



Expert Panel
Technical Assessment Report
Kraków
European Green Capital Award
2022

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www.ec.europa.eu/europeangreencapital



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1 INTRODUCTION

Europe's cities are recognised as the engines of the European economy, providing jobs and services, and serve as hubs that catalyse creativity and innovation. Cities are the living environment for 72% of all Europeans with this percentage expected to rise to 80% by 2050. They possess potential such as economic growth, innovation and employment opportunities¹. However, they are facing ever increasing challenges, with regards to the environment, and social cohesion.

The European Green Capital and European Green Leaf Awards are underpinned by European Policy supporting sustainable urban planning and design. The Awards support the goals set out most recently in the European Green Deal published in 2019, Urban Agenda for the EU-Pact of Amsterdam, signed in 2016, and prior to this the 7th Environment Action Programme (EAP), as adopted in 2013.

The European Green Deal

The European Green Deal (EGD) for the European Union (EU) and its citizens was launched by the new von der Leyen Commission on 11 December 2019. The EGD is the new growth strategy for Europe with the ambition to be the world's first climate-neutral continent by 2050. The Communication² sets out the Commission's commitment to tackling climate change and environmental related challenges.

The EGD is the roadmap for **making the EU's economy sustainable**. This will happen by turning climate and environmental challenges into opportunities across all policy areas and making the transition just and inclusive for all.

The EGD provides a [roadmap³ with actions](#) to:

- Boost the efficient use of resources by moving to a clean, circular economy (the Circular Economy Action plan⁴ was adopted on 11 March 2020); and
- Restore biodiversity and cut pollution.

It outlines investments needed and financing tools available and explains how to ensure a just and inclusive transition.

The EU will be climate neutral in 2050. To do this, it is proposed to have a European Climate Law in place turning the political commitment into a legal obligation and a trigger for investment. Public consultation on the European Climate Pact⁵ is open until 27 May 2020.

Reaching this target will require action by all sectors of the economy, including:

- Investing in environmentally friendly technologies;
- Supporting industry to innovate;
- Rolling out cleaner, cheaper and healthier forms of private and public transport;
- Decarbonising the energy sector;
- Ensuring buildings are more energy efficient; and
- Working with international partners to improve global environmental standards.

¹ <http://urbanagendaforth.eu/wp-content/uploads/2015/12/EU-Urban-Agenda-factsheet.pdf>

² https://ec.europa.eu/info/files/communication-european-green-deal_en

³ https://ec.europa.eu/info/files/annex-roadmap-and-key-actions_en

⁴ https://ec.europa.eu/commission/presscorner/detail/en/IP_20_420

⁵ https://ec.europa.eu/clima/policies/eu-climate-action/pact_en

The EU will also provide financial support and technical assistance to help people, businesses and regions that are most affected by the move towards the green economy. This is called the Just Transition Mechanism and will help mobilise at least €100 billion over the period 2021-2027 in the most affected regions.

Policy Areas

- [Eliminating pollution](#): measures to cut pollution rapidly and efficiently
- [Biodiversity](#): measures to protect our fragile ecosystem
- [Sustainable industry](#): ways to ensure more sustainable, more environmentally respectful production cycles (the Industrial Strategy Action plan⁶ was adopted on 10 March 2020)
- [Building and renovating](#): the need for a cleaner construction sector
- [Clean energy](#): opportunities for alternative, cleaner sources of energy
- [Sustainable mobility](#): promoting more sustainable means of transport
- [From Farm to Fork](#): ways to ensure more sustainable food systems

The 12 EGCA indicators are aligned with the key EGD policy areas. Cities will play an important role in the delivery of the EGD through how they deliver policy in the city, engage with citizens, business, industry, academia, and networks, amongst other stakeholders in order to create cities fit for life. It is the EU vision to be a global leader, and European Green Capital winners will be important role models and ambassadors in Europe and across the world.

The Urban Agenda for the EU - Pact of Amsterdam

Following a public consultation process in 2014, the Urban Agenda for the EU was launched in May 2016 with the EU Member States agreement on the Pact of Amsterdam. The Urban Agenda for the EU aims to address the challenges faced by cities and also to fully exploit the potential of cities by integrating the urban dimension into EU policies. The EU Urban Agenda also aims to promote cooperation and partnerships between member states, the European Commission, European institutions, cities and other stakeholders in order to stimulate growth, liveability and innovation in the cities of Europe through:

1. Better Regulation: Improving the development, implementation and evaluation of EU legislation;
2. Better Funding: Ensuring better access to and utilisation of European funds; and
3. Better Knowledge: Improving the EU urban knowledge base and stimulating the sharing of best practices and cooperation between cities.

The Urban Agenda for the EU outlines a number of priority themes, which are important to achieve the smart, green, and inclusive growth of urban areas. Many of the themes outlined align with the indicators and topic areas assessed in the EGC and EGL Awards, including; Air Quality, Circular Economy, Sustainable Use of Land and Nature-Based Solutions, Climate Adaptation, Urban Mobility, and Energy Transition.

Thematic Partnerships representing various governmental levels and stakeholders are the key delivery mechanism within the Urban Agenda for the EU.

The Partnerships analyse challenges and bottlenecks to recommend implementable actions in the form of an Action Plan to be finalised within two years after the start of their work.

The Partnerships are now beginning to deliver results and put actions in place. All the latest information on the partnerships can be found here: <https://ec.europa.eu/futurium/en/urban-agenda>.

The Urban Agenda for the EU will contribute to the implementation of the UN 2030 Agenda for Sustainable Development, notably Goal 11 'Make cities inclusive, safe, resilient and sustainable' and the global 'New Urban Agenda' as part of the Habitat III process.

⁶ https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-industrial-strategy_en

7th Environment Action Programme (EAP)

The Commission commenced the 7th Environment Action Programme (EAP)⁷ in 2013 which sets out a strategic agenda for environmental policy-making with nine priority objectives to be achieved by 2020. It establishes a common understanding of the main environmental challenges Europe faces and what needs to be done to tackle them effectively. This programme underpins the European Green Capital Award (EGCA) in relation to policies for sustainable urban planning and design.

Protecting and enhancing natural capital, encouraging more resource efficiency and accelerating the transition to the low-carbon economy are key features of the programme, which also seeks to tackle new and emerging environmental risks and to help safeguard health and welfare of EU citizens. The results should help stimulate sustainable growth and create new jobs to set the European Union on a path to becoming a better and healthier place to live.

Cities play a crucial role as places of connectivity, creativity and innovation, and as centres of services for their surrounding areas. Due to their density, cities offer a huge potential for energy savings and a move towards a carbon-neutral economy.

Most cities face a common core set of environmental problems and risks, including poor air quality, high levels of noise, greenhouse gas (GHG) emissions, water scarcity, contaminated sites, brownfields and waste. At the same time, EU cities are standard setters in urban sustainability and often pioneer innovative solutions to environmental challenges. An ever-growing number of European cities are putting environmental sustainability at the core of their urban development strategies.

The 7th EAP sets the target of meeting local, regional and global challenges by enhancing the sustainability of cities throughout the European Union and fixes the goals that by 2020 a majority of cities in the EU are implementing policies for sustainable urban planning and design.

European Green Capital Award

With over two thirds of Europeans now living in urban areas, cities across Europe are presented with problems related to, pollution including air and noise, waste management, water management, energy consumption, housing and land use, unemployment, transport and climate effects.

By showcasing the achievements of European cities in tackling these issues, the European Green Capital and European Green Leaf Awards aim to lead by example and inspire others to take action.

A highlight of our recent award cycles is that the applicants to both awards have been from the four corners of Europe with north, south, east and western cities represented. This is a testament that the European Green Capital and European Green Leaf Awards seeds have truly taken root. The diversity of experiences that these applicants bring shows that there are many and varied paths to becoming a modern Green city.

It is important to reward cities that are making efforts to improve the urban environment and move towards healthier and sustainable living areas. Progress is its own reward, but the satisfaction involved in winning a prestigious European award spurs cities to invest in further efforts and boosts awareness within the city as well as in other cities. Award winners act as ambassadors for change, leading by example to showcase that any city can be a green and modern city by sharing examples of good practices.

The winning EGC cities to date are: Stockholm in 2010, Hamburg in 2011, Vitoria-Gasteiz in 2012, Nantes in 2013, Copenhagen in 2014, Bristol in 2015, Ljubljana in 2016, Essen in 2017, Nijmegen in 2018, Oslo in 2019, Lisbon in 2020 and Lahti in 2021. All are recognised for their consistent record of achieving high environmental standards and commitment to ambitious goals.

The objectives of the European Green Capital Award are to:

- a) Reward cities that have a consistent record of achieving high environmental standards;

⁷ <https://ec.europa.eu/environment/action-programme/>

- b) Encourage cities to commit to on-going and ambitious goals for further environmental improvement and sustainable development;
- c) Provide a role model to inspire other cities and promote best practice and experiences in all other European cities.

The overarching message that the award scheme aims to communicate to the local level is that Europeans have a right to live in healthy urban areas. Cities should therefore strive to improve the quality of life for their citizens and reduce their impact on the global environment. This message is brought together in the Award's slogan 'Green cities-fit for life'.

In order to be eligible for the EGCA 2022 competition a town/city must have met the following criteria:

- Applicant cities from EU Member States, EU Candidate Countries, Iceland, Liechtenstein, Norway and Switzerland.
- Applicant cities from the countries listed above which have more than 100,000 inhabitants.
- In countries where there is no city with more than 100,000 inhabitants, the largest city is eligible to apply.
- A 'city' is understood to be an urban area, including metropolitan areas, and is understood as an administrative unit governed by a city council or another form of democratically elected body.
- In any given year, cities can apply for either the European Green Capital Award or European Green Leaf Award, but not both at the same time.
- Past winners may not apply for a period of ten years after they held the European Green Capital title year.
- The signatory should be the Mayor or highest ranking city representative, authorised by national law to legally represent the city.

1.1 Annual Award Process

The EGCA is presented on an annual basis by the European Commission. The EGCA 2022 competition cycle was launched on 15 May 2019 with a deadline for submission of applications from eligible cities until 14 October 2019.

The first cycle of the European Green Capital Award, a biennial process at that time, led to the inaugural award for 2010 going to Stockholm and Hamburg as the 2011 European Green Capital. The second cycle, completed in 2010, resulted in the Spanish City of Vitoria-Gasteiz becoming the 2012 European Green Capital and Nantes in France becoming European Green Capital in 2013. In 2011, the approach was modified to become an annual call. Since then the 2014 European Green Capital, Copenhagen, 2015 European Green Capital, Bristol, 2016 European Green Capital, Ljubljana, 2017 European Green Capital, Essen, 2018 European Green Capital, Nijmegen, 2019 European Green Capital, Oslo, 2020 European Green Capital, Lisbon, and 2021 European Green Capital, Lahti have all been annually awarded. This annual cycle continues on to find the 2022 European Green Capital.

As in previous years, the Expert Panel has carried out a technical assessment of each of the 12 environmental indicator areas (detailed in Section 2.3) and provided a ranking of applicant cities together with qualitative comments on each application. This ranking is derived as a result of primary expert assessment, and peer review from another expert and provides the basis for the proposed shortlist of finalist cities (more details on this procedure in Section 2). This information is presented to the Jury in the form of this report to form part of their deliberation at the Jury Day.

The finalist cities are invited to present a communication strategy substantiated by action plans on how they intend to fulfil their green capital year, should they win.

The Jury will assess the finalist cities based on the following evaluation criteria:

1. The city's overall commitment, vision and enthusiasm as conveyed through the presentation.
2. The city's capacity to act as a role model, inspiring other cities, promoting best practices and raising the awareness of the EGC model further - bearing in mind city size and location.
3. The city's communication strategy and actions, which should address:

- Citizen communication and involvement to date in relation to the 12 environmental indicators, effectiveness via changes in citizen behaviour, lessons learned and proposed modifications for the future.
- The extent of the city's (local, regional and national) partnering to gain maximum social and economic leverage.
- How they intend to fulfil their role of EU Ambassador, inspiring other cities.

Based on the proposals from the Expert Panel and information presented to the Jury, the Jury will make the final decision and select one city to be awarded the title of European Green Capital 2022. The winner will be announced at the EGCA Awards Ceremony later in the year.

The full details on the competition process were set out in the published Rules of Contest⁸ for this competition cycle, see Section 2.1.

1.2 Aim of this Report

This Technical Assessment Report provides an overview of the approach to this Award. It presents the technical assessment of the Expert Panel for each of the 18 applicant cities, which forms the basis for shortlisting the finalist cities. This is presented per indicator per city for transparency of the overall process.

