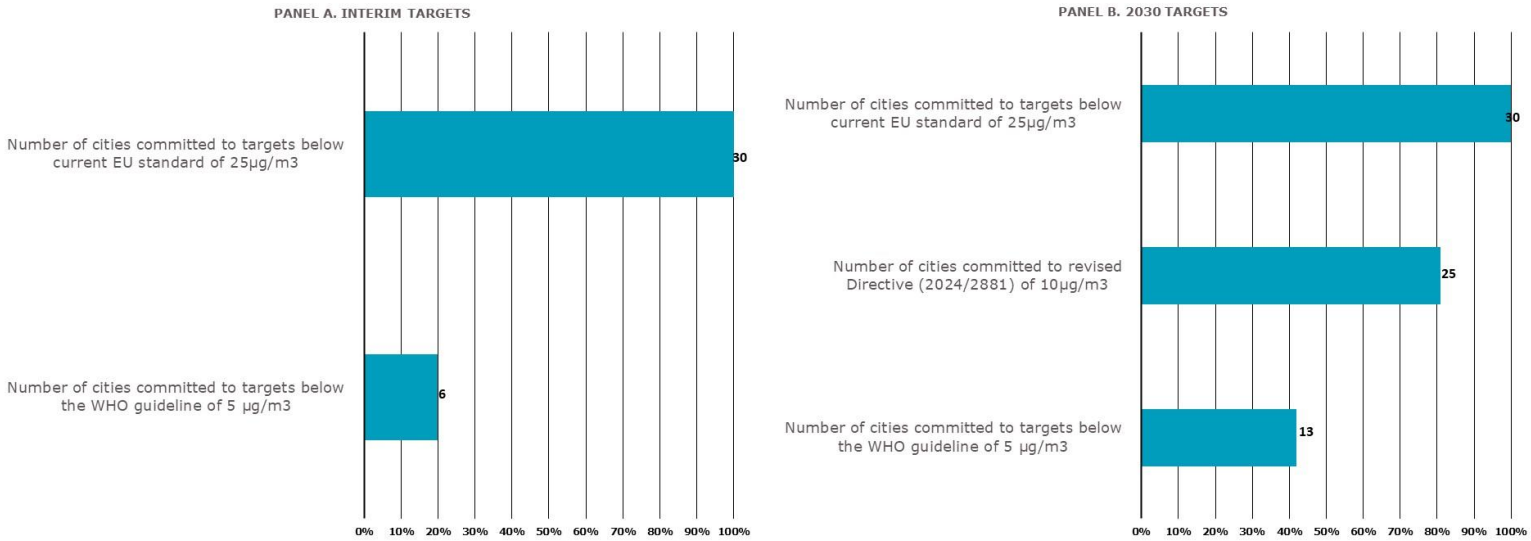
Exposure above current EU standards (Directive 2008/50/EC): the EU urban population is exposed to $PM_{2.5}$ annual concentrations above 25µg/m³.
Exposure above WHO guidelines: the EU urban population is exposed to $PM_{2.5}$ annual concentrations above 5µg/m³.

Interim and 2030 targets

Among the 38 cities that reported data for indicator PM2.5, 30 cities set interim targets and 31 set 2030 targets to reduce air pollution levels. All of them have set interim targets below or equal to the current EU standard of 25µg/m³, indicating full compliance with the region's legal requirements (Figure 5, Panel A). However, only 6 out of 30 cities have committed to more stringent interim targets that align with the WHO guideline of ≤5µg/m³.

By 2030, all cities continue to maintain their commitment to targets below the current EU standard (Directive 2008/50/EC) for $PM_{2.5}$ of 25µg/m³ (Figure 5, Panel B). The number of cities setting even more ambitious targets, below the WHO's guideline of 5µg/m³, increases to 13. In the revised Directive (2024/2881), the annual limit value for fine particulate matter (PM2.5) is set to be reduced by half to 10 µg/m³ - and this is to be attained by 1 January 2030. Among the 31 cities that provided 2030 targets, 25 have already aligned their targets with this proposed revision. While there is some progress toward aligning more cities with WHO's stricter guidelines, the gap indicates potential challenges in adopting these more ambitious targets and limit values to be attained by 1 January 2030.

Figure 5: Interim and 2030 targets for $PM_{2.5}$ concentration levels



Note: Limit values set out in the revised EU Directive (2024/2881) to be attained by 1 January 2030.

The following box highlights examples of ongoing actions and policies in GCA cities aimed at improving their air quality performance.

Cesena, Italy

The city of Cesena introduced *VeloCE* (Cesena Biciplan), a key initiative to promote cycling as a primary mode of transport in Cesena. VeloCE aims to encourage more people to use bicycles for their everyday travel needs, with a goal of having 20% of daily trips in Cesena made by bike by 2030. This plan also seeks to support the region's sustainable economic growth by integrating cycling into the city's mobility culture.

Florence, Italy

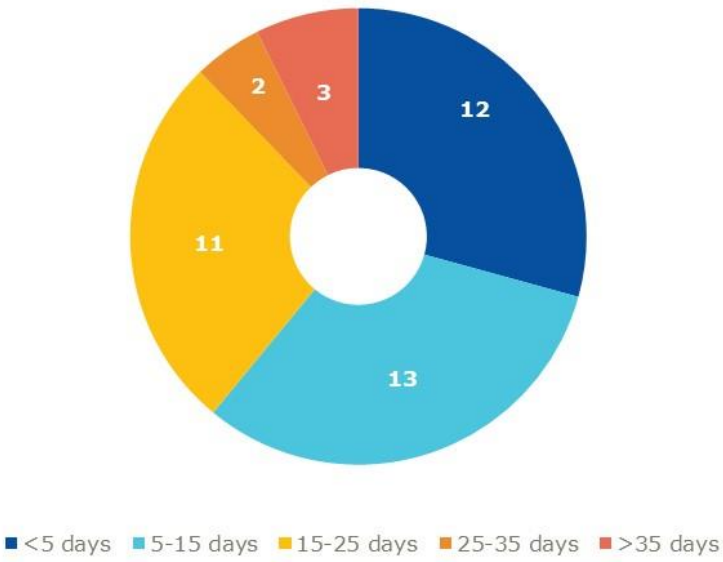
The *Municipal Action Plan* (PAC) for air quality outlines the strategic actions the city will implement to reduce atmospheric emissions. This plan sets specific targets for lowering air pollutant levels and focuses on restoring and maintaining air quality in alignment with the broader goals of the *Regional Plan for Air Quality* (PRQA), which prioritises public health protection and targets key emission sources. The PAC primarily focuses on mobility-related measures, closely integrated with the Sustainable Urban Mobility Plan (SUMP) at the metropolitan level. Additionally, the plan includes actions for improving building energy efficiency, air conditioning, expanding urban green spaces, and enhancing public awareness through environmental education. The PAC is updated every three years to ensure continuous progress. The ongoing revisions allow the city to stay aligned with evolving environmental standards and regional objectives, ensuring

a coordinated effort across sectors to improve air quality and protect residents' health.

— **PM10 daily concentration levels**

Nearly all cities (41 out of 42) provided baseline data on PM_{10} concentration levels, providing an overview of air quality performance among GCA signatories relative to both current EU standards (Directive 2008/50/EC) and WHO health guidelines. In total, 38 out of the 41 cities recorded fewer than 35 days per year where PM_{10} concentrations exceeded 45µg/m³ (Figure 6). This high level of compliance shows that most cities have successfully implemented measures to reduce particulate matter emissions and maintain air quality within the EU's legal limits. In addition, 12 out of the 41 cities are already below the WHO's air quality guideline of 3-4 exceedance days per year for PM_{10}.

Figure 6: Number of days exceeding the WHO limit of 45 [µg/m³] - number of cities



Notes: 41/42 cities reported baseline concentration levels.
Exposure above current EU standards (Directive 2008/50/EC): PM_{10} daily concentrations above 50µg/m³ for more than 35 days per year.
Exposure above WHO guidelines: PM_{10} annual concentrations above 45µg/m³ for more than 3-4 days per year.

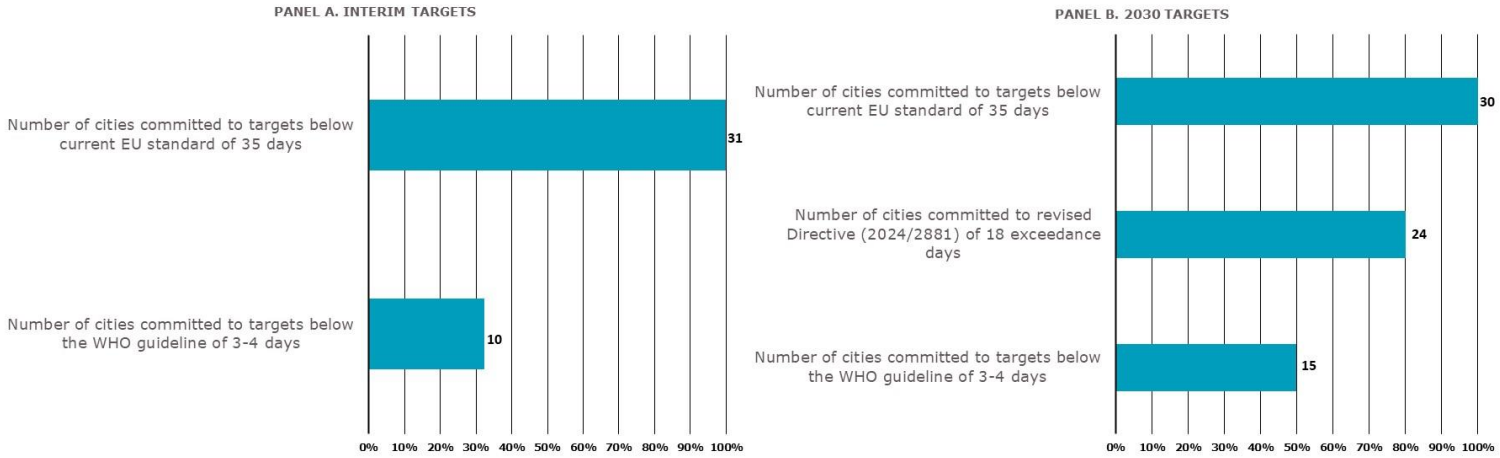
Interim and 2030 targets

Among the 41 cities that reported data for the PM_{10} indicator, 31 cities set interim targets and 30 cities set 2030 targets to reduce PM_{10} exceedance days. All 31 cities have set interim targets below the current EU standard, which limits PM_{10} exceedance days to 35 per year, reflecting full compliance with regional legal requirements (Figure 7, Panel A). In addition, 10 out of the 31 cities have committed to more

stringent interim targets that align with the WHO guideline of 3-4 exceedance days per year.

Looking ahead to 2030, the number of cities adopting more ambitious targets aligned with the WHO's guideline increases to 15 out of 30 (Figure 7, Panel B). This indicates that more cities plan to increase their efforts to reduce air pollution over the next decade, moving closer to the WHO's recommendations. In the revised AAQD, the number of exceedance days for particulate matter (PM10) is set to be reduced to 18 days. Among the 30 cities that provided 2030 targets, 24 have already aligned their targets with this mandatory limit value to be attained by 1 January 2030.

Figure 7: Interim and 2030 targets for PM_{10} concentration exceedance days



Note: Limit values set out in the revised EU Directive (2024/2881) to be attained by 1 January 2030.

The following box highlights examples of ongoing actions and policies in GCA cities aimed at improving their air quality performance.

Penafiel, Portugal

The city of Penafiel will develop a new public transport station on the outskirts of the city to alleviate traffic congestion in the city centre. This new hub will centralise all public transport services, creating a more efficient transit system. In addition, the City Council will establish a dedicated station for electric bicycles and scooters and will invest in a fleet of these eco-friendly transportation options. This initiative is designed to reduce dependence on cars, thereby decreasing traffic volumes and significantly lowering pollution levels associated with the transport sector.

Riga, Latvia

The *Riga City Air Quality Action Programme for 2021-2025* outlines a comprehensive strategy to reduce pollution from five key pollutants: nitrogen dioxide (NO2), PM10, PM2.5, benzene, and benzo(a)pyrene. To achieve this, a comprehensive assessment was conducted to evaluate the potential impact of

various measures on air quality, categorising them into several key areas: transport and road infrastructure, public transport, heating supply systems, stationary pollution sources, ship traffic in the port, and air quality management, which includes public education and outreach initiatives. This systematic approach seeks to significantly improve air quality in Riga, ultimately fostering a healthier environment for its residents.

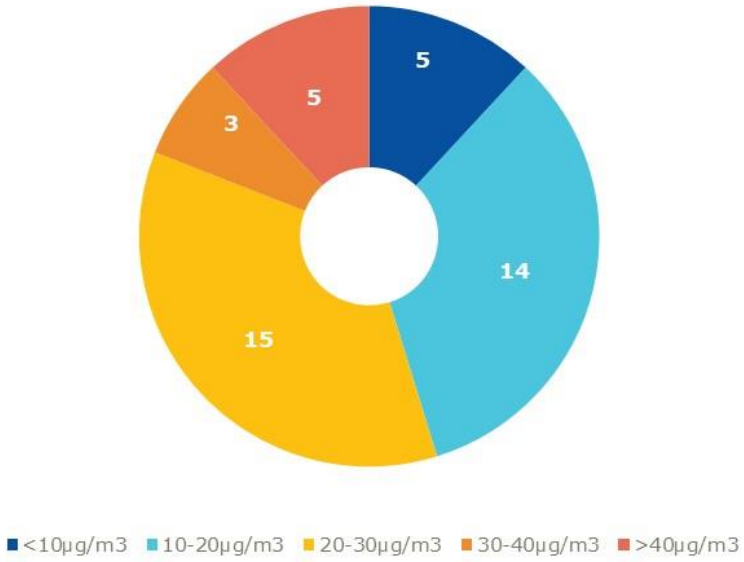
Braga, Portugal

The *Bus Rapid Transit (BRT)* project in Braga aims to transform urban mobility and improve public spaces by reducing and slowing traffic, improving conditions for pedestrians and other sustainable modes of transport, and creating safer, more accessible crossings. By removing tunnels and overpasses, and introducing quieter road surfaces, the project will also contribute to reducing noise pollution and reduce pollution from traffic. With an investment of 100 million euros, the first two BRT lines (yellow and red), spanning 12.2 km, are set to begin construction in early 2025 and become operational in 2026, offering a modern and eco-friendly transportation solution for the city.