⁸ https://ec.europa.eu/environment/europeangreencapital/wp-content/uploads/2019/05/EGCA%20and%20EGL%20Rules%20of%20Contest_Web.pdf

2 TECHNICAL ASSESSMENT PROCEDURE

2.1 Rules of Contest

A 'financial incentive' of €350,000 for the winner of the EGCA title was introduced to the 2020 cycle of the EGCA competition, and remains in place for the 2022 EGCA competition. With the introduction of the financial incentive, Rules of Contest were published. The formal requirements for the applicants to follow were set out in the EGCA 2022 Guidance Note and Section 3.1.1 of the Rules of Contest:

- The full application shall be written in one of the official languages of the European Union;
- Candidate cities shall answer all the questions and complete all sections of the Application Form. In the event that a question cannot be answered, reasons should be given;
- For the pre-selection stage, applications shall adhere to the word limits indicated per section of the Application Form. Any words above the specified limit will not be taken into account and may leave application responses incomplete. Text included in the captions and headings (titles) of graphics/images/tables will not be included in the word count, however these should not exceed 20 words. Text included in the, body of graphics/tables will be included in the word count;
- There is a limit of graphics/images/tables to be provided per Indicator Area, City Introduction and Context section and Good Practice section of the Application Form that should be adhered to;
- For the pre-selection stage, applicants shall submit their application in word document format within the official EGCA 2022 application form and upload through the application portal on the European Green Capital Award website. An additional pdf file may be provided if desired.

2.2 Applicant Cities for EGCA 2022

A total of 18 cities applied for the EGCA 2022 competition representing 10 of the eligible countries from across Europe, and all submitted valid applications. Details of the 2022 applicants are included in Table 2.1 and Figure 2.1.

Of the 18 cities evaluated by the Expert Panel 16 are signatories of the Covenant of Mayors Office (CoMO). The smallest city by population is Maribor in Slovenia with a population of 110,871, whereas Budapest in Hungary has the largest population of 1,752,286.

Table 2.1 - Details of Applicant Cities (presented in alphabetical order)

No.	City Name	Country	Population
1	Belgrade	Serbia	1,166,763
2	Budapest	Hungary	1,752,286
3	Dijon	France	155,090
4	Gdańsk	Poland	464,254
5	Grenoble	France	158,180
6	Katowice	Poland	296,262
7	Kraków	Poland	771,069
8	Lyon	France	515,695
9	Maribor	Slovenia	110,871
10	Murcia	Spain	447,182
11	Parma	Italy	195,687
12	Pécs	Hungary	144,188
13	Perugia	Italy	165,832
14	Poznań	Poland	538,633
15	Sofia	Bulgaria	1,238,438
16	Tallinn	Estonia	393,222

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17	Turin	Italy	882,523
18	Zagreb	Croatia	790,019



Figure 2.1 - Map of European Green Capital 2022 Applicant Cities

2.3 Twelve Environmental Indicators

The selection of the European Green Capital 2022 is based on the following 12 environmental indicators:

1. Climate Change: Mitigation
2. Climate Change: Adaptation
3. Sustainable Urban Mobility
4. Sustainable Land Use
5. Nature and Biodiversity
6. Air Quality
7. Noise
8. Waste
9. Water
10. Green Growth and Eco-innovation
11. Energy Performance
12. Governance

For the 2022 cycle, there were some changes made to the text content of several indicators, but there were no changes to indicator areas or titles.

2.4 Application Form

The format of the Application Form was modified for the 2015 award cycle to ask cities to provide information for each of the 12 indicator areas in the format of 'Present Situation, Past Performance and Future Plans' underpinned by the Environmental Management System (EMS) principles of 'Plan, Do & Check and Act'. This was found to be successful and was retained for the succeeding award cycles. The format of the Application Form was modified for the 2018 cycle to ask cities to provide environmental data in table format for each indicator. This facilitated the extraction of data to be used for benchmarking of the cities and has been retained since. Additionally, Section E of each indicator, Good Practices, was removed from the Indicator sections and a new section called the Good Practices section was added to the end of the Application Form asking cities to provide six examples of Good Practices in their city. This was retained for the 2022 cycle. A copy of the 2022 EGCA Application Form is attached in Appendix A.

For this award cycle some modifications have been made to the indicator structure, allowing for a more consistent document across the 12 indicators. The Guidance Note was also revised for the 2018 award cycle to provide a policy background and further relevant information to shape applicant city responses. These revisions were retained for the 2022 cycle. The 2022 Award Application Form has four sections per indicator as follows:

- a) Describe the present situation.
- b) Describe the measures implemented over the last five to ten years.
- c) Describe the short and long-term objectives for the future and proposed approach to achieve these.
- d) List how the above information can be documented, add links where possible. Further detail may be requested during the clarification phase. Documentation should not be forwarded at this stage.

Indicator 12 is an exception to the above. The expert modified the sections to better contextualise the information, and ensure the questions asked are appropriate for the indicator area. The updated Indicator 12 section titles are as follows:

- a) Plans and Commitments
- b) Governance and Management Arrangements
- c) Partnerships and Public Involvement
- d) References

For all indicator areas, information should be provided on short and long-term commitments in the form of adopted measures and approved budgets. These measures must be proven by references and links where possible to published reports, plans or strategies. The 'budgets' refer to approved budgets to be used for the implementation of these reports, plans or strategies.

The 2016 EGCA Application Form introduced a new section at the start of the application form 'City Introduction & Context'. This section has been retained for all subsequent EGCA cycles as it is considered to provide valuable insight and context to the Expert Panel.

2.5 Expert Technical Assessment Panel

The Technical Assessment Panel consists of 12 Experts who bring internationally recognised expertise within each of the areas covered by the indicators to the process. Profiles for each of the Experts can be found in Appendix B.

Table 2.2 - Expert Technical Assessment Panel

	Indicator	Expert	Title
1	Climate Change: Mitigation	Dr. Matthew Kennedy	Head of Strategy and Business International Energy Research Centre, Ireland
2	Climate Change: Adaptation	Ms. Birgit Georgi	Urban and Adaptation Expert, Founder of 'Strong Cities in a Changing Climate', Germany
3	Sustainable Urban Mobility	Dr. George Angelou	Staff member of the Greek Ministry of Transport and Networks, HCAA HANSP Headquarters, Greece
4	Sustainable Land Use	Dr. Henk Wolfert	Programme Manager at the Amsterdam Institute for Advanced Metropolitan Solutions, and the Wageningen Environmental Research, The Netherlands
5	Nature and Biodiversity	Mr. David Jamieson	Parks, Greenspace & Cemeteries Manager, City of Edinburgh Council, and Director, Greenspace Scotland, United Kingdom
6	Air Quality	Mr. Joan Marc Craviotto Arnau	Air Quality Consultant at Barcelona City Council, Spain
7	Noise	Dr. César Asensio	Researcher at the Instrumentation and Applied Acoustics Research Group of the Technical University of Madrid, Spain
8	Waste	Mr. Olivier Gaillot	Director of Environment, Energy and Resource Management, RPS, Ireland
9	Water	Mr. Christof Mainz	Senior/First Officer at the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), Germany
10	Green Growth and Eco-innovation	Ms. Zita Dibácsi	Senior Expert, Integrated Sustainable Urban Civil Engineering Planning & Management, UNITEF Engineering, Hungary
11	Energy Performance	Ms. Vesna Kolega	Independent Consultant, Croatia
12	Governance	Mr. Alex Minshull	Innovation and Sustainable City and Climate Change Manager, Bristol City Council, United Kingdom

2.6 Technical Assessment Procedure

2.6.1 Pre-selection Screening

In accordance with Section 4.3: Pre-selection of the Rules of Contest, the Secretariat validated the applications for compliance with the criteria set out in Section 3 of the Rules of Contest. Compliant applications were issued to the Expert panel for technical evaluation.

2.6.2 Primary Technical Review

The Experts were asked to assess each application based on its own merit and then benchmark all applications against each other within each indicator area. Each indicator area has three component parts: present, past and future. **Each part is considered on an equal basis by the Expert.**

2.6.3 Benchmarking

Benchmarking was undertaken by the EGCA Secretariat; key performance data provided by the cities was extracted from their application forms and synthesised into a presentation for the Expert Panel to help inform their evaluation of the applicant cities. The benchmarking data was made available to the Experts for the duration of the technical evaluation process. This data will be further utilised in EGCA publications prepared by the Secretariat.

2.6.4 Ranking Criteria

Experts use a defined ranking system. Under this ranking system a position of 1st, 2nd, 3rd etc. is applied to each city per indicator. Since there are 18 applications to be evaluated then each city must be ranked from 1st as the best to 18th as the weakest. Note: these are not quantitative scores but rankings.

2.6.5 Peer Review

It is important to note that a peer review was carried out as part of the technical assessment. All Expert Panel members assessed their respective primary indicator, and each indicator was also assessed by a second panel member (peer reviewer). This peer review exercise ensures a quality check of the assessment process. Where the two experts differ on a ranking, they must work together to reach a consensus. The final agreed ranking is a combination of both reviewers' assessments.

Table 2.3 - Indicators and corresponding Primary Expert & Peer Reviewers

	Indicator	Primary Expert	Peer Reviewer
1	Climate Change: Mitigation	Dr. Matthew Kennedy	Ms. Vesna Kolega
2	Climate Change: Adaptation	Ms. Birgit Georgi	Mr. Christof Mainz
3	Sustainable Urban Mobility	Dr. George Angelou	Mr. Alex Minshull
4	Sustainable Land Use	Dr. Henk Wolfert	Mr. David Jamieson
5	Nature and Biodiversity	Mr. David Jamieson	Dr. Henk Wolfert
6	Air Quality	Mr. Joan Marc Craviotto Arnau	Dr. César Asensio
7	Noise	Dr. César Asensio	Mr. Joan Marc Craviotto Arnau
8	Waste	Mr. Olivier Gaillot	Ms. Zita Dibáczí
9	Water	Mr. Christof Mainz	Ms. Birgit Georgi
10	Green Growth and Eco-innovation	Ms. Zita Dibáczí	Mr. Olivier Gaillot
11	Energy Performance	Ms. Vesna Kolega	Dr. Matthew Kennedy
12	Governance	Mr. Alex Minshull	Dr. George Angelou

2.6.6 Conflicted Application

In the event of a conflicted application, where an Expert cannot complete an unbiased assessment of an application for personal or professional reasons, a suitable external expert is identified by the EGCA Secretariat to complete both the primary technical review and the peer review of the conflicted application. The review carried out by the external expert is discussed with the main evaluator for the indicator and the

peer reviewer, and the overall rank is agreed amongst the three experts involved. There was no conflict of interest raised in the 2022 EGCA cycle.

2.6.7 Background Check

As part of the EGCA process a high level background check is carried out by the European Commission on all cities shortlisted as finalists to identify if any of the finalists are in breach of environmental legislation or do not meet European reporting requirements. This background check is not presented to the Expert Panel during the technical assessment process. It is provided to the Jury in advance of the Jury Meeting and their deliberations on selecting the title winner.

3 TECHNICAL ASSESSMENT RESULTS

Based on the technical assessment results, the Expert Panel has proposed to shortlist as finalists the following four cities (presented in alphabetical order) for the title of European Green Capital 2022:

Dijon - Grenoble - Tallinn - Turin

The Commission will invite these four cities to the next stage of the evaluation process.

The Expert Panel's detailed ranking for the shortlist of finalist cities in all indicator areas is detailed in Table 3.1.

Table 3.1 - Technical Ranking of Finalist Cities for the European Green Capital Award 2022

Indicator / Applicant City	Climate Change: Mitigation	Climate Change: Adaptation	Sustainable Urban Mobility	Sustainable Land Use	Nature & Biodiversity	Air Quality	Noise	Waste	Water	Green Growth and Eco-innovation	Energy Performance	Governance
Dijon	3	4	3	4	1	5	3	1	4	1	2	4
Grenoble	1	2	1	1	2	3	1	2	2	2	1	2
Tallinn	9	7	7	6	3	7	2	14	3	3	10	3
Turin	5	6	4	3	5	2	10	5	10	4	6	6

3.1 Kraków Technical Assessment

Following the technical assessment process, the overall combined ranking of the City of Kraków is 5.

Please find below a detailed ranking per individual indicator.

3.1.1 Climate Change: Mitigation

Main Evaluator	Co-evaluator	Ranking
Dr. Matthew Kennedy	Ms. Vesna Kolega	11/18

The application illustrates that greenhouse gas (GHG) emissions have decreased by 12% between 1996 and 2016 during a time of rapid city development across buildings, transport and gross domestic product (GDP). The application provided clear environmental performance reasoning, consumption trends and outlined data inputs. The municipality (commune) identified as being only directly responsible for just 8.4% of emissions, and therefore information would have been welcomed on how the municipality engages with national policies concerning other emissions within the city.

The application has a lack of specificity of goals accompanying timelines and budgets and it is unclear from the application how the action areas link to the six action packages. Furthermore, the application should have differentiated between current and planned activities across four areas. There is also no clear, coherent strategy presented and the application fails to analyse trends.