— **NO_2 concentration levels**

All 42 cities provided baseline data on nitrogen dioxide (NO_2) concentration levels, offering a comprehensive overview of NO_2 air quality performance among GCA signatories in relation to both current EU standards (Directive 2008/50/EC) and WHO health guidelines. In total, 37 out of the 42 cities reported annual NO_2 concentrations below or equal to the current EU limit of 40µg/m³ (Figure 8). However, only 5 out of the 42 cities meet the WHO air quality guideline of 10µg/m³ for NO_2.

Figure 8: NO_2 annual mean concentration levels [µg/m³] - number of cities



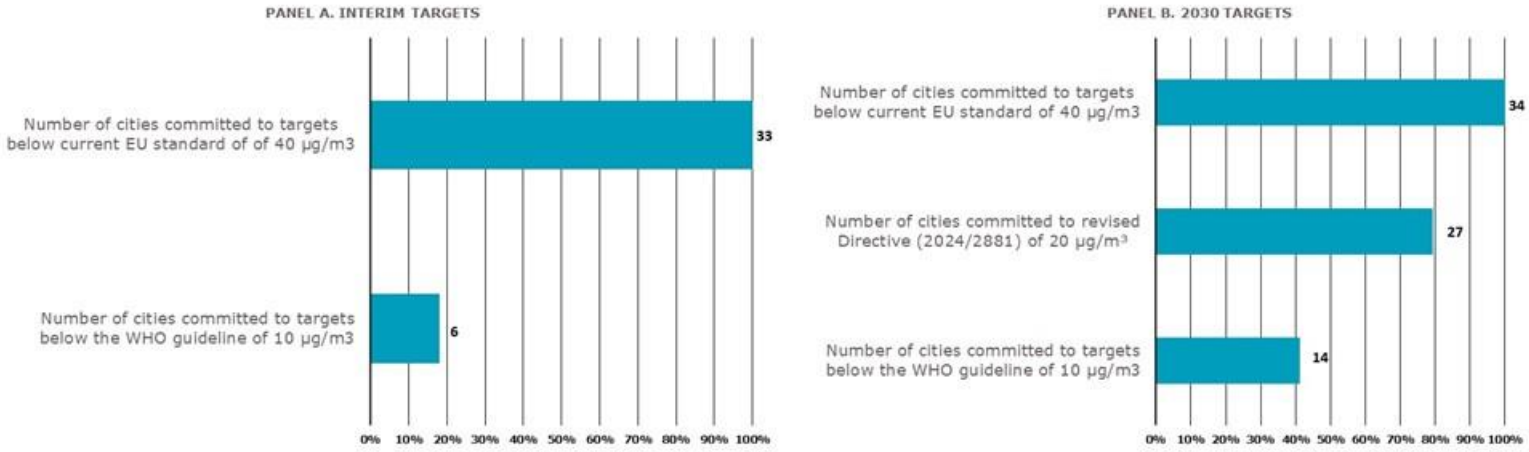
Notes: 42/42 cities reported baseline concentration levels. NO_2 data submitted by two cities is still under review. Exposure above current EU standards (Directive 2008/50/EC): NO_2 annual concentrations above 40µg/m³. Exposure above WHO guidelines: NO_2 annual concentrations above 10µg/m³.

Interim and 2030 targets

Among the 42 cities that reported data for NO_2 concentrations, 33 cities set interim targets and 34 cities set 2030 targets to reduce NO_2 pollution. Cities that committed interim targets all meet the current EU limit of 40µg/m³, indicating full compliance with the region's legal framework (Figure 9, Panel A). However, only 6 out of the 33 cities have set more ambitious interim targets that align with the WHO's air quality guideline of 10µg/m³.

Looking ahead to 2030, the number of cities adopting targets below the WHO guideline increases to 14 out of 34 (Figure 9, Panel B). In the revised AAQD, the annual limit value for NO_2 is set to be reduced to 20µg/m³. Among the 34 cities that provided 2030 targets, 27 have already aligned their targets with this mandatory limit value to be attained by 1 January 2030.

Figure 9: Interim and 2030 targets for NO_2 concentration levels



Note: Limit values set out in the revised EU Directive (2024/2881) to be attained by 1 January 2030.

The following box highlights examples of ongoing actions and policies in GCA cities aimed at improving their air quality performance.

Gothenburg, Sweden

The City of Gothenburg's Electrification Plan 2021-2030 outlines key objectives and actions to drive the transition to a fossil-free transport system. In line with Fossil Free Sweden's transport challenge, Gothenburg aims to achieve fossil-free local transport by 2030. This includes making the city's own vehicle fleet fossil-free by 2023 and ensuring that all transport services purchased or used within city operations are fossil-free by 2030. Electrification is central to achieving these goals, playing a pivotal role in the city's sustainability strategy.

Guimarães, Portugal

As part of the CitiMeasure initiative, the Limp.AR project in Guimaraes is designed to improve air quality and reduce noise in urban areas by promoting urban forestry and raising awareness of the environmental impact of commuting. This project focuses on education, training, and public awareness, involving citizens through participatory co-creation activities. Limp.AR also includes practical interventions in urban spaces to address environmental concerns and evaluates air quality and noise levels, particularly in school settings.

3.2. Water

The GCA aims to drive progress in improving the quality of water bodies and the efficiency of water use across signatory cities. This objective reflects the broader commitment to sustainable water management, recognising that clean and accessible water is fundamental to public health, biodiversity, and climate resilience. By focusing

on these priorities, the GCA aims to address critical issues such as reducing pollution, preventing over-extraction, and improving distribution efficiency.

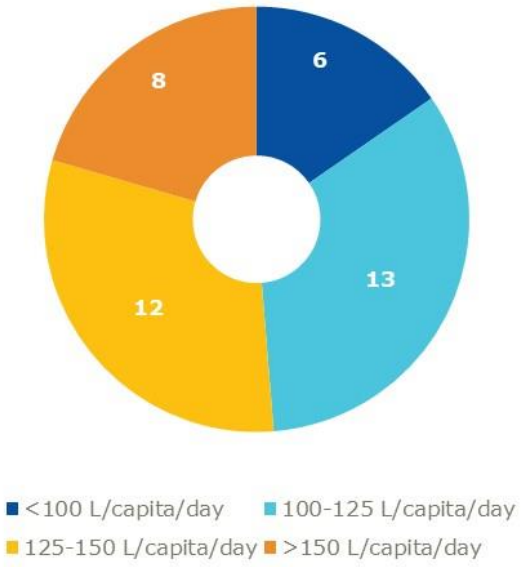
— **Domestic water consumption (litres/capita/day)**

Reducing water use and improving water efficiency are key to tackling water stress[24]. On average, 144 litres of water per person per day is supplied to households in Europe[25]. By monitoring domestic water consumption, cities can gain valuable insights into water usage trends and identify areas where conservation efforts are most needed. Under Article 17 of the recast DWD, Member States shall ensure that all persons supplied with water receive information on the volume consumed by households, at least per year or billing period[26].

All cities submitted baseline data on domestic water consumption[27]. However, the data from three cities is still under review. As a result, this analysis includes data from 39 cities. Among these, 6 reported domestic water consumption below 100 L/capita/day, indicating low water consumption levels (Figure 10). Additionally, 13 cities reported consumption levels between 100-125 L/capita/day, 12 cities reported between 125-150 L/capita/day, and 7 reported above 150 L/capita/day. Out of the 39 cities, 30 reported water consumption below the EU average of 144 litres of water per person per day in 2018. The average domestic water consumption across all 39 cities was measured at 129.5 litres per capita per day.

[24] https://www.eea.europa.eu/en/analysis/publications/europes-state-of-water-2024
[25] https://www.eea.europa.eu/signals-archived/signals-2018-content-list/articles/water-use-in-europe-2014
[26] https://eur-lex.europa.eu/eli/dir/2020/2184/oj
[27] Of the 42 cities, 15 did not update their values following a correction of the indicator from "Household Water Consumption" to "Domestic Water Consumption." As a result, these values may still reflect household consumption.

Figure 10: Domestic water consumption across GCA cities (Liters/capita/day) – number of cities



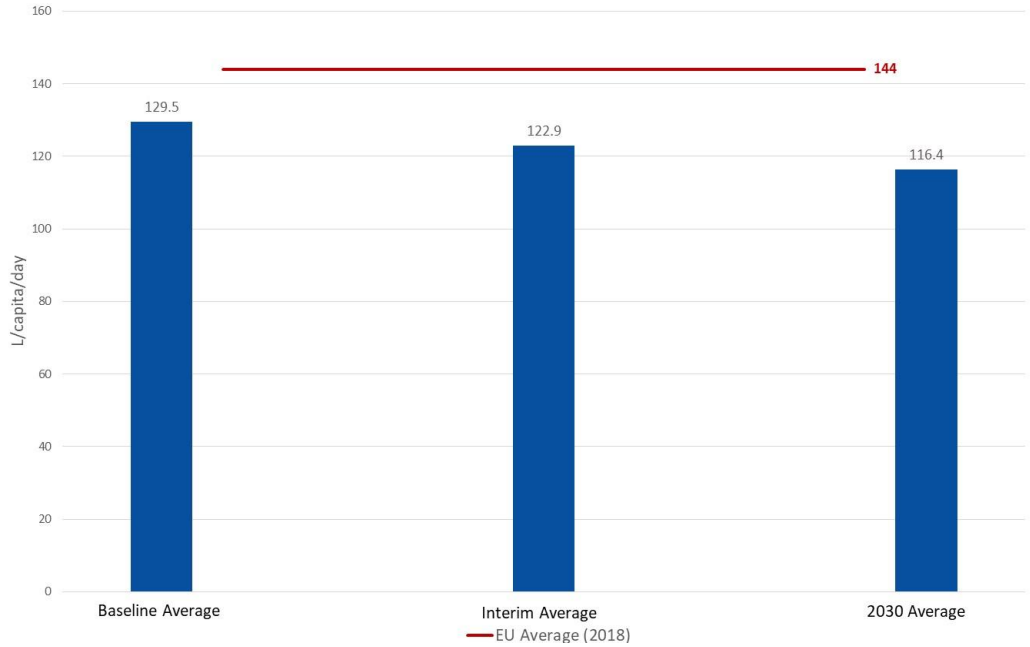
Notes: Data from 39 cities included in this Figure. The data for the city of Marseille, Ponta Delgada, and Penafiel are still under review.

Interim and 2030 targets

The interim and 2030 targets for domestic water consumption reveal a strong commitment among GCA cities to reduce domestic water consumption. For interim targets, 28 out of 42 cities have reported goals to manage water consumption, with 21 of these cities specifically committing to reducing domestic water use (Figure 11). The average water consumption for cities with interim targets is 121.85 L/capita/day, decreasing from the current average across GCA cities (129.5 L/capita/day).

Looking ahead to 2030 targets, these cities have set long-term goals for water consumption reduction, with 24 of these cities pledging to further decrease domestic water use (Figure 11). The average consumption for cities with 2030 targets is expected to drop to 116.40 litres per capita per day, reflecting a clear trend toward more sustainable water usage. The gradual decline in average water use suggests that cities are actively working to improve water efficiency, with long-term strategies aimed at further minimising domestic water consumption.

Figure 11: Interim and 2030 targets for domestic water consumption



Notes: Data for the EU average based on EEA report published in 2018 on Water use in Europe[28].

The following box highlights examples of ongoing actions and policies in GCA cities aimed at improving sustainable water consumption.

Águeda, Portugal

As part of the CApt2 project (Water Circularity – for all and by all), the Municipality of Águeda developed the "Integrated Local Action Plan for Water" within the urban water cycle. Actions include: i) Promoting efficient water management by reducing water losses and encouraging water reuse initiatives; ii) Raising awareness and empowering the community to adopt sustainable water consumption behaviours; and iii) Establishing partnerships to exchange best practices and implement innovative pilot projects aimed at improving water use efficiency.

Lyon Metropolis, France

Lyon Metropolis has launched its *Strategic Framework for Drinking Water 2021-2035*, aimed at promoting responsible water consumption among users. This initiative emphasises effective communication, the sharing of best practices, and the distribution of water-saving kits, with the goal of reducing domestic water consumption by 15% by 2035. In addition, Lyon Metropolis actively involves users in water management by appointing four representatives to the Board of Directors of Eau Publique du Grand Lyon. These representatives play a crucial

[28] https://www.eea.europa.eu/signals-archived/signals-2018-content-list/articles/water-use-in-europe-2014

role in the decision-making process, ensuring that community perspectives are integrated into water management strategies.