Finally, there is little reference is given to the private sector, transport sector or green infrastructure and there are no budgets nor key performance indicators (KPIs) assigned in the application.

3.1.2 Climate Change: Adaptation

Main Evaluator	Co-evaluator	Ranking
Ms. Birgit Georgi	Mr. Christof Mainz	9/18

Kraków is catching up with other progressive cities on climate change adaptation. The City has recently implemented adaptation-related measures, such as tackling flood risks, establishing drinking water fountains and providing co-financing to build rainwater retention. Presently, it has started to approach adaptation more systematically. Kraków analysed its vulnerability to climate change and prepared an adaptation strategy. Kraków has also developed a city-scale cost-benefit analysis. An action plan is planned for 2020, and the draft includes 86 specific adaptation measures, which are included in the Long-Term Financial Forecast for the City and in the investment plans of some stakeholders.

Kraków worked with other Polish cities in the national adaptation project M44, but has not engaged further e.g., signing the Covenant of Mayors or similar initiatives. While Krakow City Council is aware of climate risks, has passed relevant resolutions and a new municipal unit will be established, there is no mention of the general level of awareness on climate change adaptation or the potential for participation of, in particular, citizens and other local stakeholders, this should be explored more in the future.

The city plans to monitor the progress of the implementation of measures and to adjust the strategy and plan. However, the need to monitor measures' effectiveness at reducing vulnerability to climate impacts, which is not yet considered, but would be important for effective adaptation in the long-term.

3.1.3 Sustainable Urban Mobility

Main Evaluator	Co-evaluator	Ranking
Dr. George Angelou	Mr. Alex Minshull	12/18

Kraków is a compact city that is taking action to encourage the use of walking, public transport and cycling even though the modal share of the latter is currently relatively low at 0.3%. Kraków is progressing ambitious strategic plans, such as the Transport Policy (2016-25) and the new Sustainable Urban Mobility Plan

(SUMP) concept. There are measures in place to reduce car use (e.g. car free zones, paid parking zones and reduced parking spaces) and to improve the sustainability of public transport use through zero-emission trams (light railway) and the compliance of buses with at least the Euro 5 standard.

The application overuses a number of positive statements, such as ‘The City is the most walkable city in the world’, ‘The City has the first zero-emission traffic zone in CE Europe’, ‘The City has one of the world’s largest restricted traffic zones’, ‘Krakow is probably the world’s only city to have reduced parking spaces in the centre by 20%’ and ‘it is absolutely unique in the world the fact that public transport uses only zero-emission trams or buses complying with at least the Euro 5 norm’. The application would have been strengthened with tangible evidence that supports these statements.

The application briefly mentions actions that focus on cycling, however, the information provided is too limited to assess the likelihood of these measures to improve the modal share of cycling and to achieve the long-term targets. The City’s plans to promote walking include switching-off traffic lights to reduce pedestrian wait-time at crossings, replacing underground passages with ground level crossings and improving safety by limiting lanes at zebra crossings. The application demonstrates how the engagement of relevant stakeholders can lead to accountability and trust as regards the removal of car parking spaces in the centre. The application would have improved with details of green city logistics.

The City has further actions intended for spatial planning (e.g. City of places - public squares, boulevards and spaces for pedestrians and cyclists), public transport, cycling infrastructure and bicycle freight (e.g. cargo bike rental). Unfortunately, information on specific measures that support sustainable modes and specific targets on the modal share of public transport, cycling and walking is limited. In addition, it would have been useful to have more information on committed funding.

3.1.4 Sustainable Land Use

Main Evaluator	Co-evaluator	Ranking
Dr. Henk Wolfert	Mr. David Jamieson	2/18

Emerging from a time of limited legal and financial means, Kraków demonstrates substantial progress in realising the City’s green ambitions over the last few years. This is reflected in Kraków’s cogent application form, which is well organised in line with the questions posed, includes excellent functional illustrations (maps, photos and figures), and an extensive list of policy documents.

The quality of the blue-green infrastructure in the city is high, and residents satisfaction with the quality of greenspaces in Kraków has significantly increased, from 35% in 2014 to 68% in 2018. The City’s guidelines on planning and management of greenspaces indicate a coherent system of urban greenspaces based on a network of river parks, and is ensuring that these areas are receiving adequate protection whilst providing access for residents. This approach is helping to provide more green spaces within the city centre.

The City has convincing land use policies which involve various aspects such as, transformation towards a densely-knit city with polycentric functional and spatial structures, the revitalisation of problem areas such as brownfield sites, the purchase of land for greenspace, providing access to water, cooperation with innovative academic institutions. Additionally, the administration has been setting up units responsible for climate change adaptation, green area development, and the implementation of European Directives. Kraków is also experimenting with innovative public-private sponsorships in green area development. The mobilisation of people to participate in green planning processes in the city seems to be very successful.

Although the city has a history of allotment gardens and open markets that bring together residents with local producers and generate points of local activity that help create and maintain civic gardens, urban farming in Kraków is an area for improvement. A clear ambition to enhance local-to-local food supply chains to improve citizen’s health can help develop urban farming as part of the urban green infrastructure.

3.1.5 Nature & Biodiversity

Main Evaluator	Co-evaluator	Ranking
Mr. David Jamieson	Dr. Henk Wolfert	7/18

There seems to be a complex array of strategies, policies, principles, and directions helping to support nature conservation across Kraków. The production of a Biodiversity Action Plan would help bring these together in a single reference document. It could be a 'one-stop-shop' for biodiversity policy, practice and engagement.

The City's varied programme of activities aimed at encouraging citizens to enjoy and understand their local ecology will help sustain local support for biodiversity conservation and enhancement. It is particularly pleasing that the concerns about the loss of pollinator species is to be addressed through the Kraków Apiary Project and through educational activities in schools.

The setting of biologically active area percentage targets is an interesting way to ensure biodiversity is considered in local zoning plans and new developments. It would be beneficial to know how effective this approach has been.

Kraków is to be commended for its level of ambition in increasing the amount of protected and actively managed areas of ecological value. Doubling the urban forest, increasing greenery and pocket parks, establishing further nature and landscape complexes, and creating a landscape park will greatly enhance the city's biodiversity and people's access to nature.

Much more could be done in monitoring species and habitats to determine their current biological status and assess trends in abundance and ecological condition. Establishing a Biological Records Centre would greatly help in this regard.

3.1.6 Air Quality

Main Evaluator	Co-evaluator	Ranking
Mr. Joan Marc Craviotto Arnau	Dr. César Asensio	6/18

Kraków's application describes a city with high levels of air pollution, mainly in terms of PM. Similar to many other European cities, the citizens traditionally use solid fuels in old domestic heating systems, which contribute greatly to air pollution and smog episodes in winter. The problem is worsened by the city's geographical location, which supports the accumulation of air pollutants. Though this may be conceptually easy to address, it requires significant public resources and political will. Fortunately, Kraków has inventoried solid-fuelled stoves, boilers and fireplaces in the city, and has implemented a 'Low Emissions Reduction Programme', which helps the citizens to renew their old heating systems. Kraków was seen to be a pioneer by banning the use of coal and wood as fuels for domestic heating facilities by 2019.

However, NO₂ immission levels have remained stable in previous years and have registered exceedances of the annual limit value at traffic monitoring stations. Kraków shows its commitment to reducing air pollution by expanding the monitoring network inside the city, which is a key instrument to determine air quality.

In general, the City understands its sources of pollution and has coherent plans in place. Kraków participates in the European co-funded project MONIT-AIR, which may give additional information as an outcome, and in the LIFE integrated project for the Małopolska region. Furthermore, Kraków's efforts in raising public awareness campaigns are valuable.

In terms of future planning, the City describes a suite of ambitious programmes at local and regional level, which may result in significant reductions of PM levels by 2023. However, the measures to reduce NO₂ levels seem secondary. More effort should be directed at reducing the emissions from traffic.

3.1.7 Noise

Main Evaluator	Co-evaluator	Ranking
Dr. César Asensio	Mr. Joan Marc Craviotto Arnau	8/18

Kraków has participated in all the noise mapping and action planning rounds set out in the Environmental Noise Directive (END). However, these action plans have not yet been fully implemented. Although many of the proposed actions must have achieved a significant benefit in reducing noise levels, the percentage of the population exposed to noise has increased in 2017 compared to 2012. This requires a thorough analysis of the circumstances, and the effectiveness of the different municipal actions and strategies.

Future actions planned against noise are based on an indicator that allows a joint assessment of excess noise and the population exposed to it, allowing priorities for action to be defined. This is considered to be a very interesting mechanism but the description of the future plan is misleading as it is unclear which actions are actually planned, or have allocated budgets.

Interestingly, Kraków has begun exploring the soundscape approach in one of its parks. However, in order to do that, appropriate quiet areas management must be in place. Therefore, it is necessary to draw up a list of quiet areas, and establish actions for their preservation and promotion among residents. Consequently, these actions should lead to the design or improvement of the soundscape.

3.1.8 Waste

Main Evaluator	Co-evaluator	Ranking
Mr. Olivier Gaillot	Ms. Zita Dibácsi	4/18

Overall, the City's application was very good and is commended for its good use of graphics. The application shows there is a good level of separate waste collection, which started in 1994, for residual waste, biowaste, glass, paper, metals, plastics and hazardous waste, and good historic awareness raising measures. In addition, the City has a well-established treatment infrastructure with materials recovery facilities, composting, waste to energy, and landfill.

The application shows that the volume of municipal solid waste has increased, however per capita data was not provided. In addition, it is noted that more can be done on waste prevention and reuse, and while future plans include education programmes for food and plastic waste reduction, these plans lack detail. Furthermore, there appears to be some confusion between reuse and recycling.

To improve the city's waste practices, it is considered the City should explore potential options for food waste prevention to include the provision of home or shared compost bins and the running of food prevention programmes with businesses and schools. On reuse, the City could consider the collection of reusable items at civic amenity sites, starting repair and upcycling workshops, and the establishment of reuse directories. Kraków should consider extending the pay-as-you-throw programme to householders to encourage further waste reduction and recycling, as it presently only applies to businesses in the city.

With a long history of heavy industrial activity in the city, it would have been useful to provide some details on progress made with legacy sites and brownfields.

3.1.9 Water

Main Evaluator	Co-evaluator	Ranking
Mr. Christof Mainz	Ms. Birgit Georgi	1/18

Kraków's description of its present situation was of a very high standard and provided all of the information that was requested. The response covered all relevant issues including waste water, drinking water, water quality, water recovery, and Sustainable Drainage Systems (SUDS) etc. Kraków is very active in engaging the public, encouraging participation and providing education, which is very impressive.

The City’s past performance was fully described in an overview demonstrating all of its goals have been reached to date and included a figure illustrating the situation which was very effective. The response was comprehensive and included information on safety and comfort, infrastructure management, water reuse, customer involvement (including metering), leak detection, public consultations, long-term strategy, communication, and educational initiatives in schools. These initiatives include shaping the environmental awareness of students, using communication to increase the use of tap water in the city, the installation of drinking water fountains, and workshops and water festivals etc. Overall, this section was described perfectly.

Kraków’s future plans include many positive measures. These include increasing the security of high-quality drinking water impacted by frequent but extreme weather events, making use of hydraulic models to forecast the threat of waste water network overloading, and using real-time modelling to detect leakages. Planned future projects and programmes, include the commencement of the ‘GRAD’ programme which uses green roofs for climate change adaptation in urban areas, the expansion of monitoring to identify emerging pollutants, research into high-efficiency water treatment processes, and initiation of its educational ‘Water Guardians’ programme. In terms of communication, the City plans to encourage more environmentally friendly land use and launch a multi-media exhibition. Some other plans are briefly mentioned, such as improvement of the water supply connection and reducing consumption levels.

Overall, Kraków provided an excellent application of the highest standard in terms of water. Compliance with EU water legislation was demonstrated beyond the minimum requirements. The City demonstrated a high level of action and public engagement with its citizens. More information on the Water Framework Directive (WFD) would have been desirable, especially on the groundwater situation. However, this is a small issue when compared to the many activities mentioned.

3.1.10 Green Growth & Eco-innovation

Main Evaluator	Co-evaluator	Ranking
Ms. Zita Dibácz	Mr. Olivier Gaillot	13/18

The strong policy vision of a sustainable Kraków is outstanding and it is supported by numerous projects of different scales that integrate the activities of the Małopolska Region Environmental Protection Programme and the State Environmental Policy. One of Kraków’s flagship innovative solutions for sustainable city growth is Smogathon. This project is a multidisciplinary, 24-hour-long hackathon with several stakeholders that aims to develop practical solutions to fight smog. Additionally, moving the public bus fleet to fully environmentally friendly vehicles (2007-2018) has helped reduce low-level emissions which is impressive. The City’s clear commitment to Green Public Procurement, including green criteria, is very good.

The application would have been strengthened by inclusion of information on the following areas, and these should be addressed in any future applications made:

- Innovations that address material/resource use, (substitution, minimisation of material use, closing loops, etc.) and reduce environmental impacts, (i.e. measures to improve resource efficiency);
- Further awareness-raising and training to encourage the development and uptake of environmentally friendly technologies;
- Further stakeholder participation to influence green growth and eco-innovation;
- Further efforts to drive innovation that addresses societal and particular environmental challenges through creating the right enabling conditions, like putting in place advanced infrastructure; and
- -Further demonstration of the achievements, lessons learnt and added value in relation to Indicator 10 would have been beneficial regarding the 27 initiatives used for promoting and enabling sharing, reuse, and repair initiated or facilitated by the municipality, which are commended.

The descriptions provided in Section B Past Performance show some good projects have been implemented, which mainly focused on thermal modernisation of buildings, RES installations (photovoltaics, solar panels for hot water, and heat pumps), public lighting modernisation and the construction of a incineration plant to support waste management in the city which also produces heat and power. The transposition of European and national policies/schemes are generally well-considered and set out in the

Kraków Environmental Protection Programme. The publication of reports such as green accounts that set out the timely implementation of planned initiatives and the relevant focus group are not included. Several urban tissue/infrastructure developments are implemented which is very positive however, clear reference to the aspects of circular economy thinking is not specified and not fully evident based on the description. Furthermore, the current flagship of eco-innovation in Kraków is not mentioned.

Future strategic goals for Kraków are commendable and primarily focus on sustainable environment, effective and eco-friendly transport, and creating a friendly city to live in, with commonly accessible and high-quality public spaces. The operational goals stated are well outlined and well-focused on the increased cooperation between business, academia, and local government that help create for a more knowledge-based economy. Future projects are well described, such as the electro-mobility project and the development of a repair and reuse site for items. Overall, the key future plan which is considered to be the flagship for eco-innovation of Kraków is not specified.

3.1.11 Energy Performance

Main Evaluator	Co-evaluator	Ranking
Ms. Vesna Kolega	Dr. Matthew Kennedy	11/18

The share of locally produced renewable energy sources (RES) in the total energy consumption is low (1-2%). In Kraków, there are no major hydro, wind or biomass energy plants and RES are mainly photovoltaic installations on public buildings (18 PV installations generating a total of 295.5kW), ground and air heat pumps and high-efficiency cogeneration from waste. Innovative technologies have been used in developing the district heating network (DHN) which is 880 km long and covers one third of the city including nearly all developed areas, delivering 1,807 MW of heat to 9,225 buildings and selling 9,630 TJ of energy annually. The network adjusts to operate with a source that produces a constant volume of heat such as the waste incineration plant. It is noted that 60% of network pipelines feature alarm systems that allow for early detection and localisation of emergencies. This shows positive energy transition but the RES share is too low. In addition, the city’s energy sector is still heavily reliant on fossil fuels particularly brown and black coal.

However, the following policies, projects and measures have been implemented in Kraków:

- An energy consumption monitoring system was established and is being utilised in 636 municipal buildings;
- The solar potential of roofs was quantified and mapped;
- An Energy Consultancy Centre was established within the Municipal Air Quality Department;
- Between 2006 and 2019 the municipality subsidised more than 2,000 RES installations on residential buildings, including photovoltaics and hot water solar panels and heat pumps;
- The GeoPLASMA-CE project promoting heat pumps was launched.

The above demonstrates the effort and dedication towards sustainable energy development. However, a fuller description including qualified data on the energy savings achievements would improve the application.

The list of RES installations owned by the municipal units and utilities is considered both sound and promising.

The Low Carbon Economy Plan total investment of €2.7 billion consists of approximately 100 projects aimed at reducing GHG emissions, increasing RES utilisation and high-efficiency cogeneration, and improving energy efficiency.

The Heat, Electric Energy and Gas Fuels Supply Plan outline the City’s goal of achieving energy security, economic growth, with a minimum increase in primary energy demand as well as lowering the environmental impact of energy systems. Kraków’s strategy to achieve their 2030 and 2050 goals is in place but the share of black and brown coal in the production of electricity (TWh) up until 2040 is unacceptably high at both national and city level. Additional measures to phase it out should be included in all City energy plans and strategies.

The City intends to exceed the national objectives of reducing:

- GHG emissions in non-ETS (Emissions Trading Scheme) sectors by 7% compared to 2005;
- Achieving a 21% contribution of RES toward the total energy demand; and
- A 23% improvement in energy efficiency when compared to baseline forecasts.

This ambition to exceed national targets is noted as commendable.

3.1.12 Governance

Main Evaluator	Co-evaluator	Ranking
Mr. Alex Minshull	Dr. George Angelou	7/18

Kraków’s application shows stronger environmental aspects at the delivery and project level, rather than the vision and strategy level. The vision does not refer to the environment, however it is touched on in the Mission and some Objectives in the strategy relate to the environment.

The application explains that the City considers its projects to form a network of activities which deliver the integrated vision. The key feature of the approach ‘a city that is pleasant to live in’ comes through strongly in all actions and provides obvious benefits to local residents.

This is most apparent in the City’s Clean Air Programme, which made Kraków the first city in Poland to ban solid fuel burning (September 2019) and to provide financial assistance to remove solid fuel heaters, and provide solar panels. This is an ambitious and undoubtedly controversial programme. The application explains that this has influenced other Polish cities as well as the national government to take action. This level of ambition secured the application a high score in Section 12A.

The strategy, policies, and strategic programmes are approved by the Municipal Council and implemented by the Mayor and deputies, one of which is responsible for sustainable development and environmental policy. A clear organisational structure is shown, indicating those departments which support the programme for green areas and climate adaptation. Unfortunately, it doesn’t show the relationship with other departments, such as those managing transport.

The budget for environmental protection is €53 million, but it is unclear what this includes. Approximately 75% of it is allocated to greenspace acquisition and management, which has grown by 200% in three years with the creation of a new municipal company for greenspace management. This company also operates the new Climate-Energy-Water Management Utility. Unfortunately, no information is provided on other aspects of the programme, for example on transport which was key to the environmental vision of the city.

The application would have been stronger if further information had been provided for the Management, Monitoring and Evaluation section.

The application details some work being done by the city council to improve its environmental performance, such as in procurement and mobility. It would have been stronger if a more systematic approach was demonstrated, for example with an application of EMS.

NGOs participated in preparing the City Strategy with the Committee for Civic Dialogue on the Environment. It is not clear if and how other stakeholders were involved in the development of the strategy.

The application describes a number of mechanisms for citizen involvement in city governance through representatives in:

- Kraków Council of Public Benefit Organisations;
- Committee for Civic Dialogue on Environment;
- Kraków Senior Citizens, Youth, County Civic Council of People with Disabilities Councils; and
- NGOs can participate as a party in any decisions involving environmental protection.

It also describes a strong volunteering programme through NGOs and the Universities, however greater clarity on this would have helped the application. Participatory budgeting is funding community-led open space projects and becoming increasingly popular year-on-year.

Appendix A

Application Form for the European Green Capital Award 2022



European Green Capital Award 2022

Application Form

Please complete your submission for the EGCA 2022 Award in this Application Form. **All sections must be answered** and all questions should be addressed. In the instance that an applicant cannot provide an answer to a question, reasons must be provided in the relevant section.

Text included in square brackets *[EXAMPLE]* should be deleted and replaced with the applicant's response to each respective section. Do not delete the questions in the application form.

Please note, The 'City Introduction and Context' section does not form part of the overall assessment however it is a key component of the application and therefore must be completed. This section sets the scene for the application as a whole in the context of historical, geographic, socio-economic and political constraints, contentious infrastructure/environmental projects and initiatives, and provides the Expert Panel with a clear insight into the factors influencing the city's development and environmental quality.

All 12 indicators carry equal weight. Within each indicator, sections A, B and C are also equally weighted.

Word exceedances will not be accepted and applicants must complete the Word Count Check at the end of each Indicator to verify that their response is within the word limits outlined in the application form. This word count is a tool for cities to check that word exceedances have not occurred and ensure that answers are not left incomplete.

Applicants must read the Guidance Note before completing their application and consult this document while undertaking their responses.

City Introduction and Context

Give an overview of the city and a general background to the application, including examples of social and economic sustainability in the city.

Discuss positive and negative factors that have influenced the quality of the environment within the city and its surrounding area.

Provide a description of the key environmental challenges which the city faces including historical, geographical and/or socio-economic factors which have influenced the city's development.

The city's infrastructure plan should be briefly explained.

Applicants are advised to include any former or outstanding environmental legal proceedings in this section.

Please provide the following two maps :

- Map 1 should show the layout of urban areas, geographical and other features across the city;
- Map 2 should show your city in the context of the wider surrounding area.

Please also complete the following table:

Table 1: Benchmarking Data - City Introduction and Context

Indicator		Units	Year of data
Population		Number of inhabitants	
Area		km ²	
Population Density		Inh/km ²	
GDP		€/capita	
Köppen climate classification			

(max. 1,000 words and five graphics, images or tables plus the two requested maps as detailed above)

[POPULATE TABLE 1: BENCHMARKING DATA - CITY INTRODUCTION AND CONTEXT ABOVE AND INSERT RESPONSE HERE]

Word Count Check

Please complete the below word count check for City Introduction and Context.

As per the Guidance Note (Annex 2 of the Rules of Contest), the word count includes text in graphics/tables and the body of text. The word count excludes text in the original application form, captions and text in Table 1: Benchmarking Data - City Introduction and Context.

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Section	Number of words in graphics/tables	Number of words in body of text	Total number of words in graphics/tables and body of text	Max. words
Introduction				1,000

1. Climate Change: Mitigation

Refer to Section 2.1 of the Guidance Note

1A. Present Situation

Please complete the following table with most recent data available:

Table 1: Benchmarking Data - Climate Change: Mitigation

	Base Year	Target Year	% Reduction
City's emissions reduction targets (add rows if needed for further commitments)			
Where possible please use 2005 as the base year for listing city reduction targets			
CO ₂ (and possibly other greenhouse gases) emissions	Units	Year of Data	
Total CO ₂ emissions/capita	t CO ₂ /capita		
Total transport CO ₂ emissions/capita	t CO ₂ /capita		
Total (less transport) CO ₂ emissions/capita	t CO ₂ /capita		
Total CO ₂ emissions per year	t CO ₂		
Total CO ₂ emissions per MWh electricity consumed	t CO ₂		

Describe the present situation in relation to CO₂ (and possibly other greenhouse gases) emissions, including any relevant disadvantages or constraints resulting from historical, geographical and/or socio-economic factors which may have influenced this indicator.

Give details of any Baseline Emission Inventory prepared by the city, mentioning the baseline year and the applied methodology (direct/indirect emissions, data collection process, monitoring system), as well as the competent department. Provide a breakdown of the main sources of emissions.

Where available, information/data on the inventory and on the following indicators should be provided from previous (5-10) years to show trends, together with an explanation of the evolution.

Scientific grounds should be provided for any claimed reduction in CO₂ (and other greenhouse gases) emissions. Describe how the inventory system and information is integrated in the design of policies and measures.

Provide figures (in the table above), and comment on, the following specific indicators for the city:

1. Total CO₂ emissions (tonnes) per year;
2. CO₂ emissions per capita (tonnes) per year;
3. CO₂ emissions per capita (tonnes) resulting from fuel use in transport;

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4. CO₂ emissions (tonnes) per MWh electricity consumed;
5. CO₂ emissions reduction target(s) (e.g. 20% by 2020 compared to 1990).

Please also state clearly what year the data provided relates to.

Mention any target(s) adopted specifically for the municipal administration (e.g. carbon neutral municipality by 2020, adaptation measures set on municipal level).

(max. 600 words and five graphics, images or tables)

[POPULATE TABLE 1: BENCHMARKING DATA - CLIMATE CHANGE: MITIGATION ABOVE AND INSERT RESPONSE TO SECTION A HERE]

1B. Past Performance

Describe the measures implemented over the last five to ten years to reduce greenhouse gas emissions, including resources allocated to implement these measures. Comment on which measures have been most effective and how the implementation and impacts have been monitored.

Make reference to:

1. An overall strategy for climate change or any other strategy or action plan to reduce emissions;
2. Mainstreaming of climate protection measures across municipal services and in key areas of action such as energy efficiency in residential and commercial buildings, public transport and waste management. Highlight any innovative schemes for the built environment such as low carbon zones;
3. Mechanisms used (e.g. local regulations, financing schemes, partnerships). Explain how the city works on emissions reduction with other governmental bodies, private sector service providers, enterprises and citizens. Mention relevant national legislation or programmes and participation in EU funded projects or networks.

Provide details on the monitoring system (frequency, responsibility, outcomes) and how lessons learned have been used.

(max. 1,200 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION B HERE]

1C. Future Plans

Describe the future short and long term objectives and proposed approach for further emissions reduction. Describe planned measures, including timescales and emphasise to what extent plans are supported by commitments, budget and staff allocations and monitoring and performance evaluation schemes.