Infrastructure Leakage Index (ILI)

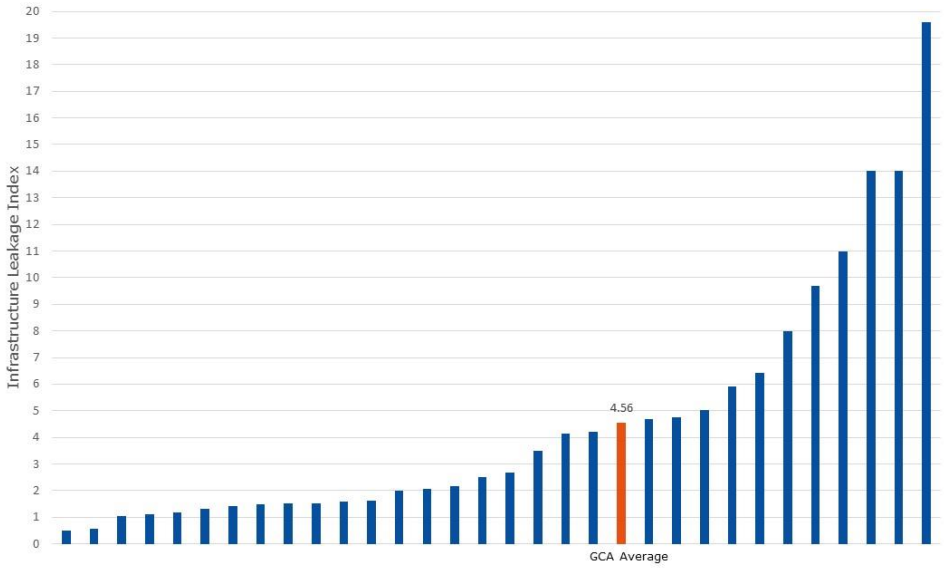
Reducing water leakages is an important step to improving water efficiency and ensuring the sustainable use of water resources in Europe. On average, 23% of treated water is lost during distribution in the EU, primarily due to aging infrastructure[29]. This not only wastes an increasingly scarce resource but also drives up the energy and financial costs associated with water treatment and distribution. Addressing leakage is essential to meet the growing demands of urbanisation, agriculture, and industry, while also mitigating the effects of climate change, which is expected to exacerbate water scarcity in many regions. According to the recast DWD Article 4(3), Member States shall ensure that an assessment of water leakage levels within their territory is performed using the infrastructure leakage index (ILI), or another appropriate method. The assessments apply to water suppliers supplying at least 10,000 m3 per day or serving at least 50,000 people[30].

Out of the 42 cities, 34 submitted data on the ILI, with three submissions under review. Seven cities provided alternative indicators instead of ILI, reflecting differences in how cities measure water loss. As a result, the analysis focuses on the 31 cities with finalised ILI data. Data on ILI represents relatively low reporting levels and highlights the challenges cities face in collecting and providing accurate data for this metric. These challenges stem from various factors, including resource constraints or gaps in available information.

Among the cities reporting finalised ILI data, 12 cities reported an ILI value below 2, 11 reported a value between 2-5, and 9 reported a value above 5 (Figure 12). According to the International Water Association (IWA), systems with an ILI indicator value around 1.0 have very low water loss, while a value above 5.0 would mean a high leaking system. This indicates that many of these systems are experiencing significant water loss.

[29] https://environment.ec.europa.eu/topics/water/water-wise-eu/poorly-managed-water_en
[30] https://eur-lex.europa.eu/eli/dir/2020/2184/oj

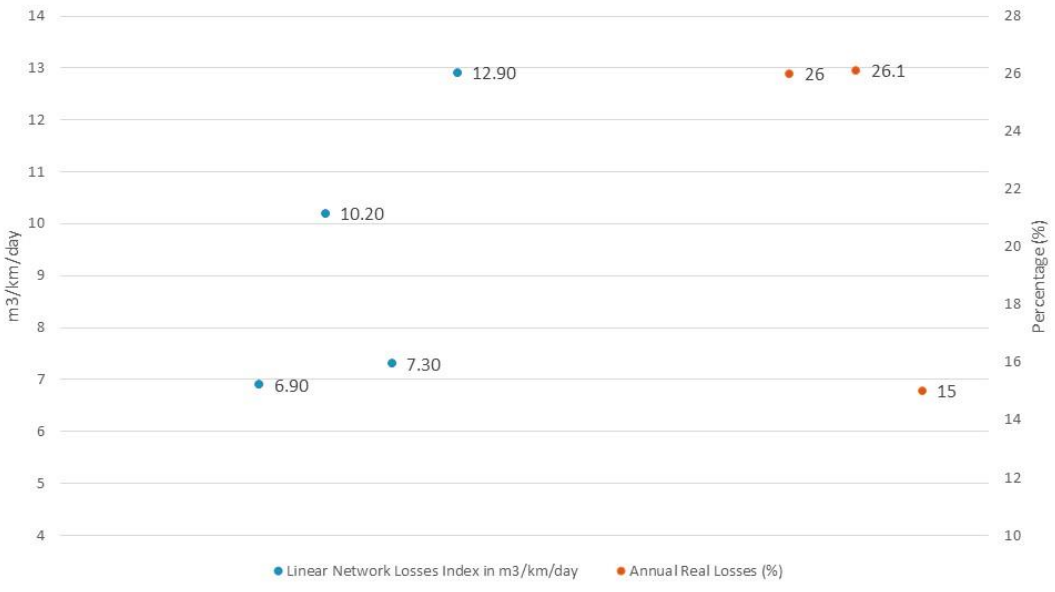
Figure 12: Distribution of ILI across GCA reporting cities



Note: Data for this indicator is anonymous, with each bar representing a GCA city. This figure does not include city data still under review (31 cities).

Among the cities that have not reported their ILI value, seven have provided alternative indicators, providing additional insights into water leakage levels across GCA signatories (Figure 13). These alternative metrics include the Linear Network Losses Index, which is measured in cubic meters per kilometre per day (m^3/km/day), and Annual Real Losses, expressed as a percentage of total water supplied. The Linear Network Losses Index helps quantify the efficiency of the water distribution network, while the Annual Real Losses percentage offers a broader view of the total water lost through leaks and inefficiencies in the system.

Figure 13: Alternative indicators to ILI provided by cities

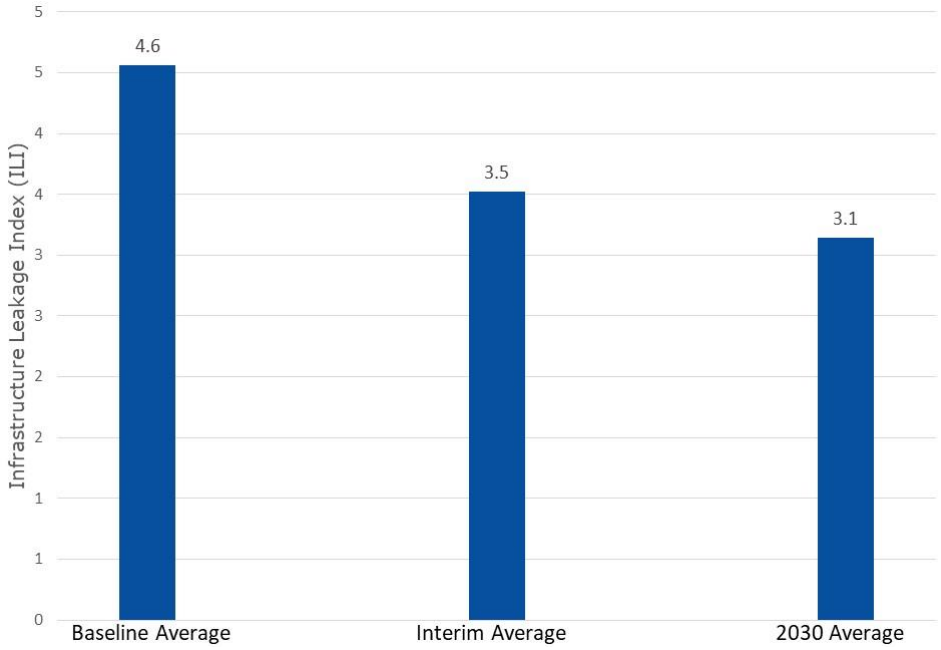


Note: Seven cities reported alternative indicators to ILI. Four reported Linear Network Losses Index (m³/km/day) and three reported Annual Real Losses (%).

Interim and 2030 targets

Out of 31 cities providing information about ILI, 24 have reported interim targets, with 20 of these aiming for reductions below their current ILI levels. If interim targets are met, the average ILI would be 3.52 (Figure 14). Looking ahead to 2030, 25 out of the 31 cities have set specific targets, with 23 of those targeting reductions below their current levels. If the 2030 targets are met, the average ILI among GCA cities would be 3.14 (Figure 14), which would involve a decrease in ILI levels across GCA cities.

Figure 14: Baseline, interim and 2030 averages for ILI



The following box highlights examples of ongoing actions and policies in GCA cities aimed at improving their performance relative to this indicator.

Florence, Italy

The *Publiacqua S.p.A.* *Water Safety Plan 2019* introduced key strategies to address water leakage through a comprehensive water loss management approach, which focuses on pressure management, active leak control, and optimising the speed and quality of repairs. A robust maintenance plan ensures that the distribution infrastructure is consistently monitored and improved. In addition, Publiacqua S.p.A. intends to develop a platform for a centralised "control room" that will integrate data from various systems (ERP, SCADA, GIS) and use hydraulic models and predictive analysis powered by machine learning. This digital twin of the water network will enhance operational management,

enabling predictive maintenance, reducing water loss, lowering energy consumption, and improving overall service levels. The platform will also provide georeferenced dashboards and reports for real-time performance monitoring, helping to identify and implement both immediate and long-term solutions.

Lahti, Finland

Lahti Aqua prioritises proactive maintenance of the water supply network to minimise leakage and reduce disruptions in service. By maintaining low leakage levels, the city achieves significant annual savings—approximately 600 MWh in electricity consumption—while also contributing to a smaller carbon footprint. This initiative plays a crucial role in Lahti's commitment to combating climate change. To enhance the efficiency of the sewage network, Lahti employs automatic IoT meters for continuous monitoring. This system utilises artificial intelligence to analyse flow changes alongside precipitation data, operating 24/7. By identifying potential flow deviations early, the city can address issues proactively, preventing disruptions before they occur.

Vitoria-Gasteiz, Spain

The *Smart AMVISA 2025* project marks the initial phase of the digitalisation of the entire water cycle in Vitoria-Gasteiz. The project aims to implement measures that will lead to fully digitalised water cycle. These include the sectorisation of the distribution network, the installation of leak detection sensors, and the implementation of remote meter reading at consumption points. It also involves the development of an IoT communications network across Vitoria-Gasteiz, advanced software for monitoring, managing, and predicting events in supply and sanitation systems using artificial intelligence, and an intelligent alert system based on remote reading logs, as well as measuring and tracking key performance indicators.

- **Percentage of urban wastewater meeting the requirements of the UWWTD (regarding collection and secondary treatment)**

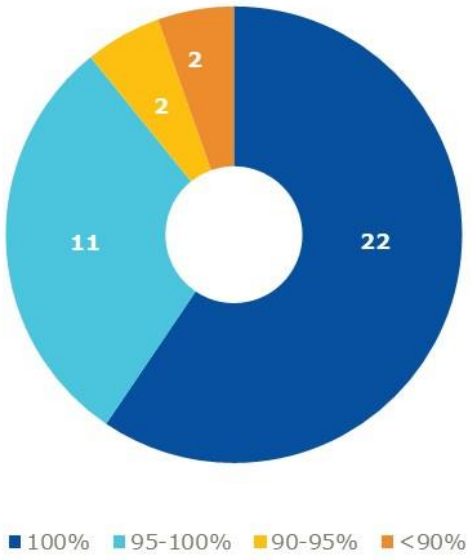
Urban wastewater is one of the main sources of water pollution when not collected and treated according to EU rules[31]. Across the EU, 82% of urban wastewaters are collected and treated in accordance with the UWWTD[32], contributing to improved water quality and environmental protection. From 2025 on, the revised version of the

[31] https://environment.ec.europa.eu/topics/water/urban-wastewater_en#law
[32] https://www.eea.europa.eu/en/analysis/publications/europes-state-of-water-2024

UWWTD takes effect, which addresses remaining pollution from urban wastewater. This update aims to decrease water pollution by more than 365 tonnes by 2045[33].

Out of 42 cities, 37 cities provided data for this indicator. Among these, 22 achieved a compliance rate of 100%, indicating full adherence to the established regulations (Figure 15). Additionally, 11 cities reported compliance rates between 95% and 100%, demonstrating strong performance in meeting treatment requirements. However, 2 cities fell within the compliance range of 90% to 95%, while 4 cities had compliance rates below 90%. These findings highlight the varying levels of adherence to wastewater treatment standards across cities, underscoring the need for continued efforts to enhance compliance and ensure effective wastewater management.

Figure 15: Compliance rate of GCA cities to Article 3 and 4 of UWWTD – number of cities



Notes: Data from 37 cities included in this Figure.

Interim and 2030 targets

Among the 37 cities that provided data, 32 have established interim targets for wastewater treatment compliance. 28 of these cities have set targets that either exceed their baseline compliance rates or maintain a full compliance rate of 100%, demonstrating a strong commitment to improving wastewater management practices in the short term. Looking ahead to 2030, 33 out of the 37 cities have set specific targets. All 33 cities aim to either surpass their baseline compliance rates or maintain a compliance rate of 100%, with 29 committing to 100% compliance with UWWTD

[33] https://environment.ec.europa.eu/topics/water/urban-wastewater_en#revision

requirements rate. These measures reflect a collective dedication to enhancing wastewater treatment standards.

The following box highlights examples of ongoing actions and policies in GCA cities aimed at improving their performance relative to this indicator.

Helsinki, Finland

The Helsinki Region Environmental Services (HSY) Strategy 2030 – Together for a Sustainable Future sets a bold vision to make the Helsinki Metropolitan Area the most sustainable urban region globally. A core element of this strategy is environmental stewardship, particularly the protection of the Baltic Sea by reducing nutrient loads in waterways. To achieve this, the Blominmäki wastewater treatment plant was commissioned, with a focus on advancing resource efficiency, nutrient recovery, and reducing the climate impact of wastewater treatment. Key actions include upgrading and repairing the sewer network to prevent overflows, encouraging property owners to renovate aging pipelines and manage stormwater properly, and raising public awareness about responsible sewage practices to limit the release of harmful substances.

Tallinn, Estonia

The City of Tallinn has established a comprehensive development strategy called Tallinn 2035, outlining the city's future vision, with the entire city government working collaboratively toward its goals. In the realm of environmental protection, six action programmes have been developed, one of which focuses on clean water. As part of this programme, the city has identified key strategic actions aimed at improving water quality, which include enhanced monitoring of wastewater and strengthening surveillance to eliminate unauthorised wastewater discharges into bodies of water, safeguarding both the environment and public health.

3.3. Nature and Biodiversity

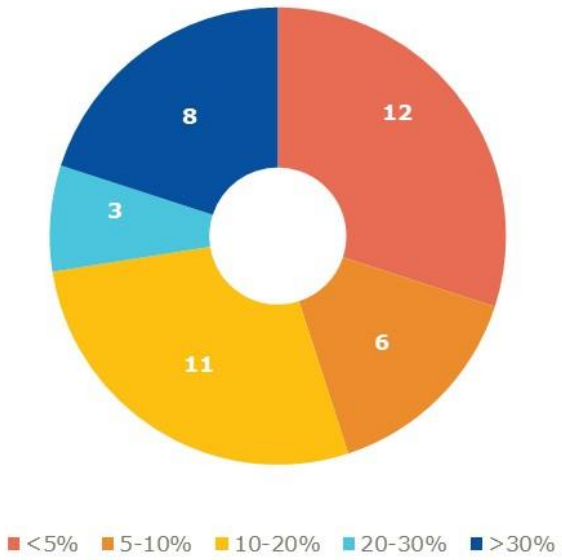
The GCA aims to achieve progress in conserving and enhancing urban biodiversity, highlighting the importance of increasing both the extent and quality of urban biodiversity. The Nature and Biodiversity indicators are designed to evaluate the current state of biodiversity within GCA cities, providing a framework to measure progress and identify areas for improvement.

- **Percentage of protected natural areas on public land in municipality**

By the end of 2021, protected areas in the EU covered 26% of total land area, with 18.6% falling under the Natura 2000 network and the remaining 7.4% designated under various national protection schemes[34]. While protected areas in the EU has steadily increased by 1.7% since 2011, it is still uncertain whether the EU will meet the EU Biodiversity Strategy target for 2030 of 30%. EU Member States are actively submitting pledges to designate additional protected areas, which will provide crucial insights into the feasibility of meeting this goal. These submissions are expected to identify any significant gaps in coverage.

Out of 42 cities, 40 provided data for this indicator[35]. Among them, 8 cities reported that over 30% of their areas are designated as protected natural areas, 15 reported between 10-30%, and 11 reported below 10% (Figure 16). The average rate of protected natural areas across the 39 reporting cities is 18.7%. It is important to consider that cities vary in population density and land use. Some municipalities include large forests or rural areas within their boundaries, which can significantly influence their reported figures. Therefore, the focus should be on the interim and 2030 targets set by cities which provide a clearer picture of their commitments to expanding protected areas compared to baseline levels.

Figure 16: Percentage of protected natural areas (%) – number of cities



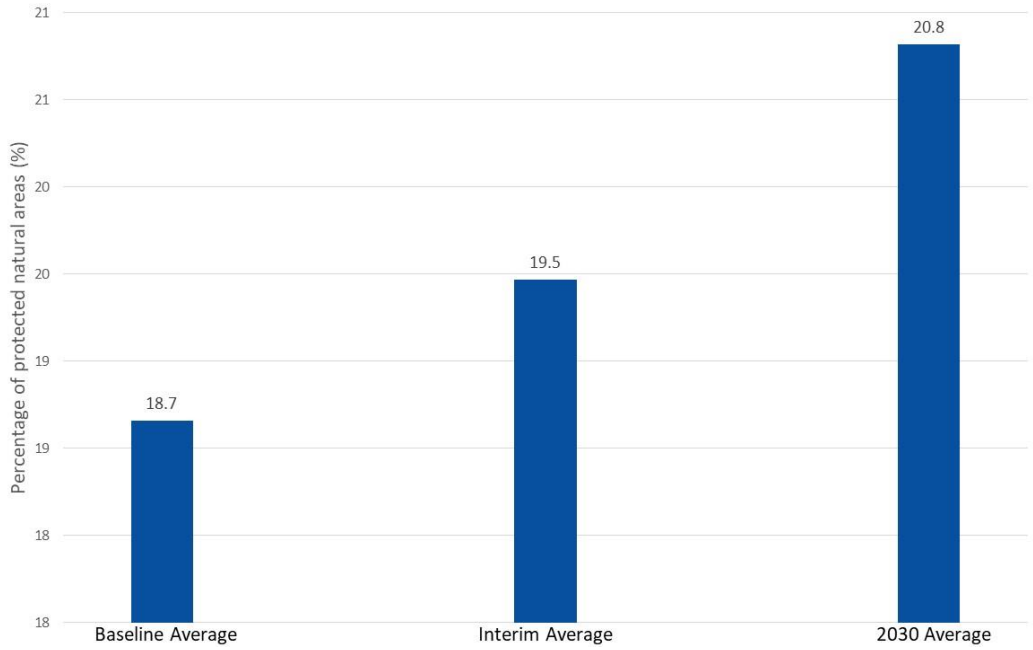
Notes: 40/42 cities reported Percentage of protected natural areas.

[34] https://www.eea.europa.eu/en/analysis/indicators/terrestrial-protected-areas-in-europe
[35] Of the 42 cities, 12 did not update their values following a correction of the indicator from "Percentage of protected natural areas, restored and naturalised areas on public land" to "Percentage of protected natural areas in municipality." As a result, these values may still reflect Percentage of protected natural areas, restored and naturalised areas on public land.

Interim and 2030 targets

The data on protected natural area targets among GCA cities reveals a strong commitment to increasing urban conservation efforts in both the interim and by 2030. For interim targets, 30 out of the 40 cities which have provided information have set goals for expanding protected natural areas, with 23 of these cities committing specifically to increasing such areas (Figure 17). Looking ahead to 2030, 29 cities have set targets for protected area expansion, with 21 planning to further increase the percentage of these spaces. By 2030, the average protected area percentage is expected to rise to 20.82%, reflecting progress toward EU conservation benchmarks. These findings indicate a growing trend among municipalities to incorporate protected natural spaces into urban planning, underscoring the increasing value placed on biodiversity and green areas within cities.

Figure 17: Baseline, Interim, and 2030 averages for percentage of protected natural areas



The following box highlights examples of ongoing actions and policies in GCA cities aimed at improving their performance relative to this indicator.

Turku, Finland

Under the City of Turku's LUMO biodiversity programme covering 2023 to 2029, the municipality has set itself the objective of increasing the surface area of protected land owned by the city by 25%[36]. The plan to achieve this involves the protection of recreational and marine areas, as well as the establishment of new

[36] https://www.turku.fi/en/biodiversity

nature reserves such as the Mälikkälä nature reserve. Existing reserves such as Pomponrahka will also be expanded under this plan.

Guimarães, Portugal

With its 2030 Biodiversity Action Plan, the City of Guimarães aims to prioritise nature and biodiversity and increase the quality of life of its residents through increased contact with nature. Key to this strategy is Objective 2 of the plan, which aims to legally protect 20% of the land area and 20% of aquatic environments owned by the municipality by 2030[37]. The plan also involves the restauration of ecological corridors along riverbanks in order to prevent the fragmentation of ecosystems.

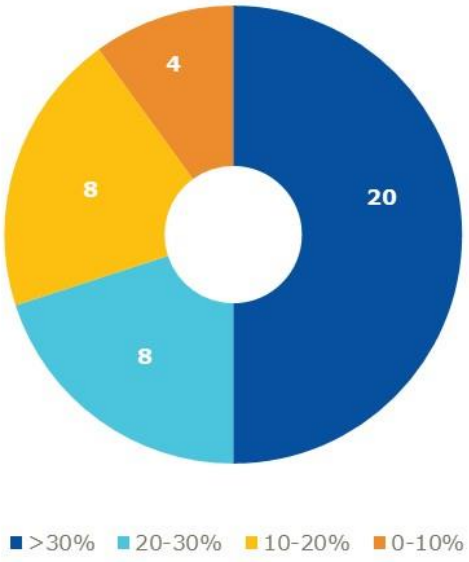
— **Percentage of tree canopy cover within the city**

To combat the effects of urbanisation on biodiversity and climate, the EU introduced the Nature Restoration Regulation, sets binding targets to restore degraded ecosystems. This initiative aims to enhance green spaces, improve air quality, and promote sustainability in urban environments. The importance of urban trees is recognised the EU Biodiversity Strategy, which requires that cities with over 20,000 inhabitants develop urban greening plans, including measures to increase urban green spaces such as parks, forests, and tree-lined streets[38]. In 2018, the mean urban tree cover was 28.5%[39].

Out of 42 cities, 40 reported data on urban tree canopy cover, revealing high levels of monitoring across GCA signatories. Among these, half of the cities—20 in total—have tree canopy covers above the 2018 EU average (28.5%), highlighting significant achievements in integrating green spaces within urban landscapes (Figure 18). The overall average tree canopy cover among these cities stands at 31.1% and suggests that many cities are actively pursuing ambitious tree cover goals.

[37] https://labpaisagem.pt/en/noticia/guimaraes-2030-biodiversity-action-plan-in-public-consultation/
[38] https://www.eea.europa.eu/en/analysis/maps-and-charts/urban-tree-cover-dashboards
[39] Ibid.

Figure 18: Percentage of tree canopy cover among GCA cities – number of cities

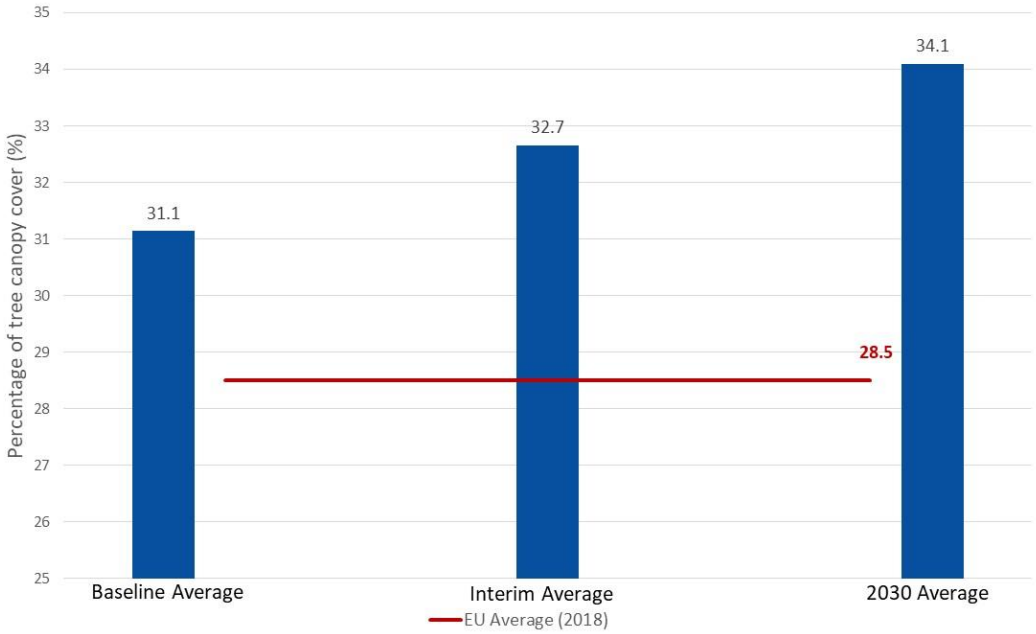


Notes: 40/42 cities reported percentage of tree canopy cover.

Interim and 2030 targets

The data on tree canopy cover targets among cities reflects a strong and growing commitment among GCA cities to increase tree canopy cover. For interim targets, 31 cities have set targets, with 23 of these cities setting targets above their current baseline levels (Figure 19). The average interim target for these cities is 32.66%, representing an increase of 1.5 percentage points. For 2030 targets, 33 cities have set long-term goals. The average canopy cover target by 2030 is 34.1%, representing nearly an increase of 3 percentage points from current level, indicating a continued commitment to enhancing urban tree canopy cover.

Figure 19: Baseline, interim and 2030 average for tree canopy cover



Notes: Data for the EU average in 2018 based on EEA *Urban Tree Cover Dashboard*[40].

The following box highlights examples of ongoing actions and policies in GCA cities aimed at improving their performance relative to this indicator.

Oslo, Norway

As part of the city's Climate Strategy for Oslo towards 2030, 100,000 trees will be planted between 2020 and 2030 in a bid to increase natural carbon storage[41]. To achieve this objective, a collaborative approach involving businesses and citizens was chosen to experiment novel afforestation techniques. The Oslotraer initiative also serves as an engagement exercise with local youth, who are encouraged to plant, look after and look out for new spaces where trees could be planted[42]. In addition, a Green Portal has been set up to document the city's trees, as a database for planning and management.