Make reference to any long-term strategy employed and how it is integrated with other environmental areas.

Briefly explain the rationale for choosing these future measures and highlight any innovative financing

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arrangements.

(max. 800 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION C HERE]

1D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection stage. Documentation should not be forwarded at this stage.

(max. 400 words)

[INSERT RESPONSE TO SECTION D HERE]

Word Count Check

Please complete the below word count check for Indicator 1: Climate Change: Mitigation, Sections 1A, 1B and 1C.

As per the Guidance Note (Annex 2 of the Rules of Contest), the word count includes text in graphics/tables and the body of text. The word count excludes text in the original application form, captions and text in Table 1: Benchmarking Data - Climate Change: Mitigation.

Section	Number of words in graphics/tables	Number of words in body of text	Total number of words in graphics/tables <u>and</u> body of text	Max. words
1A				600
1B				1,200
1C				800

2. Climate Change: Adaptation

Refer to Section 2.2 of the Guidance Note

2A. Present Situation

Please, complete the following table with most recent data available:

Table 1: Benchmarking Data - Climate Change: Adaptation

**double left click the check box and select 'Default Value - Checked' where appropriate*

Systematic climate risks and vulnerabilities assessment								
<input type="checkbox"/>	Existing	If yes, year it was or will be finished:	[.....]	Considers:	<input type="checkbox"/>	Heat	<input type="checkbox"/>	Current climate risks
<input type="checkbox"/>	In preparation		[.....]		<input type="checkbox"/>	Droughts	<input type="checkbox"/>	Future climate risks
<input type="checkbox"/>	None				<input type="checkbox"/>	Floods	<input type="checkbox"/>	Sea level rise
Climate change adaptation strategy								
<input type="checkbox"/>	Existing	If yes, year it was approved or will be finished:	[.....]	It is:	<input type="checkbox"/>	A stand-alone strategy		
<input type="checkbox"/>	In preparation		[.....]		<input type="checkbox"/>	Integral part of another strategy		
<input type="checkbox"/>	None							
Considers:								
<input type="checkbox"/>	Heat	<input type="checkbox"/>	Floods	<input type="checkbox"/>	Current climate risks			
<input type="checkbox"/>	Droughts	<input type="checkbox"/>	Sea level rise	<input type="checkbox"/>	Future climate risks			
Action plan for climate change adaptation								
<input type="checkbox"/>	Existing	If yes, year it was approved or will be finished:	[.....]	It is:	<input type="checkbox"/>	A stand-alone plan		
<input type="checkbox"/>	In preparation		[.....]		<input type="checkbox"/>	Integral part of another plan		
<input type="checkbox"/>	None							
Considers:								
<input type="checkbox"/>	Heat	<input type="checkbox"/>	Floods	<input type="checkbox"/>	Current climate risks			
<input type="checkbox"/>	Droughts	<input type="checkbox"/>	Sea level rise	<input type="checkbox"/>	Future climate risks			
Showing self-commitment in Europe, nationally or internationally								
<input type="checkbox"/>	Signed Covenant of Mayors for Climate and Energy		[...Year]					
<input type="checkbox"/>	Others		[...list here]					
<input type="checkbox"/>	None							

Application Form for the European Green Capital Award 2022

In relation to the above, describe the present state of climate change adaptation in the city. Thereby, include an answer to each of the following questions:

Awareness and Commitment

- How does the city assess the level of awareness on the need to adapt to climate change with different stakeholder groups - administration, politicians, citizens, business etc.?
- How has the city organised the responsibility for adaptation in the administration and established collaboration between different departments?
- Does the political level show commitment and in which way?

Vulnerability and Risk Assessment

- Does the city have a systematic vulnerability and risk assessment to identify and prioritise the future climate change impacts in your city? In addition to the basic information in the table, please provide more detail on the:
 - Identified climate impacts (temperature, different types of flooding, droughts, vulnerability of certain population groups, etc.);
 - Sectors it considered (e.g. transport, water management, health etc.);
 - Identified specific climate challenges for the city.

Climate Change Adaptation Strategy/Action Plan

- Does the city have a climate change adaptation strategy and/or an action plan? In addition to the basic information in Table 1, please provide more detail on the:
 - Status of development/approval/implementation;
 - Relation to overall city planning and other plans and strategies ;
 - The impacts and sectors considered;
 - Targets and milestones set.

Adaptation Measures

- Does the city implement or plan adaptation measures?
- Does the city have a comprehensive adaptation action plan or systematic list of measures?
- Which types of measures does the city consider (technical measures, green and blue infrastructure, soft measures like regulation and behavior)?
- Describe key measures. Reference relevant adaptation measures in other indicator areas and explain how these are designed to support adaptation;
- Do you mainstream measures into other sectors like water management, climate mitigation, green spaces or other to use win-win-options? Please, describe and cross reference to other relevant indicators where appropriate;
- What share of the budget or €/inhabitant is invested in climate change adaptation?

Participation

- How does the city involve stakeholders, like citizens, other sectors, public and private owners etc. in awareness raising, planning and implementation?

Monitoring

- How does the city monitor progress in terms of the implementation of measures and of actual reduced vulnerability/risks?

(max. 1,000 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION A HERE]

2B. Past Performance

Describe the city's situation of climate change adaptation five to ten years ago and how the action evolved over time to reach the present situation. Which climate and adaptation challenges was the city facing, how did the city overcome these and what actions were taken? Use the questions under Section 2A as a guide to formulate the response.

(max. 800 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION B HERE]

2C. Future Plans

Following on from the present situation described under Section 2A, describe the future short and long term objectives and proposed approach for further 'climate-proofing' and adaptation to the impacts of climate change. Describe planned measures, including timescales, and emphasise to what extent plans are supported by commitments, budget and staff allocations, participatory approaches and monitoring and performance evaluationschemes.

Make reference to any long-term strategy employed and how it is integrated with other environmental areas.

Briefly explain the rationale for choosing these future measures and highlight any innovative financing arrangements.

(max. 800 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION C HERE]

2D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at thisstage.

(max. 400 words)

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[INSERT RESPONSE TO SECTION D HERE]

Word Count Check

Please complete the below word count check for Indicator 2: Climate Change: Adaptation, Sections 2A, 2B and 2C.

As per the Guidance Note (Annex 2 of the Rules of Contest), the word count includes text in graphics/tables and the body of text. The word count excludes text in the original application form and captions.

Section	Number of words in graphics/tables	Number of words in body of text	Total number of words in graphics/tables <u>and</u> body of text	Max. words
2A				1,000
2B				800
2C				800

3. Sustainable Urban Mobility

Refer to Section 2.3 of the Guidance Note

3A. Present Situation

Please complete the following table providing the most recent data that is available:

Table 1: Benchmarking Data - Sustainable Urban Mobility

Indicator	Data	Units	Year of Data Provided
Proportion of population living within 300 metres of an hourly (or more frequent) public transport service		%	
For all journeys under 5 km, proportion of these journeys undertaken by: i) Car; ii) Public transport; iii) Bicycle; iv) Foot; v) Multimodal (active/shared mobility + public transport); vi) Other.	Car		%
	Public Transport		
	Cycling		
	Foot		
	Multimodal		
	Other		
Proportion of buses operating in the city that are: ▪ Low emission (at least Euro VI); and ▪ Alternatively fuelled (electric, hydrogen, LNG etc.)	Low emission		%
	Alternatively fuelled		

In relation to the above, please state:

- For the 'proportion of population living within 300 metres of an hourly (or more frequent) public transport service': the data and calculation method of the figure;
- For public transport, please include journeys by any type of public transport present in the city (e.g. buses, trams, trolleybuses, light rail, and other rail services) even if these are privately operated;
- For 'other' in the table above please state what is included by any figure presented as 'other'.

The remainder of the text in this section should describe the present situation for both local passenger transport and urban freight transport. This should include qualitative and quantitative information on:

- Infrastructure for public transport, cycling and walking;
- Numbers of public transport vehicles;

- Mobility flows;
- Infrastructure management tools;
- Existing modal shares;
- Shared mobility schemes;
- Use of alternative-fuel vehicles;
- Any disadvantages or constraints of relevance to transport;
- Governance arrangements and responsibilities;
- Sustainable Urban Mobility Plans (SUMP) in force or in revision;
- Urban vehicle access regulation (UVAR) schemes such as low-emission zones or congestion charging;
- Involvement of stakeholders in development of strategies, plans and measures.

Provide references where possible and relevant details.

(max. 600 words and five graphics, images or tables)

[POPULATE TABLE 1: BENCHMARKING DATA - SUSTAINABLE URBAN MOBILITY ABOVE AND INSERT RESPONSE TO SECTION A HERE]

3B. Past Performance

The aim of this section is to make clear how the situation described in Section 3A has been achieved. Where available, quantitative information and data should be provided for the previous five to ten years in order to show recent trends.

The section should describe the **strategies and plans** that have been implemented over the last five to ten years (including any SUMP or equivalent) to ensure that the development of transport in the city was undertaken in an integrated manner (see Guidance Note for more details).

Describe the **measures** implemented, including those that have helped to deliver:

- Increased use of public transport, cycling and walking;
- Decreased, and more efficient, car use, including measures to reduce congestion;
- Improvements in the environmental performance of urban freight (including diverting trucks from the city centre and urban freight deliveries);
- Increased use of alternatively-fuelled vehicles, using renewable and sustainable fuels;
- Urban vehicle access regulation (UVAR) schemes such as low-emission zones or congestion charging, to reduce emissions and congestion;
- Measures to promote shared mobility;
- Spatial planning approaches which have led to more environmentally-friendly transport models.

(max. 1,000 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION B HERE]

3C. Future Plans

The aim of this section is to demonstrate that there are plans and strategies in place to continue to develop the city's transport system in a sustainable direction.

Describe the short and long term **objectives** for local transport (both passenger and freight) and how you plan to achieve these.

Outline the **plans and strategies** in which these objectives are found, and the extent to which these are supported by political commitments, budget allocations, and monitoring and performance evaluation schemes. If new plans and/or strategies are to be developed, describe how these build on previous plans and strategies. Refer to integrated transport, land use planning, stakeholder involvement and the use of a SUMP or equivalent.

Set out the **measures**, including those adopted but not yet implemented, that contribute to the delivery of the objectives, including:

- Increased use of public transport, cycling and walking;
- Decreased, and more efficient, car use;
- Improvements in the environmental performance of urban freight (diverting trucks from the city and urban freight deliveries);
- Increased use of alternatively-fuelled vehicles;
- Development of shared mobility schemes.

(max. 1,000 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION C HERE]

3D. References

List supporting documentation (e.g. survey about user satisfaction with the urban transport system), and add links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

(max. 400 words)

[INSERT RESPONSE TO SECTION D HERE]

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Word Count Check

Please complete the below word count check for Indicator 3: Sustainable Urban Mobility, Sections 3A, 3B and 3C.

As per the Guidance Note (Annex 2 of the Rules of Contest), the word count includes text in graphics/tables and the body of text. The word count excludes text in the original application form, captions and text in Table 1: Benchmarking Data - Sustainable Urban Mobility.

Section	Number of words in graphics/tables	Number of words in body of text	Total number of words in graphics/tables and body of text	Max. words
3A				600
3B				1,000
3C				1,000

4. Sustainable Land Use

Refer to Section 2.4 of the Guidance Note

4A. Present Situation

Please complete the following table providing the most recent data that is available:

Table 1: Benchmarking Data - Sustainable Land Use

Land use within the city (this will provide important background information on the character of the city and is not an evaluation criterion itself)				
Land Use Data	Inner City ^[4]	Overall City ^[4]	Unit	Year of Data Provided
Public Green Area			%	
Private Green Area				
(Urban) Agricultural Land				
Blue				
Residential				
Industrial/Economic				
Mixed ^[1]				
Brownfield ^[2]				
Other ^[3]				
Total	100	100		
Population Data	Inner City ^[4]	Overall City ^[4]	Unit	Year of Data Provided
Population density in built-up areas (city area minus green and blue)			Inhabitants per ha	
Population density (inhabitants per hectare) for new developments			Inhabitants per ha	
Percentage of people living within 300 m of green urban areas of any size			%	
Percentage of people living within 300 m of green urban areas of >5,000 m ²			%	

^[1]Please specify the land use types within the 'mixed land'

^[2]See guidance note for clarification

^[3]Please specify 'other' within Table1: Benchmarking Data – Sustainable Land Use. Add additional rows as required.

^[4] Please refer to Guidance Note section 2.4 on how to delineate 'Inner City' and 'Overall City'.