Vilnius, Lithuania

In Vilnius, the Green Wave initiative launched in 2021 aims at planting 100,000 trees, 10,000,000 shrubs, and 300,000 climbing vines in the streets of the city[43]. This programme relies on the participation of residents to plant or donate trees to the municipality, who can benefit from specialist assistance in the afforestation process. In addition, the species used in the Green Wave initiative are selected to

[40] https://www.eea.europa.eu/en/analysis/maps-and-charts/urban-tree-cover-dashboards
[41] https://www.klimaoslo.no/rapport/oslos-climate-budget-2022/follow-up-of-the-climate-strategy/
[42] https://interlace-hub.com/oslotr%C3%A6r-oslo-trees-integrated-project
[43] https://vilnius.lt/en/2021/10/01/the-green-wave-is-rising-in-vilnius-with-hundreds-of-thousands-of-trees-millions-of-shrubs-and-vines/

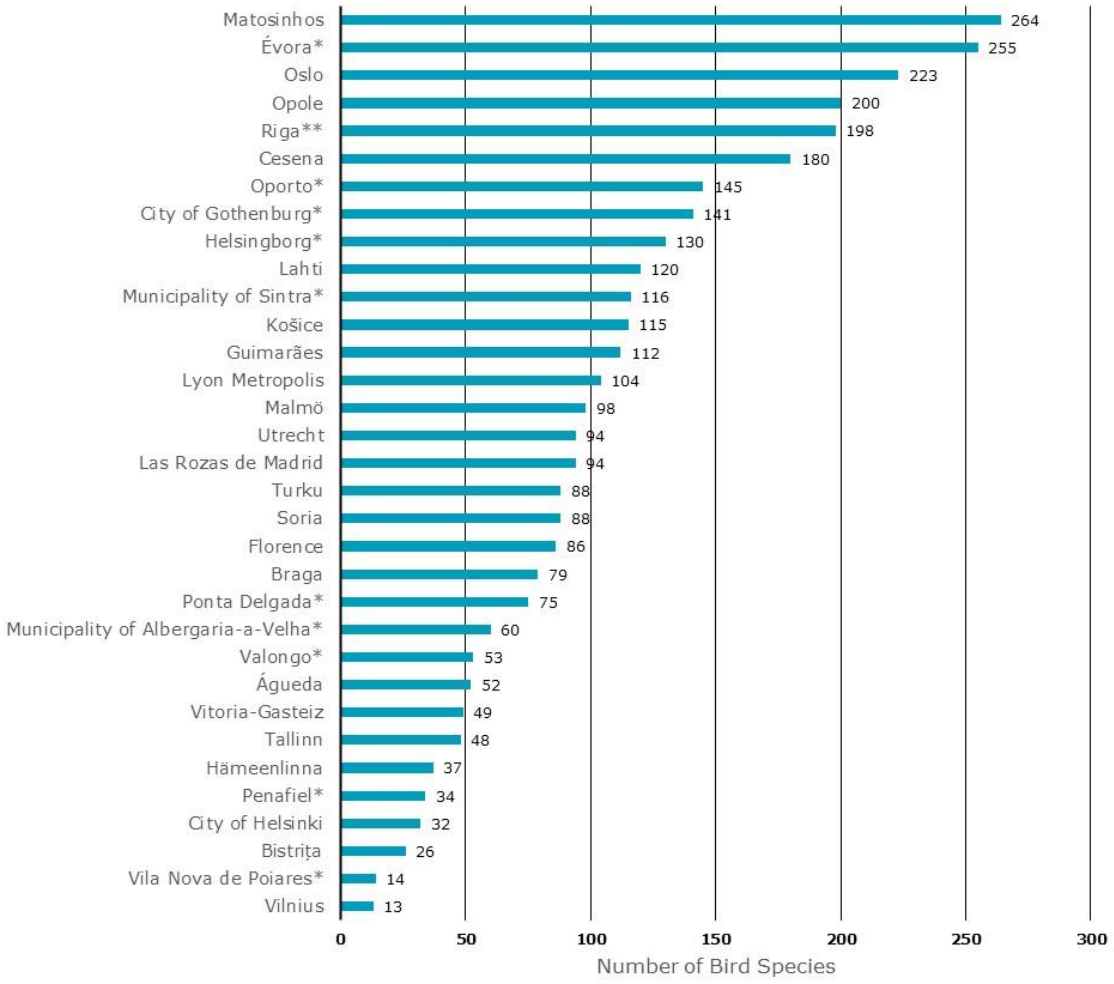
be well suited to both the local climate and to urban conditions[44]. The expansion of the urban tree canopy is also supported by the establishment of urban forests, such as the 0.25-hectare one in Ozo Park planted in 2021.

— **Change in number of bird species in urban/built-up areas in the city**

This indicator provides an initial baseline assessment of bird species diversity across GCA cities, establishing a foundation for tracking changes in urban biodiversity over time. Cities vary significantly in size and topography, which causes the number of recorded bird species to differ substantially between them. Additionally, cities employ different methods for collecting data, ranging from structured field studies to citizen science tools that engage local residents in recording bird sightings. Citizen tools allow for a broader data collection effort while fostering community involvement in urban biodiversity conservation. Out of the 42 cities, 33 reported on the number of bird species observed in their city (Figure 20). The findings in this baseline report offer insight into the diversity of bird populations within urban areas and set the stage for tracking trends and assessing conservation progress in subsequent reports.

[44] https://www.govilnius.lt/media-news/vilnius-presents-tactics-to-fight-climate-change

Figure 20: Number of bird species observed in GCA reporting cities



Notes: Cities marked with * used citizen reporting tools. Countries with ** reported both bird species and butterfly species.

The following box highlights examples of ongoing actions and policies in GCA cities aimed at improving their performance relative to this indicator.

Ponta Delgada, Portugal

As part of the Plan of Action for Ponta Delgada 2030, the municipality plans to invest EUR 2.5 million to EUR 3 million over the 2023-2030 period to improve the protection of green areas in the city and protect biodiversity. Specifically, the city plans to build wildlife shelters using end-of-life materials, and to contribute to the SOS Cagarros campaign for the protection of the Cory's Shearwater population. The plan aims to effectively monitor wildlife populations so that 95% of protected species in the city have known population trends or conservation statuses.

Utrecht, Netherlands

Utrecht's Green Structural Plan outlines the city's strategy for sustainability during the 2017-2030 period. Under this plan, biodiversity measures include the

Utrecht species list intended to protect valuable local species, as well as the inclusion of measures for species protection in tenders for municipal building construction. Applicants for municipal contracts earn bonus points when taking into account species that might take shelter in the building, for instance, by including shelters for breeding bids or bats in their design.

Vantaa, Finland

The city of Vantaa designated 2022 as Bird year. Throughout the year, residents were invited to build birdhouse workshops and take part in birdwatching excursions. Streams and rivers have also benefited from a rehabilitation programme between 2016 and 2020, many of which serve as ecological corridors for birdlife. Finally, the city is participating in an ecological offsetting programme organised by the Finnish Environment Institute, seeking to systematically compensate for the damage caused by human activity by increasing biodiversity in another area[45].

3.4. Waste and Circular Economy

The GCA aims to promote progress toward a circular economy by driving significant improvements in waste management across cities. This includes reducing municipal waste generation and landfilling while substantially increasing practices such as recycling. These efforts are designed to minimise environmental impacts, conserve resources, and foster sustainable urban development.

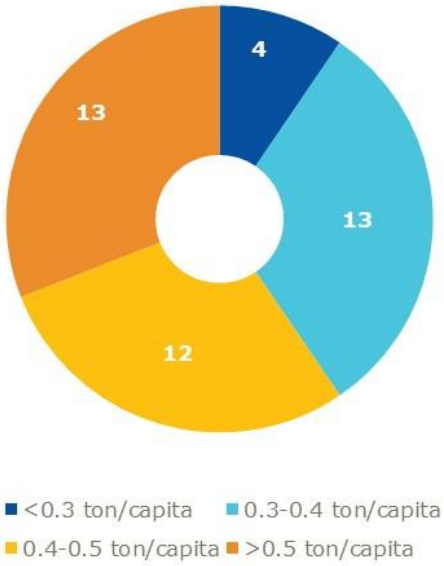
- **Municipal waste generated per capita (tons)**

The EU is committed to reduce waste through preventing waste generation across Member States. Municipal waste is collected and managed directly by, or on behalf of, municipalities, and is defined in Article 3(2) of Waste Framework Directive (2008/98/EC) as "mixed waste and separately collected waste from households".

All 42 cities submitted data for this indicator, with 29 reporting waste generated per capita below 0.5 tons/capita (Figure 21). The average waste generated across the cities is 0.442 tons/capita, which is below the EU average of 0.513 tons/per capita in 2022[46]. Out of the 42 cities, 32 are below the EU average. The variations across cities reflect differences in consumption patterns, but also depend on how municipal waste is collected and managed.

[45] https://www.vantaa.fi/en/city-and-decision-making/vastuullisuus/vastuullisuusraportti-2023/vantaa-ecologically-sustainable
[46] https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Municipal_waste_statistics

Figure 21: Per capita municipal waste generated [ton/capita] – number of cities

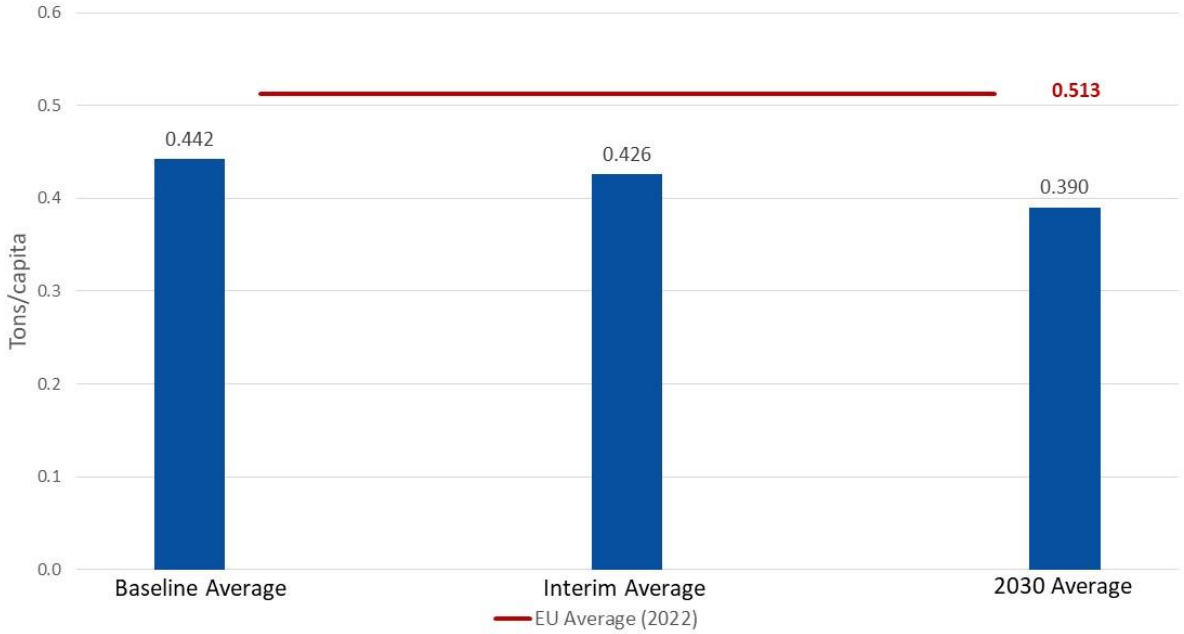


Notes: All 42 cities submitted data for this indicator. Cities have the option of reporting data on 'collected waste' if waste generation estimates are unavailable.

Interim and 2030 targets

Out of 42 cities, 32 cities reported interim targets. Among them, 26 established more ambitious interim targets, reflecting a commitment to reducing waste generation (Figure 22). If the interim targets are met, this would represent an average of 0.426 tons/capita, representing a moderate decrease from the baseline average (0.442 tons/capita). In terms of the 2030 targets, 33 cities reported on this indicator, with 28 cities setting more ambitious goals. If the 2030 targets are met, this would represent an average of 0.39 tons/capita, representing a decrease of 0.052 tons/capita relative to baseline levels.

Figure 22: Baseline, interim and 2030 municipal waste generated (tons/capita) averages



Notes: Data for the EU average in 2022 based on EEA[47].

The following box highlights examples of ongoing actions and policies in GCA cities aimed at improving their performance relative to this indicator.

Košice, Slovakia

Košice aims to reduce municipal waste by 30% by 2030. To achieve this goal, the municipality details a series of measures in its 2022-2027 Development Plan to reduce the amount of waste produced, increase recycling uptake and develop a circular economy[48]. These include the establishment of reuse centres and recycling centres, biodegradable waste collection, informational activities for residents on waste prevention, community composting in residential areas and the expansion of the existing municipal composting plant.

Lille, France

Lille intends to achieve a 15% reduction in municipal waste in 2030 compared to 2010. The city's plan rests on improved communication about waste processing, developing shared and individual composting, reducing wastage in supermarkets and restaurants, encouraging repair cafes and reuse centres, and reducing the use of single-use papers and textiles by residents[49]. This strategy is completed by

[47] https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Municipal_waste_statistics
[48] https://www.kosice.sk/mesto/program-hospodarskeho-rozvoja-socialneho-rozvoja-mesta-kosice-a-jeho-funkcnej-oblasti-2022-2027-phrsr-umr-
[49] https://participation.lillemetropole.fr/processes/plpdma#:~:text=R%C3%A9duire%20de%2015%25%20les%20d%C3%A9chets,propos%C3%A9es%20pour%20atteindre%20cet%20objectif%20!

ambitious objectives for the municipality itself to become a visible ambassador of recycling and waste reduction in its day to day running.

Lappeenranta, Finland

As a member of the FISU network of sustainable Finnish cities, Lappeenranta has implemented measures to reduce the volume of waste produced by its residents. One such example is a citizen-oriented project run by the University of Applied Sciences in partnership with the city that aims to improve biowaste collection and oversees the implementation of circular economy solutions (ie. sharing goods or lending services) to reduce wastage[50]. Up until 2023, the city was also part of the CIRCWASTE project coordinated by the Finnish Environment Institute, which developed a facility creating composite products from waste and streamlined waste collection services[51].