[INSERT RESPONSE to Footnotes [1] and [4] HERE. Please note that this text response is not included in the word count]

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Green Urban Areas/Green Infrastructure

1. Is there a main policy implemented on green areas/green infrastructure within the urban tissue (or on the connection of urban green scapes to rural or natural 'hinterland')? What are the effects of this policy on public and private places?
2. In what way do green areas (green infrastructure) affect the living environment (in the environmental, social, and economic contexts)?
3. What is the quality of urban green (and blue) areas, and what indicators are used to assess the quality of the green areas? Is there a budget to ensure this quality?
4. How is accessibility to green urban areas ensured for all citizens?

Sustainable Land Use

5. Is there a medium term strategy for sustainable land use (including urban sprawl, soil sealing and/or redeveloping underused areas) which has been implemented in urban and regional planning during the 10 last years?
6. How does the city anticipate dealing with current and future changes (such as economic growth, demographic or climate change) in sustainable land use planning?
7. How much land within the city consists of brownfields (or derelict or underused zones) and how many of those areas have been regenerated during the last 5 years (please refer to the map)?
8. To what extent is the (percentage of) sealed surface (with buildings, pavement or otherwise) causing challenges within the urban tissue?

Urban Farming

9. Are there any areas allocated for urban agriculture/allotment gardening? If so, how many?
10. To what extent do the urban farming areas contribute to the urban food supply?

Maps

- Provide a land use map that indicates:
 - a) the municipality boundaries delineating the overall city area;
 - b) the inner city area;
- Provide additional map(s) showing green and blue areas in the city, and their connectivity and coherence;
- Provide map(s) of the location of brownfield sites (derelict zones) that:
 - a) Have been regenerated in the past ten years;
 - b) Have not been redeveloped (yet).

(max. 1,100 words and five graphics, images or tables plus the three requested maps detailed above)

[POPULATE TABLE 1: BENCHMARKING DATA - SUSTAINABLE LAND USE ABOVE AND INSERT RESPONSE TO SECTION A HERE]

4B. Past Performance

Green Urban Areas/Green Infrastructure

1. Regarding the green heritage and potential of the city, has there been a trend in increasing or decreasing accessibility of green areas? If so, please explain the trend.
2. What measures have been undertaken to increase green infrastructure and what was the effect of the measures taken? (for example see Guidance Note);
3. What investments or policies have been used for promoting the use of green infrastructure and what was the effect of the measures taken? (e.g. tax reductions for green roofs, building permits, funding schemes for green roofs or biodiversity-rich communal gardens);
4. To what extent have citizens been involved in planning, designing or creating green urban areas?

Sustainable Land Use

5. What other measures or plans were important for the city in regard to sustainable land use of green urban areas? What were the main policies on housing and settlements to preserve the environment in the last 25-30 years?
6. What measures have been taken to minimise the total area of fallow, derelict and contaminated land (brownfields)? Please include some concrete examples;
7. What stakeholders, partners, local, regional or national governments have been involved in the renovation or regeneration of derelict zones?
8. What measures have been taken to minimise the environmental effects of soil sealing? How effective are those measures? Please include some concrete examples;

Urban Farming

9. Does the city have a history or culture of urban farming, or is it a recently emerging development? If urban farming is not happening please indicate this;
10. What stakeholders have been involved in urban farming or urban gardening to date?

(max. 1,200 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION B HERE]

4C. Future Plans

Green Urban Areas/Green Infrastructure

1. What will the future of the city look like with respect to green infrastructure?
2. What are the long term objectives to the establishment and management (maintenance) of green urban areas (publicly and privately owned)?
3. Are green urban areas/green infrastructure perceived as beneficial or costly? How will they be paid for? Is there a budget or plan?

4. Are there any monitoring and performance evaluation schemes? If so, what criteria will be used to measure progress and impacts?

Sustainable Land Use

5. What will the future city look like with respect to sustainable urban land use planning?
6. Are the long term objectives, which address the rehabilitation of brown field sites (derelict and/or contaminated land) for both new development and/or desealing measures designed specifically for environmental purposes?
7. To what extent are plans supported by commitments and budget allocations?
8. Are there any monitoring and performance evaluation schemes? If so, what criteria are used to measure progress and impacts?

Urban Farming

9. What are the city's future plans on urban farming? And detail the linkages between the city and its surrounding region?
10. What stakeholders will be involved and how will they impact on the plans and projects?

(max. 800 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION C HERE]

4D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

(max. 400 words)

[INSERT RESPONSE TO SECTION D HERE]

Word Count Check

Please complete the below word count check for Indicator 4: Sustainable Land Use, Sections 4A, 4B and 4C.

As per the Guidance Note (Annex 2 of the Rules of Contest), the word count includes text in graphics/tables and the body of text. The word count excludes text in the original application form and captions and text in Table 1: Benchmarking Data - Sustainable Land Use.

Section	Number of words in graphics/tables	Number of words in body of text	Total number of words in graphics/tables and body of text	Max. words
4A				1,100

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4B				1,200
4C				800

5. Nature and Biodiversity

Refer to Section 2.5 of the Guidance Note

5A. Present Situation

Please complete the following table providing the most recent data that is available:

Table 1: Benchmarking Data - Nature and Biodiversity

Indicator	Number	Total Area (ha)	Year of Data Provided
Number and total area of Natura 2000 sites that are located in the city or nearby (i.e. within 10 km)			
Number and total area of designated sites of national biodiversity importance within the city (habitat/species management areas)			
Number and total area of designated sites of local (city) biodiversity importance within the city (habitat/species management areas)			
Date and time horizon of your city's Biodiversity Action Plan			

Describe how nature and biodiversity is monitored, protected and managed in your city, and how local people are engaged in nature conservation and biodiversity action.

Please provide details of the following:

1. Maps showing protected sites, habitats, ecosystems or biotopes;
2. Examples of species and habitat monitoring programmes;
3. Current strategies, plans and projects for the management of ecological networks, key sites, and priority species;
4. The city's approach to involving and engaging residents, visitors, business and institutions in planning and action for nature.

(max. 600 words and five graphics, images or tables)

[POPULATE TABLE 1: BENCHMARKING DATA - NATURE AND BIODIVERSITY ABOVE AND INSERT RESPONSE TO SECTION A HERE]

5B. Past Performance

Describe how your city created and developed its measures to protect and improve nature and biodiversity

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over the last five to ten years. Comment on how effective these have been.

1. Indicate changes in the extent of sites and ecological network protected for nature and biodiversity (e.g. Natura 2000 network of sites);
2. Illustrate habitat and species trends using collected monitoring data;
3. Give examples of conservation actions to manage and restore sites and habitats, and redress species, including any measures introduced to control invasive non-native species;
4. Explain how the city encourages nature in other open spaces. Has naturalisation been encouraged outside of formal nature reserves?
5. What communication and educational activities have been introduced to promote awareness of nature and biodiversity among the public, including young people?

(max. 1,200 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION B HERE]

5C. Future Plans

Describe the city's short and long term ambitions and objectives for nature and biodiversity and how these proposals will be achieved. Indicate strategic and policy commitments, budget allocations and monitoring and performance evaluation schemes. Include references to any plans, projects or activities supporting the conservation of wild bees and pollinators. Demonstrate how this work coincides with the EU 2020 Biodiversity Strategy, Nature Directives and other relevant Directives such as sustainable use of pesticides and complementary national strategies.

(max. 800 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION C HERE]

5D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

(max. 400 words)

[INSERT RESPONSE TO SECTION D HERE]

Word Count Check

Please complete the below word count check for Indicator 5: Nature and Biodiversity, Sections 5A, 5B and 5C.

As per the Guidance Note (Annex 2 of the Rules of Contest), the word count includes text in graphics/tables and the body of text. The word count excludes text in the original application form, captions and text in Table

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1: Benchmarking Data - Nature and Biodiversity.

Section	Number of words in graphics/tables	Number of words in body of text	Total number of words in graphics/tables and body of text	Max. words
5A				600
5B				1,200
5C				800

6. Air Quality

Refer to Section 2.6 of the Guidance Note

6A. Present Situation

Please complete the following table providing the most recent data that is available:

Table 1: Benchmarking Data - Air Quality

Indicator	Unit	Year of Data
Number of PM ₁₀ monitoring stations	No. of monitoring stations	
For each station provide the number of days per year PM ₁₀ exceeded 50 µg/m ³	Days	
For each station provide annual average PM ₁₀ concentration	µg/m ³	
Number of NO ₂ monitoring stations	No. of monitoring stations	
For each station provide the number of hours with NO ₂ concentrations higher than 200 µg/m ³	Hours	
For each station provide annual average NO ₂ concentration	µg/m ³	
Number of PM _{2.5} monitoring stations	No. of monitoring stations	
For each station provide the annual average PM _{2.5} concentration	µg/m ³	

Describe the present situation in relation to ambient air quality, including any relevant disadvantages or constraints resulting from historical, geographical and/or socio-economic factors which may have influenced this indicator. Topographical constraints should also be mentioned where relevant.

Make reference, providing data in the table above, to:

1. Assess the contribution from local sources and from long-range transport to annual mean concentration of NO₂, PM₁₀ and PM_{2.5};
2. If available, provide information on the relative contribution of different local sources (e.g. road traffic, residential wood combustion etc.) to the annual mean of NO₂, PM₁₀ and PM_{2.5};
3. If exceedances occur, describe the extent of the exceedances in the city as a whole, not only at the monitoring sites. If available, provide maps of air pollutant concentrations.

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Charts:

Air quality data (addressing NO₂, PM₁₀ and PM_{2.5} at a minimum) should be provided to show trends over time. Please use five charts to illustrate:

1. Trend (10 years at least) of annual average NO₂ for each monitoring site;
2. Trend (10 years at least) of annual average PM₁₀ for each monitoring site;
3. Trend (10 years at least) of annual average PM_{2.5}, for each monitoring site;
4. Trend (10 years at least) of number of daily limit exceedances of PM₁₀;
5. Trend (10 years at least) of number of hourly limit exceedances of NO₂.

An example of the requested chart is provided in the Guidance Note, Figure 2.1.

Describe whether air quality objectives and measures taken go beyond what is required by the Ambient Air Quality Directives, and how this is achieved.

Describe whether and how air quality planning and measures are integrated with other plans and measures in the city, and whether and how synergies have been achieved between objectives and measures on air quality and those in other areas.

(max. 1,000 words and five graphics, images or tables plus the five requested charts detailed above)

[POPULATE TABLE 1: BENCHMARKING DATA - AIR QUALITY ABOVE AND INSERT RESPONSE TO SECTION A HERE]

6B. Past Performance

Describe the plans and measures implemented over the last five to ten years for the improvement of ambient air quality. Comment on which measures have been most effective.

Particular reference should be given to:

1. Existence and implementation status of an air quality management plan (specify if it is a local, regional and/or national plan);
2. Local measures taken to improve air quality and quantify their effect on air quality in terms of pollutant emissions abatement;
3. Information for the public (both inhabitants and tourists) on air quality levels (e.g. web pages, information screens) in order to increase public awareness and behavioural change. Make reference to relevant stakeholder/citizen participation process.

(max. 800 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION B HERE]

6C. Future Plans

Describe the short and long term objectives for the future, proposed plans and the proposed approach and measures for their achievement. Quantify the expected effects of proposed measures on air quality in terms of immissions (if possible).

Emphasise to what extent plans are supported by commitments, budget allocations, and monitoring and performance evaluation schemes.

(max. 800 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION C HERE]

6D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

(max. 400 words)

[INSERT RESPONSE TO SECTION D HERE]

Word Count Check

Please complete the below word count check for Indicator 6: Air Quality, Sections 6A, 6B and 6C.

As per the Guidance Note (Annex 2 of the Rules of Contest), the word count includes text in graphics/tables and the body of text. The word count excludes text in the original application form, captions and text in Table 1: Benchmarking Data - Air Quality.

Section	Number of words in graphics/tables	Number of words in body of text	Total number of words in graphics/tables and body of text	Max. words
6A				1,000
6B				800
6C				800

7. Noise

Refer to Section 2.7 of the Guidance Note

7A. Present Situation

Please complete the following table providing the most recent data that is available:

Table 1: Benchmarking Data - Noise

Indicator	Unit	Year of Data
Share of population exposed to total noise values of L_{den} above 55 dB(A)	%	
Share of population exposed to total noise values of L_{den} above 65 dB(A)	%	
Share of population exposed to total noise values of L_n (night noise indicator) above 45 dB(A)	%	
Share of population exposed to total noise values of L_n (night noise indicator) above 55 dB(A)	%	
The percentage of citizens living within 300 m of quiet areas	%	
Percentage of implementation of the last noise action plan	%	
Which limits or reference value does the city apply to residential areas? ($L_d/L_e/L_n$)		
In the last year how many noise complaints did the city receive related to leisure or recreational activities?		
How many noise experts does the city have?		

Describe the present situation in relation to the quality of the acoustic environment, including any disadvantages or constraints resulting from historical, geographical and/or socio-economic factors which may have influenced this indicator. Where available, information/data should be provided from previous years (5-10) to show trends. Present situation may also include information describing the city's commitment to the aims of the Environmental Noise Directive.

Additional figures for noise exposure to individual noise sources (road, rail, air, industry, and leisure/entertainment) can also be included.

Information on formally defined and delimited quiet areas, or sound improved areas, should also be included.

(max. 800 words and five graphics, images or tables)

[POPULATE TABLE 1: BENCHMARKING DATA - NOISE ABOVE AND INSERT RESPONSE TO SECTION A HERE]

7B. Past Performance

Describe the measures implemented in recent years for improving the urban sound quality and increasing awareness to noise. Comment on which measures have been most effective.

Make reference to:

1. Classification of territory (if applicable) into appropriate noise classes and with appropriate noise limits (e.g. specially protected, hospitals/schools, residential, commercial, industrial) including details on enforcement mechanisms if in place;
2. Stakeholder involvement;
3. Communication with citizens (participation/involvement/engagement);
4. Preservation and improvement of good acoustic urban environments such as quiet areas;
5. Noise reduction measures that influenced the current situation;
6. Municipal regulations concerning noise management and reduction;
7. With respect to action plans that are already adopted, what is the percentage of the plan effectively implemented (e.g. overall amounts already paid for actions versus overall amounts initially committed). A clear description of the following issues will be valuable: noise action plan integration with city strategy, time plan, budget, and tools for monitoring its implementation.

(max. 1,000 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION B HERE]

7C. Future Plans

Describe the short and long term objectives for quality of the acoustic environment and the proposed approach for their achievement. Emphasise to what extent plans are supported by commitments, budget allocations, and monitoring and performance evaluation schemes.

Make reference to:

1. Stakeholder involvement;
2. Consultation with the population including noise perception surveys; citizen participation, involvement and engagement initiatives; and awareness initiatives;
3. Actions planned to reduce the impact of noise from transportation or other sources (probably those integrated in the Noise Action Plan);
4. Foreseen reduction in the share of population exposed to noise values of L_{den} (day-evening-night indicator) above 55 dB(A) and above 65 dB(A) and in the share of population exposed to noise values of L_n (night indicator) above 45 dB(A) and 55 dB(A), mention targets;
5. Actions to preserve, extend, or improve urban quiet areas, and raising awareness and promoting quiet areas;

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6. Holistic/qualitative approaches to the acoustic environment (e.g. by soundscape design approaches, using green infrastructure solutions etc.).

(max. 800 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION C HERE]

7D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

(max. 400 words)

[INSERT RESPONSE TO SECTION D HERE]

Word Count Check

Please complete the below word count check for Indicator 7: Noise, Sections 7A, 7B and 7C.

As per the Guidance Note (Annex 2 of the Rules of Contest), the word count includes text in graphics/tables and the body of text. The word count excludes text in the original application form, captions and text in Table 1: Benchmarking Data - Noise.

Section	Number of words in graphics/tables	Number of words in body of text	Total number of words in graphics/tables and body of text	Max. words
7A				800
7B				1,000
7C				800

8. Waste

Refer to Section 2.8 of the Guidance Note

8A. Present Situation

Please complete the following table providing the most recent data that is available for your city. If city data is not available, please provide a brief explanation and use regional or national data where available. If no data is available, please state this and indicate the reason why.

To ensure a correct interpretation of the concepts used in sections 8A to 8C ('municipal' waste, 'biowaste', 'packaging waste' etc.) it is important to refer to the explanation in the Guidance Note.

Table 1: Benchmarking Data - Waste

Indicator	Type of Data (City/Regional/National)		Unit	Year of Data
Amount of municipal waste generated per capita			kg/capita/year	
Percentage of municipal waste that is recycled (including through composting and digestion of biowaste)			%	
Percentage of municipal biowaste that is recycled (through composting and digestion)			%	
Percentage of municipal waste sent for energy recovery (R1 code)			%	
Percentage of municipal waste sent to landfill (or other forms of disposal (D codes))			%	
Percentage of municipal waste that is collected separately			%	
Percentage of recycled packaging waste			%	
Percentage of packaging waste that is collected separately			%	
Established collection systems for hazardous waste:	Type of Data (City/Regional/National)	Yes/No	Unit	Year of Data
i) WEEE			kg/capita/year	
ii) Batteries			kg/capita/year	
iii) Waste oils			kg/capita/year	

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iv)	Household chemicals			kg/capita/year	
v)	Asbestos			kg/capita/year	
vi)	Construction & demolition waste			kg/capita/year	
vii)	Unused pharmaceuticals			kg/capita/year	

Describe the present situation in relation to waste production and management by providing details about each of the following areas:

1. Waste management strategies or plans in place;
2. Waste prevention strategies or plans in place including possible specific measures to reduce food waste, plastic waste and other waste materials;
3. Reuse and/or repair initiatives or partnerships currently in the city (include examples describing the types and quantities of materials reused);
4. Current waste collection system including the types of waste collected separately (both covering dry recyclables such as paper, plastics, glass metals and biowaste, as well as hazardous waste) and the extent of roll-out (% coverage) of the systems as well as clean-up initiatives;
5. Sorting, recycling and other treatment of separately collected and residual waste as well as any home/community composting practices;
6. Application of the 'polluter pays' principle and economic instruments, including through differentiated tariffs ('Pay as You Throw' (PAYT) initiatives) and landfill and incineration charges.

(max. 800 words and five graphics, images or tables)

[POPULATE TABLE 1: BENCHMARKING DATA - WASTE ABOVE AND INSERT RESPONSE TO SECTION A HERE]

8B. Past Performance

Describe the measures implemented over the last five to ten years for improving waste management and include details on the following:

1. Past trends in the amount of municipal and packaging waste produced per capita in the city;
2. Past measures which have promoted waste prevention and recycling;
3. Trends in municipal and packaging waste treatment in the city including changes in recycling (including composting and digestion), recovery and disposal rates over the previous 5-10 years;
4. Evolution of separate collection systems in the city;
5. The collection market in terms of how it has developed and the role of municipal (public) authorities and/or private waste companies;
6. Type and scale of infrastructure put in place to treat municipal and packaging waste distinguishing between dry recyclables, biowaste and residual waste, and progress to date;
7. Use of instruments (economic or regulatory) applied in the city to manage municipal and packaging wastes.

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(max. 1,000 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION B HERE]

8C. Future Plans

Describe the future plans of the city in terms of progressing towards better waste management and the transition to a circular economy in a wider sense (i.e. maintaining the value of materials and resources within the system for as long as possible and closing material loops through activities such as green public procurement, reuse, repair, refurbishment etc.). Your response should address:

1. How your city is taking account of recently updated EU policy on waste management within the broader policy framework of the Circular Economy including a description of the short and long term objectives and targets for the future management of waste and measures to ensure these are achieved and monitored;
2. Your city's approach to the future management of plastics (inter alia taking account of the EU Strategy for Plastics in relation to the Circular Economy) and the prevention of food waste;
3. Other specific initiatives to promote the transition to a circular economy in your city.

(max. 800 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION C HERE]

8D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

(max. 400 words)

[INSERT RESPONSE TO SECTION D HERE]

Word Count Check

Please complete the below word count check for Indicator 8: Waste, Sections 8A, 8B and 8C.

As per the Guidance Note (Annex 2 of the Rules of Contest), the word count includes text in graphics/tables and the body of text. The word count excludes text in the original application form, captions and text in Table 1: Benchmarking Data - Waste.

Section	Number of words in graphics/tables	Number of words in body of text	Total number of words in graphics/tables and body of text	Max. words
8A				800

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8B				1,000
8C				800

9. Water

Refer to Section 2.9 of the Guidance Note

9A. Present Situation

Please complete the following table providing the most recent data that is available:

Table 1: Benchmarking Data - Water

Indicator	Unit	Year of Data
Domestic usage (drinking water) - litres per capita per day	Litres/capita/day	
Total usage (drinking water) - litres per capita per day	Litres/capita/day	
Water loss in pipelines	%	
Percentage (%) of total annual generated waste water load, connected to waste water collecting system + urban waste water treatment plants (UWWTPs)	%	
No. of WWTP	Number	
Total design capacity (Population Equivalent - PE)	PE	
Total load received by UWWTP (PE)	PE	
Connection rate	%	
Treatment level which is applied in each UWWTP: secondary or more stringent; in this case, type of treatment: nitrogen and/or phosphorus removal, disinfection etc.	Treatment level	
Waste water reuse (describe type of reuse)	%	
Water pricing (overall and split into water supply and waste water services, incl. taxes and service charges)	€/m ³ (overall)	
	€/m ³ (water supply)	
	€/m ³ (waste water supply)	

Describe the present situation in relation to water management, including any relevant disadvantages or constraints resulting from historical, geographical and/or socio-economic factors which may have influenced this indicator.

Describe the current general features of waste water treatment according to national requirements and the

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requirements of the Urban Waste Water Treatment Directive (UWWTD, 91/271/EEC), and the situation regarding drinking water quality and the requirements concerning the Drinking Water Directive 98/83/EC .

Please provide information of the EU Water Framework Directive 2000/60/EC and its daughter directives regarding implementation.

In detail, please make reference to:

1. Total water drinking water consumption (in cubic meters/year and litres/capita/year) including a breakdown for different sectors (e.g. households, industry, energy, agriculture, small business, tourism, public sector); describe plans currently in place to reduce water consumption and to improve water status
2. Proportion of urban water supply subject to water metering, both for domestic and non-domestic metering;
3. Source of water (surface water, groundwater) - make reference to aquifers and river basin management;
4. Quality of drinking water (e.g. how many days of non-compliance with the Drinking Water Directive?) - make reference to connection to large/small supplies;
5. Water loss in pipelines, leakage management and network rehabilitation; please provide information on leakage management and network rehabilitation;
6. Storm water management (including number of storm water overflows) and use of natural water retention measures (www.nwrm.eu) and/or sustainable urban drainage systems (SUDS);
7. How the links between water and energy consumption (water-energy nexus) if available provide data on yearly energy consumption (kWh/m³ of distributed water); describe measures in place to reduce/optimize the energy consumption for waste water plants or water supply services;
8. Compliance with the EU Water Framework Directive and other EU/national/regional legislation applicable at the city level indicating status of water bodies relevant for the urban area within the city limits and relevance of measures enshrined in the applicable river basin management plans; this shall include the status of the relevant river basin (e.g. water bodies in good/bad status; if information on droughts, scarcity; expected future trends);
9. Compliance with the EU Water Framework Directive and link to the relevant Flood Risk Management plans;
10. Use of 'non-conventional resources' and water recycling initiatives (rain water use and grey water or waste water reuse);
11. The scale of river restoration projects planned e.g. for resurfacing (lost) rivers, naturalising previous channeled rivers;
12. Projects to reconnect citizens with waterbodies e.g. creation of wetland parks, improving water quality to allow for swimming.

Include data and a short explanation for the following specific indicators. Provide explanation in the case of missing information.

1. Proportion (%) of total generated waste water load, not connected to waste water collecting systems and explanation of the type of waste water treatment applied to this fraction (reference to individual or other appropriate systems, i.e. IAS);

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2. If the city is located in an EU Member State include data on waste water treatment obligations according to the UWWTD (based on city's size and nature of the area of discharge);
3. Waste water collecting systems: main type of collecting system (combined/separated) and annual proportion (%) of COD-loads discharged via storm water overflows;
4. UWWTPs: organic design capacity (PE), most advanced treatment level, annual incoming and discharged loads (load or concentration) of BOD₅, COD, N_{tot} and P_{tot} and treated waste water amounts (m³/annum) of all UWWTPs serving the city. If the city is located in an EU Member State, indicate whether the UWWTP complies with the treatment requirements under the UWWTD;
5. Annual amounts of generated sewage sludge (tonnes/year) and description of treatment/disposal pathways (% of total amount);
6. Further information (e.g. on treated waste water reuse, economic sustainability, use of integrated constructed wetlands or other GI/nature-based solutions) is highly appreciated.

Please note:

In case the city is served by a private, or public/private services company, or your regional/national authorities are responsible for the water services, please provide the information requested and describe the additional city activities.

(max. 800 words and 5 graphics, images or tables)

[POPULATE TABLE 1: BENCHMARKING DATA - WATER ABOVE AND INSERT RESPONSE TO SECTION A HERE]

9B. Past Performance

Describe the measures implemented over the last five to ten years for improving water management, including waste water management. Describe the baseline (situation) ten years ago and comment on which measures have been most effective and what progress has been achieved.

With specific reference to waste water and drinking water, please note that if the city is located in an EU Member State, special reference should be given to non-compliance situation, exceedances and relevant infringement cases. Particular reference may be given to capacity building, measures for maintenance, management and restoration of waste water collecting systems and UWWTPs, as well as for water supply systems.