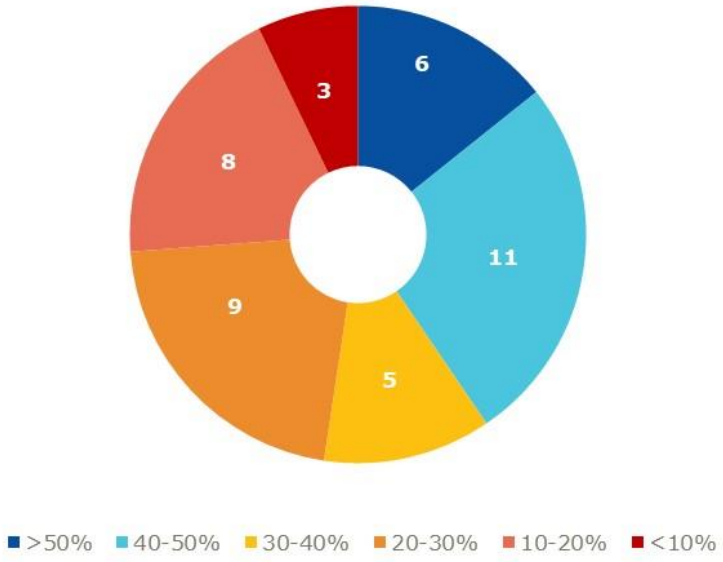
— Recycling rate of municipal waste (%)

The EU's waste policy is designed to support a circular economy by promoting environmentally responsible waste management and maximising the use of recycled materials. Currently, only 38% of waste is recycled in the EU[52], highlighting the need for further progress. The Waste Framework Directive (2008/98/EC) provides the EU's legal structure for waste treatment and management, establishing ambitious targets to boost municipal waste recycling rates to at least 55% by 2025, 60% by 2030, and 65% by 2035. These targets aim to enhance resource efficiency, reduce waste, and promote a more sustainable approach to material use across member states.

All 42 cities have reported baseline data for this indicator. While all GCA cities have provided baseline data, 37 out of 42 cities currently fall short of the EU's 2025 target of 55% recycling rate, with only 6 cities reporting recycling rates above 50% (Figure 23). The average recycling rate across GCA cities stands at 33%, with fewer than half (19 out of 42 cities) surpassing the current EU average of 38%. However, it's worth noting that the reported data spans from 2020 to 2023, suggesting that cities may have made additional progress toward the EU target that will be reflected in the next reporting phase.

[50] https://lab.fi/en/project/citizen-oriented-circular-economy-solutions-south-karelia
[51] https://www.materiaalitkiertoon.fi/en-US/Circwaste/Pioneering_municipalities/Lappeenranta
[52] https://environment.ec.europa.eu/topics/waste-and-recycling_en

Figure 23: Recycling rate of municipal waste (%) – number of cities



Notes: All 42 cities submitted data for this indicator.

Interim and 2030 targets

Of the 42 cities, 36 have established interim targets, with 33 of these setting more ambitious interim targets. Notably, 22 cities have committed to achieving a 55% target as part of their interim objectives (Figure 24), signalling an effort to reach the Waste Framework Directive (2008/98/EC) goal of 55% by 2025. Looking towards 2030, 37 cities have set long-term targets, with 35 of them setting more ambitious outcomes. Within these cities, 31 have set a 60% target, underscoring a continued commitment to reaching the EU's goals by 2030 (Figure 24). These targets reflect a shared vision among cities for sustained progress and strengthened environmental impact.

Figure 24: Interim and 2030 targets for recycling rates

The following box highlights examples of ongoing actions and policies in GCA cities aimed at improving their performance relative to this indicator.

Arezzo, Italy

Under the Tuscany Region's Plan for Waste Management and Circular Economy adopted in 2024, Arezzo aims to achieve a 65% recycling rate by 2035, and a 80-85% rate of separated waste collection[53]. Measures to support this include the development of home collection, implementing monitoring systems for recovery plants, multi-channel information campaigns for residents, and the improved management of batteries and accumulators.

Helsingborg, Sweden

Helsingborg aims to attain a 60% recycling rate of municipal waste in 2030, up from 44% in 2021. Between 2019 and 2024, the Action Plan to Promote Sharing Economy and Circular Economy[54] already implemented key measures to reach this objective. The city developed inner-citizen engagement projects through the municipal waste management company, and experimented recycling initiatives within its internal operations. New ways to plan city districts have also been tested, for example through the launch of the *Resursens Hus* (The House of Resources) to promote sustainable lifestyles[55].

Marseille, France

In order to reach its goal of 65% of municipal waste recycled in 2025, the municipality of Marseille focuses its efforts on increasing recycling rates by expanding collection guidelines and establishing clear sorting instructions across the city[56]. Another lever is through the expansion of recycling bins and facilities in the city's green spaces and beaches[57], which also aims to establish a culture of recycling in the public sphere. Finally, the municipality's own operations are also involved, through the recycling of used public lighting equipment and of materials used in cultural events[58].

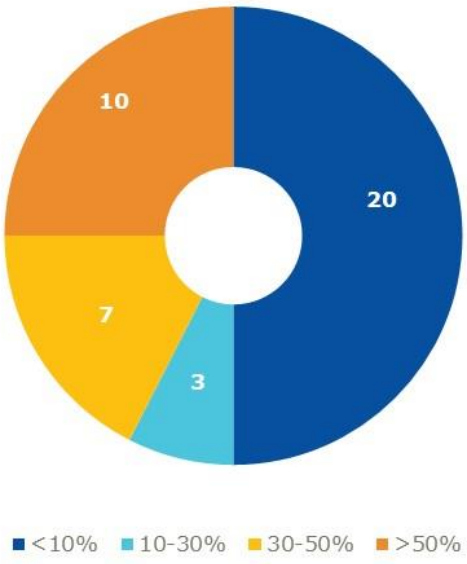
[53] https://www.regione.toscana.it/piano-regionale-di-gestione-dei-rifiuti-e-bonifica-dei-siti-inquinati.-piano-regionale-dell-economia-circolare
[54] https://media.helsingborg.se/uploads/networks/4/sites/141/2021/09/actionplan-for-sharing-and-circular-economy-in-helsingborg_updated-210915.pdf
[55] https://sdgs.un.org/documents/voluntary-local-review-helsingborg-33987
[56] https://dechets.ampmetropole.fr/wp-content/uploads/2022/01/De%CC%81libe%CC%81ration-2017-Axes-principaux-schema-me%CC%81tropolitain-gestion-des-dechets.pdf
[57] https://www.marseille.fr/environnement/developpement-durable/la-ville-de-marseille-agit-pour-le-tri
[58] https://www.marseille.fr/sites/default/files/contenu/environnement/PDF/rapport-developpement-durable-2023.pdf

Percentage of municipal waste landfilled

The EU's Landfill Directive (1999/31/EC) sets out operational requirements for landfilling, including a phased approach to restricting the landfilling of waste that could instead be recycled or recovered. Although the EU-27 has reduced its landfill rate from 23% to 16% between 2010 and 2020[59], some EU countries still send over 60% of household waste to landfill[60]. From 2030, only non-recyclable waste will be permitted in landfills, and by 2035, the Directive aims to limit the share of municipal waste going to landfill to a maximum of 10%[61].

Of the 42 cities, 40 provided baseline data on the percentage of municipal waste sent to landfill. Among these, 20 cities reported landfill rates below 10% (Figure 25), and 21 were below the EU average of 16.1% for 2020. However, a significant number of GCA cities still rely heavily on landfilling: 17 cities reported landfill rates exceeding 30%, with 10 of those cities reporting rates above 50%. These findings highlight the need for ongoing efforts and targeted support to help cities enhance their waste management practices and reduce landfill dependency.

Figure 25: Percentage of municipal waste landfilled – number of cities



Notes: 40/42 cities reported percentage of municipal waste landfilled.

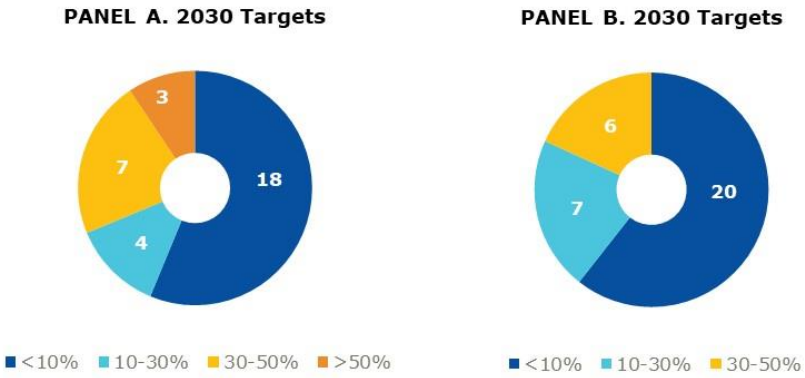
Interim and 2030 Targets

Of the 40 cities, 32 have set interim targets, with 29 of these pledging to either reduce their landfill rates or maintain a rate of 0% for cities that have already

[59] https://www.eea.europa.eu/en/analysis/indicators/diversion-of-waste-from-landfill
[60] https://environment.ec.europa.eu/topics/waste-and-recycling_en
[61] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31999L0031

achieved zero landfill use. Notably, 18 cities have committed to keeping landfill rates below 10% (target set by the Waste Framework Directive to be met by 2035) in the interim period (Figure 26, Panel A). Looking ahead to 2030, 33 cities provided long-term targets, with 31 of them aiming to reduce landfill rates or sustain a 0% rate where already achieved. In addition, 20 cities have set ambitious 2030 goals to maintain landfill rates below 10% (Figure 26, Panel B).

Figure 26: Interim and 2030 targets for municipal waste landfilled – number of cities



The following box highlights examples of ongoing actions and policies in GCA cities aimed at improving their performance relative to this indicator.

Malmö, Sweden

As of 2022, only 1.44% of waste collected in Malmö is landfilled. The city's longstanding commitment to building a circular economy has contributed to achieving such a low percentage of landfilled waste. Notable examples of this include the obligation to sort food waste for all households, which is used by the city to produce biogas for buses and taxis[62]. District heating is also powered by the city incinerator and excess heat release from industrial activities, while recycling is well incorporated in the residents' habits. The next challenges to tackle include improving the recycling of textiles and extending the lifecycle of furniture used in the municipality's facilities.

Évora, Portugal

While 57.9% of Évora's municipal waste is landfilled in 2020, the city aims to achieve a 26% landfill rate by 2030. To reach this target, the municipality aims to improve the composting of bio-waste through investment in a new bio-waste processing plant to produce a higher quality compost usable in agriculture[63].

[62] https://malmo.se/Welcome-to-Malmo/Sustainable-Malmo/Sustainable-Lifestyle/Circular-economy.html#:~:text=All%20household%20waste%20in%20Malm%C3%B6,waste%2Dto%2Denergy%20facility.
[63] https://www.industriaeambiente.pt/noticias/nova-unidade-evora-transforma-biorresiduos-composto-agricultura/

Whilst the former aims at processing food waste from hotels, restaurants, cafes and schools, the city also runs a programme of at home composting targeted at residents[64].

3.5. Noise

Reducing noise is a key priority under the EU's Zero Pollution Action Plan and the Environmental Noise Directive (2002/49/EC) (END). By 2030, the action plan seeks to reduce the share of people chronically disturbed by transport noise by 30%, relative to 2017[65]. The plan also points to the role of sustainable and smart mobility strategies in mitigating noise pollution across the EU.

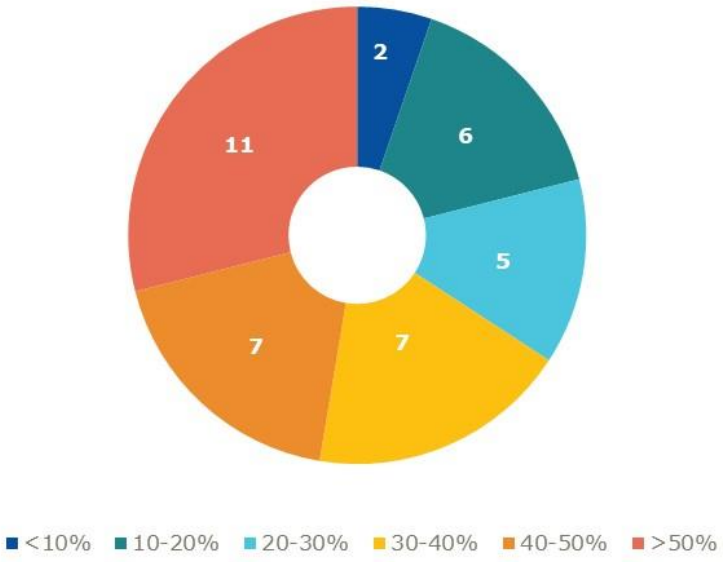
- **Percentage of the population exposed to average day-evening night noise levels (Lden) ≥ 55 dB**

Lden (day-evening-night noise level) represents the average noise exposure a citizen experiences over a 24-hour period throughout the year. While the Environmental Noise Directive requires Member States to report noise data to the European Commission starting at 55 dB, WHO has established lower threshold recommendations: 53 dB for road noise, 54 dB for railway noise, and 45 dB for air traffic[66]. According to a study on the benefits of noise abatement measures in the EU[67], it was estimated that 44.8% of the EU urban population was exposed to Lden > 55dB in 2017.

Of the 42 cities, 38 provided a baseline value for noise exposure, while 2 cities reported on alternative indicators measuring population exposure to average daytime noise levels (LAeq, 7am-10pm). Among the cities that reported baseline values, 13 currently have less than 30% of their population exposed to harmful noise levels (Figure 27). However, 11 cities report that more than 50% of their populations are exposed to noise levels above recommended thresholds, underscoring the need for continued efforts in noise reduction strategies across urban areas.

[64] https://www.cm-evora.pt/municipe/areas-de-acao/ambiente/compostagem/
[65] https://environment.ec.europa.eu/strategy/zero-pollution-action-plan_en#:~:text=The%20zero%20pollution%20vision%20for,creating%20a%20toxic%2Dfree%20environment.
[66] https://www.who.int/europe/publications/i/item/9789289053563
[67] https://op.europa.eu/en/publication-detail/-/publication/f4cd7465-a95d-11eb-9585-01aa75ed71a1

Figure 27: Percentage of the population exposed to average day-evening night noise levels (Lden) ≥ 55 dB – number of cities



Notes: 38/42 cities reported percentage of population exposed to Lden ≥ 55 dB. Two cities have provided an alternative indicator: population exposed to average day-time noise levels (LAeq, 7am-10pm).

Interim and 2030 targets

For the interim targets, 24 out of 38 cities have established goals for reducing Lden noise exposure levels. Among these, 20 cities have committed to reduce current levels, with 8 cities setting interim targets to bring noise exposure below the 30% threshold. Looking ahead to 2030, 26 of the 38 cities have committed to longer-term targets. Of these, 24 cities aim to reduce Lden levels, with 11 aiming for noise exposure rates below 30% by 2030. These targets demonstrate a strong commitment to reducing environmental noise exposure in urban areas, though a significant portion of cities still face challenges in meeting the most stringent noise reduction goals.

The following box highlights examples of ongoing actions and policies in GCA cities aimed at improving their performance relative to this indicator.

Galați, Romania

In Galați, 60.7% of the population is exposed to average noise levels above 55 dB. To solve this issue, the municipality has decided to act by reducing noise from road traffic. Proposed measures include the introduction of a park and ride system to avoid road traffic from individual cars, encouraging journeys by bike and electric scooter, purchasing new electric buses, modernisation of tramway

infrastructures, and the development of a network of cycle tracks[68]. Through these measures, the city aims to reduce the share of the population affected to 55%.

Riga, Latvia

The city of Riga has implemented a noise reduction Action Plan for the 2024-2028 period in order to reduce the exposition of its residents to high noise levels. The plan is mainly focused on reducing noise disturbances coming from road traffic, and includes supporting the use of quieter tyres on personal vehicles, improving the procedure for designating quiet neighbourhoods in the city, the installation of noise barriers and special arrival procedures for flights coming into Riga International Airport[69]. These measures aim to decrease the share of residents exposed to average noise levels above 55 dB to 47% in 2030, down from 53% in 2020.

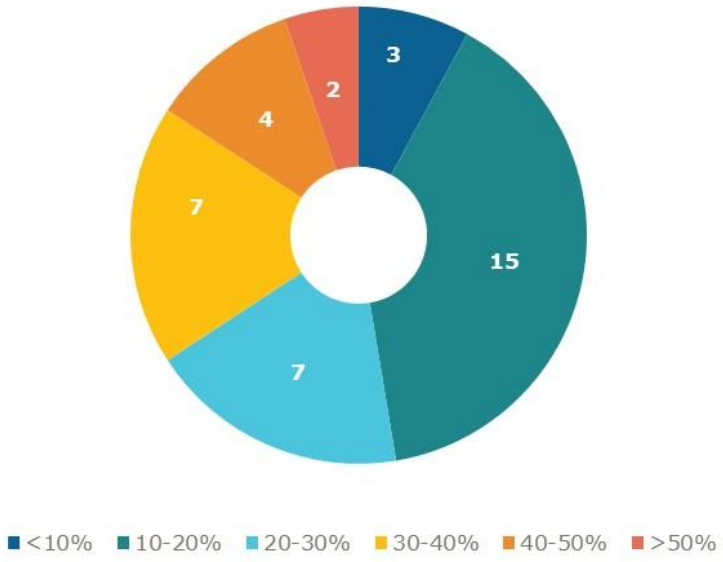
— **Percentage of the population exposed to night-time noise (Lnight) ≥ 50 dB**

Lnight refers to an annual average period of exposure to noise at night. The Directive considers exposure to night-time noise levels above 50 dB at night to be harmful to health, thus setting it as the reporting threshold. The WHO designates an even lower threshold of 45 dB. According to a study on the benefits of noise abatement measures in the EU[70], it was estimated that 29.9% of the EU urban population was exposed to Lnight >50 dB in 2017.

Of the 42 cities, 38 have reported a baseline value for night-time noise exposure. Among these, 25 cities currently have levels below 30%, indicating a promising level of compliance with lower noise exposure targets (Figure 28). However, two cities report baseline values above 50%, highlighting areas where significant noise reduction efforts may be needed to align with broader noise mitigation goals.

[68] https://www.primariagalati.ro/portal/galati/portal.nsf/AllByUNID/466BBCA4476C2DAAC22586BD002891DD/$FILE/plan_actiune200421.pdf
[69] https://sus.lv/node/2324
[70] https://op.europa.eu/en/publication-detail/-/publication/f4cd7465-a95d-11eb-9585-01aa75ed71a1

Figure 28: Percentage of the population exposed to night-time noise (Lnight) ≥ 50 dB



Notes: 38/42 cities reported percentage of population exposed to night-time noise (Lnight) ≥ 50 dB.

Interim and 2030 targets

For the interim targets, 23 out of 38 cities have established objectives for this indicator. Of these, 18 cities are dedicated to reducing Lnight levels, with 15 of them setting interim targets to achieve night-time noise exposure below 30%. Looking ahead to 2030, 27 of the 38 cities have committed to long-term goals. Among these, 24 cities aim to reduce Lnight levels, with 20 cities targeting night-time noise exposure rates below 30%.

The following box highlights examples of ongoing actions and policies in GCA cities aimed at improving their performance relative to this indicator.

Matosinhos, Portugal

In 2022, 10% of the population of Matosinhos was exposed to night-time noise, primarily around the city's harbour and airport. As part of the city's *Plan for Mobility and Transport*, heavy transport was restricted around a set of main routes to reduce pollution and noise disturbances for residents[71]. The city's *Noise Action Plan* also introduced reductions in the speed limit, as well as incentives to use electric vehicles and bikes. The municipality thus hopes to reduce the share of the population exposed to night-time noise to 8% in 2030.

Murcia, Spain

[71] https://www.cm-matosinhos.pt/urbanismo/mobilidade-e-transportes

Murcia aims to decrease the share of its population exposed to night-time noise to 25% in 2030, down from 35% in 2023. As part of the *Murcia 2030 Action Plan*, the city intends to use traffic reduction measures in the city centre to both decrease air and noise pollution for residents[72]. This strategy is also reflected in Murcia's *Circular Economy Strategy,* which plans the creation of a local vehicle-sharing platform, financial incentives for the purchase of bikes and electric scooters, the establishment of Low Emission Zones and the development of digital monitoring of noise using sensors deployed around the city[73].

Bistrița, Romania The city of Bistrița aims to reduce the share of its population exposed to night-time noise from 10% in 2018 to 9% in 2030. The municipality has already taken steps to monitor noise levels around the city by creating a noise map, and establishing a monitoring centre for environmental data collected around the city. Every year, the European Mobility Week also allows the municipality to reduce car traffic levels, and carry out noise monitoring activities around key intersections[74]. Finally, Bistrița's *Zero Carbon City* programme has also been launched to promote sustainable alternatives to car usage that also result in lower noise levels around city streets[75].

— **Percentage of (adult) population with High Sleep Disturbance**

Measuring the percentage of (adult) population with High Sleep Disturbance (HSD) offers a deeper insight into the health impacts on noise exposure. The indicator specifically addresses sleep disturbance, which has a direct influence on quality of life and health. Notably, the repercussions of sleep disturbance are linked to an increased risk of cardiovascular disease.

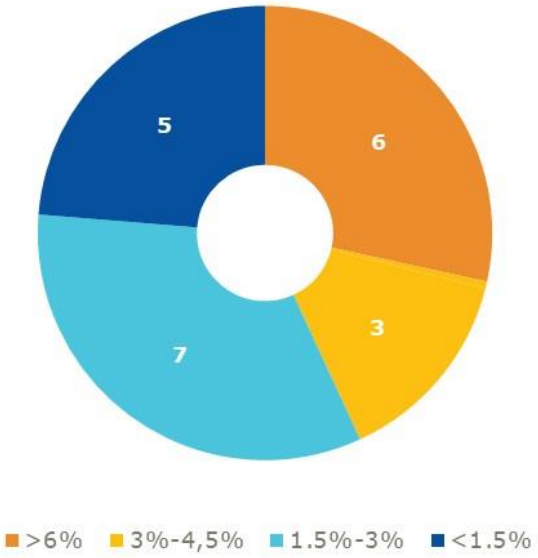
Out of 42 cities, 21 have reported data on this indicator, with two cities providing alternative indicators. These alternatives include the percentage of the population reporting significant difficulties sleeping due to traffic or industrial noise and the LAeq (equivalent continuous sound level) between 10 PM and 7 AM. Data on high sleep disturbance represents relatively low reporting levels and highlights the challenges cities face in collecting and providing accurate data for this metric. These challenges stem from various factors, including resource constraints or gaps in available information. The EEA reports that have 'Health Risks Caused by Environmental Noise in Europe' (2020)[76] and 'Health Impacts of Exposure to Noise from Transport'

[72] https://www.estrategiamurcia.es/upload/2024/01/Plan-Accion-Agenda-Murcia-Version-completa.pdf
[73] https://www.estrategiamurcia.es/
[74] https://www.primariabistrita.ro/16-22-septembrie-saptamana-europeana-a-mobilitatii-2/
[75] https://archive.urbact.eu/city-reflections-and-ambitions-bistrita
[76] https://www.eea.europa.eu/publications/health-risks-caused-by-environmental

(2022)[77], which served as the basis for setting the objectives of the Zero Pollution Action Plan, estimate the prevalence of this problem in a total population representing 1.22% of the EEA-33. This figure can be extrapolated in 1.35% of the EU urban population. As we are dealing with estimations and extrapolations, and in view of the difficulties to determine the EU average and to compare the figures reported by a low number of cities, a milestone of 1.5% has been established for the purpose of this report.

Among the 21 cities that provided data, 12 reported sleep disturbance levels below 3% (Figure 29), indicating a relatively low prevalence of sleep disruption in these areas. However, 6 cities report prevalence above 6%, 4 cities of them indicating levels exceeding 10%. These figures highlight that some cities face notable challenges in managing noise-related health impacts. For these highest values above 10%, this information has to be treated cautiously because the reporting seems to indicate potential prevalence of high sleep disturbance instead of real prevalence of this problem. All the cities reporting levels above 6% (the highest) have been grouped together.

Figure 29: Percentage of adult population with High Sleep Disturbance – number of cities



Interim and 2030 targets

Among the 21 cities that reported data, 16 have established interim targets to address high sleep disturbance levels, with 14 of these cities setting more ambitious

[77] https://www.eea.europa.eu/en/analysis/indicators/health-impacts-of-exposure-to-1

goals, relative to baseline levels. Looking ahead, 16 of the same cities have also set targets for 2030, with 15 defining more ambitious goals, relative to baseline levels.

The following box highlights examples of ongoing actions and policies in GCA cities aimed at improving their performance relative to this indicator.

Las Rozas de Madrid, Spain

Currently, the city of Las Rozas reports High Sleep Disturbance in 1.9% of its population and aims to reduce it to 1% by 2030. Measures to act on this issue aim to reduce noise night-time noise levels, as part of the city's Acoustic Study published in 2022. Mitigation measures against road traffic noise on busy motorways include the installation of noise barriers and the construction of vegetalised banks to absorb sound, and involve a new urban planning procedure requiring more detailed acoustic studies for future residential developments[78].

Vila Nova de Poiares, Portugal

To reduce the share of residents with High Sleep Disturbance from 15% in 2021 to 12% in 2030, the municipality has incorporated actions against noise levels in its Plan of Action for 2030[79]. The actions planned to reduce noise exposures over the 2019-2030 period include the identification of quiet zones, the creation of zones with restricted traffic for combustion engine vehicles, updating noise level maps, use of noise reducing asphalt and reduced speed limits, and promoting the use of electric vehicles through the installation of charging stations.

Lyon, France

From 2021 to 2024, Lyon followed a Plan for the Prevention of Noise[80], structured around the prevention of noise production, and mitigation measures where reduction is not possible. Among the key actions undertaken, the development of the cycle track network features prominently as a lever to reduce car journeys and the noise associated to them. The development of public transport also plays a similar role, while measures to protect residents from noise include the development of guidelines for noise levels on construction sites, and incentives for the electrification of the delivery vehicle fleet.

[78] https://www.lasrozas.es/sites/NPGOU/DOCUMENTO%20DE%20AVANCE/BLOQUE%20II.%20DOCUMENTACI%C3%93N%20AMBIENTAL/ESTUDIOS%20COMPLEMENTARIOS/02.01_ESTUDIO%20ACUSTICO.pdf

[79] https://api.cm-vilanovadepoiares.pt/uploads/1/1/Ambiente/greencity/Plano-acao-2030_VNPoiares_final.pdf

[80] https://www.grandlyon.com/fileadmin/user_upload/media/pdf/environnement/bruit/20211220_planbruit-2021-2024.pdf

4. Conclusion

This report provides an overview of the current status and future prospects of GCA signatories in relation to EU environmental objectives. By analysing the data reported by cities, the report offers insight into where cities currently stand and the targets they have set for the future.

For **Air**, the baseline values reported by cities are largely in alignment with EU regulations across the three key indicators: $PM_{2.5}$, PM_{10}, and NO_2. This is also true for the revised EU Directive and the targets set for 2030. While cities are meeting the current EU standards, many are currently not on track to meet the stricter WHO health guidelines for air quality.

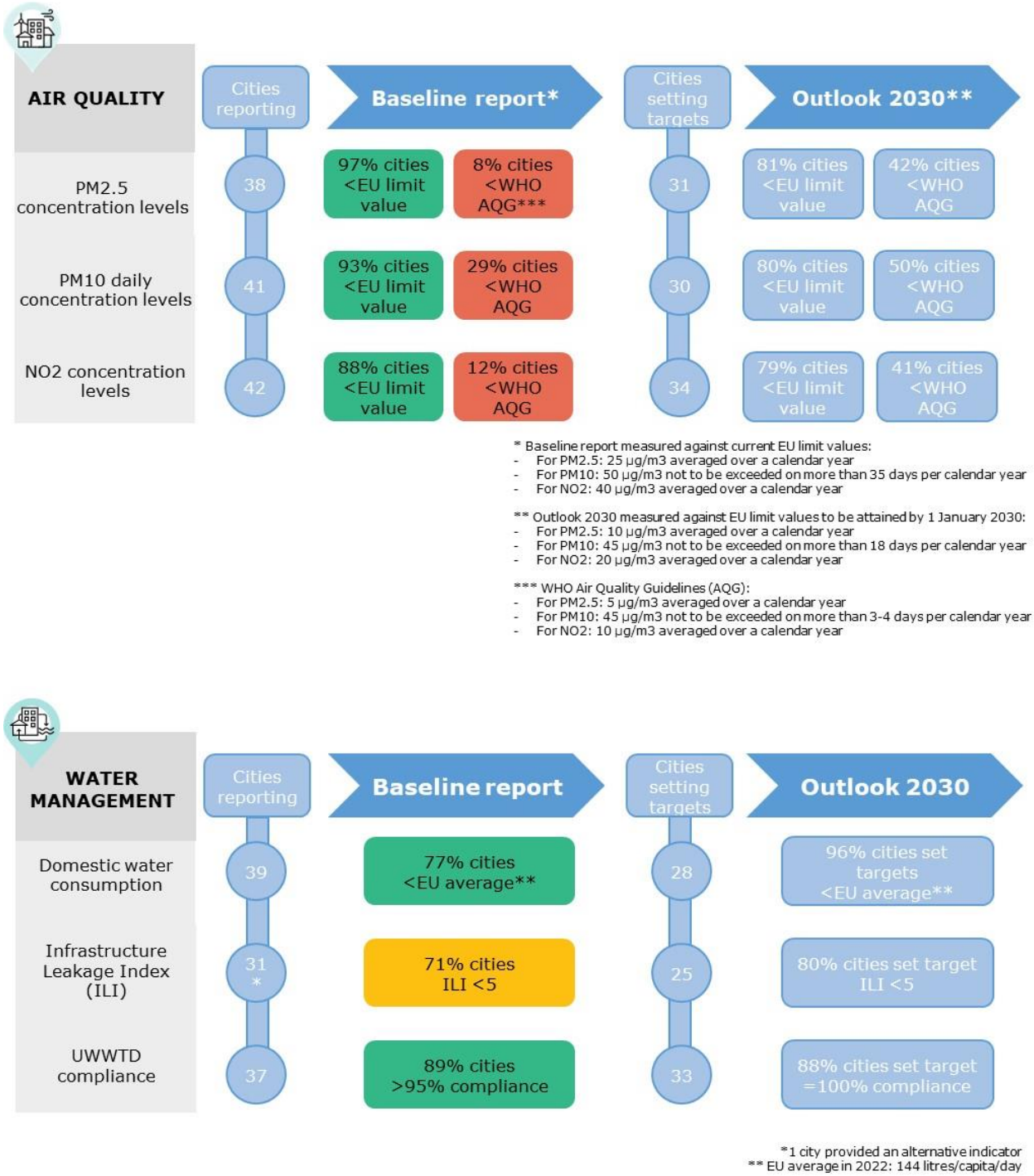
For **water** and the **Urban Waste Water Treatment Directive (UWWTD)**, the current baseline values fall short of some of the EU's existing targets. However, many cities have set ambitious goals and committed to meeting the EU's objectives by 2030. These future targets reflect a clear intention to improve wastewater treatment and water quality standards, even if some cities face challenges in meeting current requirements.

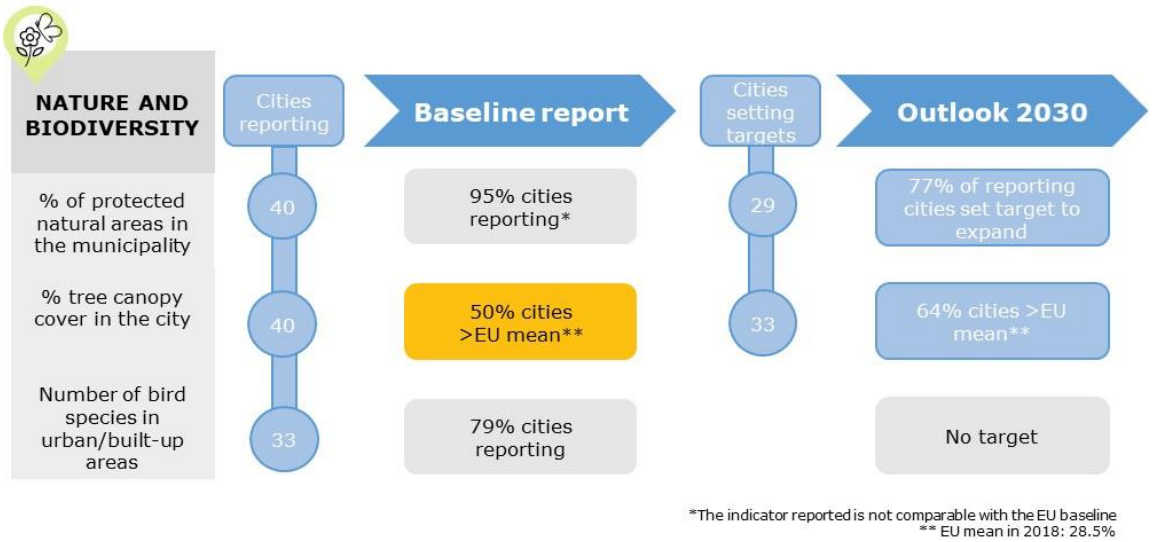
When it comes to **waste and circular economy**, GCA cities are facing challenges. Less than 50% of cities are currently on track to meet the 2025 EU target of a 55% recycling rate. As for the EU's 2030 target of 60%, while many cities have committed to increasing their recycling rates, it is uncertain whether they will fully meet this target. The need for enhanced efforts in waste management, recycling, and circular economy initiatives is critical if cities are to achieve these ambitious goals.

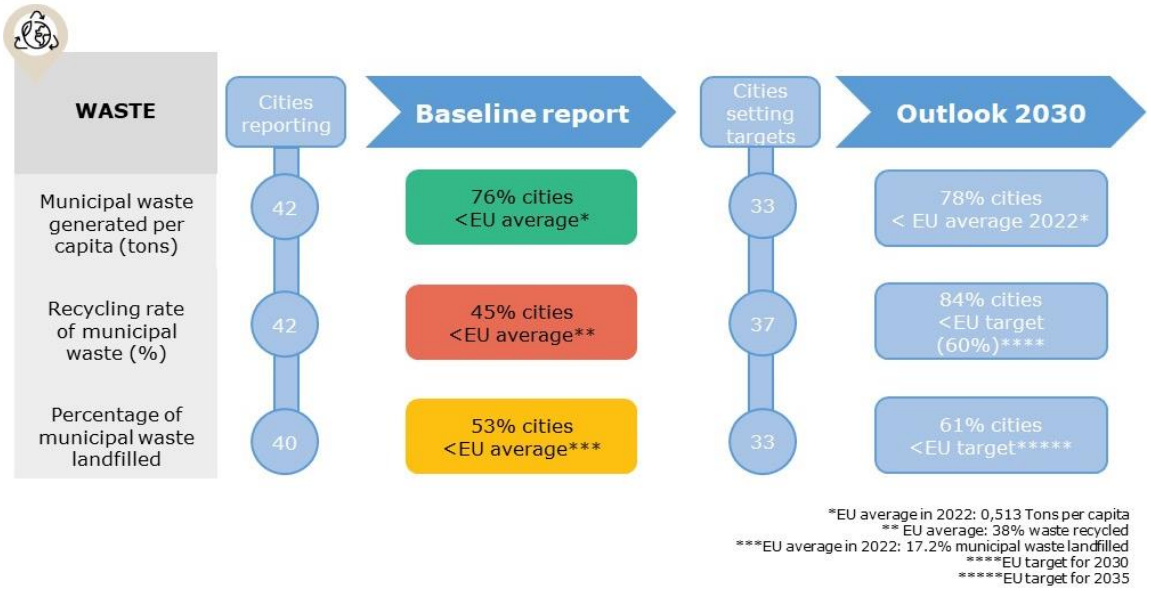
Overall, while GCA cities show strong performance in certain areas such as air quality and biodiversity, significant work remains in others, particularly water management, waste management and noise reduction. Continued commitment and stronger efforts are needed to meet the EU's environmental objectives and ensure that cities can contribute effectively to the EU's sustainability goals.

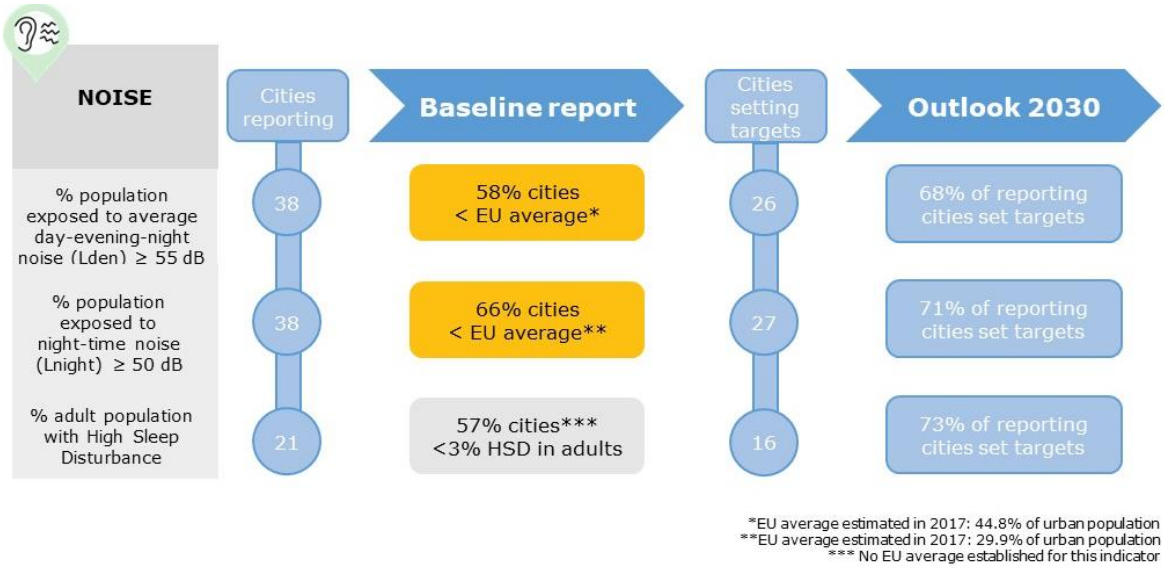
Figure 30 summarises the performance and targets set by the cities relative to each indicator.

Figure 30: Summary of the GCA reported baseline values and outlook for 2030









Legend:
Percentage of the reporting cities in positive situation, understood as in compliance with legal values, aiming to meet the targets, or in better situation than the EU average

>75% 50-75% <50%

Recommendations for data reporting

Data reporting is at the heart of the GCA, allowing cities to track their progress and demonstrate alignment with EU environmental objectives. It highlights areas of strong performance while identifying those requiring additional attention and improvement. Reliable data hinges on robust reporting practices, which are critical to ensuring accuracy and consistency. Recognizing that cities differ in resources and reporting capacities, the GCA Secretariat has drawn insights from this report to offer practical recommendations for data collection and reporting:

- **Develop communication pipelines**: Cities are encouraged to develop dedicated communication channels and partnerships to report data on GCA indicators. Many indicators are tracked or managed by different authorities, including the private sector (e.g. water management companies). By creating communication pipelines, cities can streamline information sharing, ensure data consistency, and enhance the accuracy of GCA indicator tracking.
- **Set clear and achievable targets**: Cities are encouraged to define both interim and long-term targets for each GCA indicator. Setting these targets will provide a structured approach to measuring progress toward EU environmental objectives and help maintain focus on key priorities.
- **Collaboration between cities**: Cities should actively collaborate with other GCA signatories to share best practices in data collection, reporting methodologies, and compliance strategies. Collaboration, especially among cities within the same country, can create synergies and improve the overall quality of reporting.
- **Utilise diverse reporting tools**: Cities should explore a range of tools for reporting on specific indicators, including citizen-based platforms. For example, to monitor changes in the number of bird species (Indicator 3.3), cities can adopt citizen science tools that gather data from residents' observations. These tools are cost-effective and valuable alternatives for cities with limited resources for structured surveys.
- **Focus on long-term trends**: Cities should prioritise collecting data over extended periods to identify trends and demonstrate the impact of policies on GCA indicators. Linking policy interventions directly to performance trends will provide actionable insights and strengthen data-driven decision-making.
- **Ensure alignment with EU reporting standards**: Cities are encouraged to adhere to established European standards and guidelines for data collection and presentation. For instance, when specifying green areas, it is crucial to use

standardised methods and explicitly state them in reports. This approach ensures clarity, consistency, and comparability across cities.

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