Make reference to:

1. Technical, nature-based, economic and institutional measures adopted and their effectiveness in achieving reduction of total water consumption or improvement of water status;
2. Bye-law implementation in relation to efficiency in water usage, tariff and metering systems and water quality;
3. Citizen engagement and public awareness initiatives;
4. Actual and projected improvements (in %) of water status/potential compared to 2009, when the first river basin management plans were to be in place.

Describe actions and activities carried out by the city (or service provider) over the last ten years to improve

the situation (e.g. information of citizens, public activities such as flyer or public information desk).

(max. 1,200 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION B HERE]

9C. Future Plans

Describe the short and long term objectives for water management and the proposed approach for their achievement, including how they are influenced by the expected impacts from climate change and other long-term trends. Emphasise to what extent plans are supported by commitments, budget allocations, and monitoring and performance evaluation schemes.

Place particular emphasis on water quality goals and on key water saving and reuse targets for the future and the proposed approach to achieve these, including technical and nature-based measures incorporating water infrastructure to deal with future impacts of climate change.

Describe the future short and long term objectives for waste water treatment and management and the proposed approach, and specify the measures for their achievement. Emphasise to what extent plans are supported by commitments, budget allocations, and monitoring and performance evaluation schemes. Emphasise to what extent plans are triggered by the demands of EU and national regulations.

Please describe future action/plans taken regarding water (re-opening of water-courses, housing development with specific regard to water issues). Reference to legal action may be give (e.g. obligation for green roofing, subsidies for disconnection to sewer, unsealing measures); describe intentions and best practice measures and indicate its planning status (intention or detailed planning).

Refer to:

1. Improvement/maintenance/management of collecting systems;
2. Improvement of connection to collecting systems and to the UWWTPs (inter alia, additional percentage of PE forecasted to be connected);
3. Improvement of design capacity, treatment level and treatment performance of UWWTPs and indicate if these go beyond the requirements in the Directive;
4. Improvements of further environmental and economic aspects of waste water treatment (e.g. removal of emerging substance, micropollutants, pharmaceuticals, micro-plastic particles and pollution prevention measures; and measures on water reuse;
5. Measures to improve public information and participation;
6. Other improvements.

(max. 800 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION C HERE]

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9D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

(max. 400 words)

[INSERT RESPONSE TO SECTION D HERE]

Word Count Check

Please complete the below word count check for Indicator 9: Water, Sections 9A, 9B and 9C.

As per the Guidance Note (Annex 2 of the Rules of Contest), the word count includes text in graphics/tables and the body of text. The word count excludes text in the original application form, captions and text in Table 1: Benchmarking Data - Water.

Section	Number of words in graphics/tables	Number of words in body of text	Total number of words in graphics/tables and body of text	Max. words
9A				800
9B				1,200
9C				800

10. Green Growth and Eco-innovation

Refer to Section 2.10 of the Guidance Note

10A. Present Situation

Please complete the following table providing the most recent data available:

Table 1: Benchmarking Data - Green Growth and Eco-innovation

Indicator	Unit	Year of Data
Number of electric (green) vehicles owned by the municipality	Number	
Share of electric vehicles owned by the municipality (as a percentage of all cars owned by the municipality)	%	
Number of charging outlets available for cars owned privately in the public space	Number	
Number of procurement contracts that include green issues	Number	
Percentage of all procurement contracts that include green criteria	%	
Share of the city budget dedicated to support environmental R&D by public and private entities	%	
Number of jobs created in green economic activities including: i) Jobs created by municipality initiatives in the private and public sector; and ii) Jobs in the municipality	Jobs created by municipality initiatives in the private and public sector	Number
	Jobs in the municipality	
Number of initiatives for promoting and enabling sharing, reuse and repair such as, repair cafés, etc. initiated or facilitated by the municipality	Number	

Describe the present situation in relation to green growth and eco-innovation, including any relevant disadvantages or constraints resulting from historical, geographical and/or socio-economic factors which may have influenced this indicator. Where available, information/data should be provided from previous years (5-10) to show trends.

Make reference to the below (note that the numbers listed below correspond to Figure 2.2 of the Guidance

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Note):

1. Innovations that address material/resource use, (substitution, minimisation of material use, closing loops, etc.) and reduce environmental impacts, i.e. measures to improve resource efficiency;
2. Awareness raising and training to encourage the development and up-take of environmentally friendly technologies, particularly through training in industrial and business settings; new business models (sharing schemes), including actions inspired by circular economy thinking;
3. Efforts to promote green skills or green jobs;
4. Efforts to promote Green Public Procurement (GPP) and other green policy measures;
5. Social innovation/stakeholder participation, including for example community programmes, that shows entrepreneurship and new ways of organisation that promote sustainable development and protect the environment locally and globally;
6. Efforts to drive innovation that address societal and particularly environmental challenges through creating the right enabling conditions, like putting in place advanced infrastructure (IT or more traditional) or investing in and partnering with innovators, platforms, clusters and hubs;
7. What efforts does the municipality make to stimulate sharing, reuse and repair different categories of goods;
8. Describe how green growth and eco-innovation improve the livability of the city in the area of various aspects such as health and safety.

(max.800 words and five graphics, images or tables)

[POPULATE TABLE 1: BENCHMARKING DATA - GREEN GROWTH AND ECO-INNOVATION ABOVE AND INSERT RESPONSE TO SECTION A HERE]

10B. Past Performance

Describe the measures implemented over the last five to ten years concerning green growth and eco-innovation. Please comment on which measures have been most effective.

Make reference to:

1. Initiatives aimed at increasing green growth and eco-innovation, e.g. projects under Cohesion Policy funds, Horizon 2020, COSME, LIFE, Eco-innovation Action Plan (EcoAP), Green Public Procurement (GPP), as well as national policy initiatives;
2. How European and national policies have been transferred into policy action at city level;
3. The publication of reports, such as green accounts, that make clear the timely implementation of planned initiatives and the focus group they were written for;
4. Describe the actions the city took in order to develop the urban tissue/infrastructures in an innovative/sustainable way including actions inspired by circular economy thinking;
5. Name/describe what you consider to be the flagship of eco-innovation in your city.

(max. 1,000 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION B HERE]

10C. Future Plans

Describe the future short and long term objectives to promote green growth and eco-innovation and the proposed approach (strategy) for their achievement. Emphasise to what extent plans are supported by commitments, budget allocations, and monitoring and performance evaluation schemes.

Make reference to:

1. Plans to establish eco-innovation clusters, strategies and initiatives to attract public-private-partnerships for further developing eco-innovation and sustainable employment;
2. Future targets of how eco-innovations can be applied by the city, e.g. make reference to share of hybrid or fully electric cars in total stock of the public fleet, or plans to support the infrastructure development for electric cars in public areas (i.e. increase the number of charging points for electric cars in public car parks), sharing economy schemes (i.e. bike sharing), use of public procurement for innovation;
3. Participation at green business networks or partnerships and covenants and co-operation with knowledge institutions, such as universities;
4. Programmes to reach the population promoting green economy thinking;
5. Programmes to reach the industries promoting green economy thinking;
6. Identify one key future plan which is considered as the flagship of eco-innovation in your 'City of the Future'.

(max. 800 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION C HERE]

10D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

(max. 400 words)

[INSERT RESPONSE TO SECTION D HERE]

Word Count Check

Please complete the below word count check for Indicator 10: Green Growth and Eco-innovation, Sections 10A, 10B and 10C.

As per the Guidance Note (Annex 2 of the Rules of Contest), the word count includes text in graphics/tables and the body of text. The word count excludes text in the original application form, captions and text in Table 1:

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<i>Benchmarking Data - Green Growth and Eco-innovation.</i>				
Section	Number of words in graphics/tables	Number of words in body of text	Total number of words in graphics/tables and body of text	Max. words
10A				800
10B				1,000
10C				800

11. Energy Performance

Refer to Section 2.11 of the Guidance Note

11A. Present Situation

Please complete the following table providing the most recent data that is available:

Table 1: Benchmarking Data - Energy Performance

Indicator	Unit	Year of Data
Final energy consumption	MWh	
Final energy use per capita	kWh/capita	
Share of renewable energies of final energy demand	%	
Share of locally produced renewable energies of final energy demand	%	
Energy performance of municipal buildings	kWh/m ²	
Final Energy Use/Sector		
Agriculture & fisheries	%	
Industrial & commercial		
Transport		
Domestic		
Services		
Other		
Total		

Describe the present situation and development (particularly in relation to the building sector), using quantitative data and figures. Where available, information/data should be provided from previous years (5-10) to show trends. Highlight the most relevant driving forces for the observed trends. List any disadvantages resulting from historical, geographical and/or socio-economic factors which may have influenced this indicator.

1. Present total final energy consumption by sectors (structure of energy consumption);
2. Past development of energy consumption and current plan (activities) for energy efficiency improvements and decreasing the use of energy, particularly for energy performance of municipal buildings (in kWh/m²) with specific reference to city owned buildings and important developments related to other end-use sectors besides the building sector (e.g. transport, industry production, services, public, lighting, electrical appliances, food);
3. Present situation, development and current plan for the energy supply mix, particularly regarding the renewable versus non-renewable mix of energy sources during the past ten years (for both heat,

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electricity and transport; expressed in kWh, MWh or GWh);

4. The current plan for integration and performance of renewable energy technology in municipal buildings and homes compared to the total energy use;
5. The development so far and the current plan of compatible and integrated district heating energy and of combined heat and power energy consumption compared to the total energy use, (expressed in kWh, MWh or GWh);
6. Application of innovative technologies (e.g. current plan for increasing the use of LED lamps in public lighting and use of green roofs/walls for energy saving).

(max. 600 words and five graphics, images or tables)

[POPULATE TABLE 1: BENCHMARKING DATA - ENERGY PERFORMANCE ABOVE AND INSERT RESPONSE TO SECTION A HERE]

11B. Past Performance

Describe the measures implemented over the last five to ten years concerning energy, as a qualitative narrative. Comment on which measures have been most effective.

Make reference to:

1. Attempts to improve the energy performance (i.e. energy efficiency standards particularly of municipal buildings) above national requirements;
2. Maximising and prioritising the use of renewable energy technology (particularly in municipal buildings);
3. Measures to facilitate integrated district system solutions (e.g. co-generation) and a more sophisticated city-wide control;
4. Measures to trigger stakeholder engagement in the city to improve overall energy demand performance preferably including local government institutions, local market actors and citizens; mention existing co-operations.

(max. 800 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION B HERE]

11C. Future Plans

Describe the future short and long term objectives for shaping a sustainable energy system and the proposed approach for its achievement. Include measures adopted, but not yet implemented, and details for future measures already adopted.

Emphasise to what extent plans are consolidated by commitments, budget allocations, and monitoring and performance evaluation schemes, what potential there is and what kind of barriers you might expect in the implementation phase. Express and explain if and how far the strategies and targets go beyond national ambitions.

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Make reference to the city's strategy to achieve goals by 2030 and 2050 and highlight:

1. The role of energy efficiency improvements;
2. The role of an increasing share of renewable energy in the total energy supply;
3. The city's strategy regarding renewable versus non-renewable energy mix, (please break down the the percentage of different renewable energy sources that comprise the renewable energy mix). Describe the planned energy mixes for at least the coming two decades, preferably add diagrams to describe this evolution;
4. Other measures affecting the total energy use in the city, e.g. changes in transport systems, industrial practices, food and commodities production and consumption, urban morphology and use of Green Infrastructure, consumer behaviour and import and export chains.

(max. 800 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION C HERE]

11D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

(max. 400 words)

[INSERT RESPONSE TO SECTION D HERE]

Word Count Check

Please complete the below word count check for Indicator 11: Energy Performance, Sections 11A, 11B and 11C.

As per the Guidance Note (Annex 2 of the Rules of Contest), the word count includes text in graphics/tables and the body of text. The word count excludes text in the original application form, captions and text in Table 1: Benchmarking Data - Energy Performance.

Section	Number of words in graphics/tables	Number of words in body of text	Total number of words in graphics/tables and body of text	Max. words
11A				600
11B				800
11C				800

12. Governance

Refer to Section 2.12 of the Guidance Note

12A. Plans and Commitments

Please complete the following table providing the most recent data available:

Table 1: Benchmarking Data - Governance

Commitments	Yes/No	Date From:	Comments
Signatory of CoM			
Aalborg signatory			
ISO14001 for municipal operations			[FOR WHICH ACTIVITIES?]
Eco-management and audit scheme for municipal operations			[FOR WHICH ACTIVITIES?]

Vision and Strategy

Describe if the city has a clearly defined, widely understood and supported **integrated environmental vision** for the city, for example as part of a broader commitment to urban sustainability.

Is this vision reflected in different **strategies and plans**, for individual sectors? Please list the most important strategies and plans and indicate their relationship to the overall vision and whether they have been formally adopted by the city council.

Describe the short and long term objectives of the **integrated environmental vision** and the proposed approach for their achievement.

Describe present and future **projects that demonstrate your commitment to integrated management** of the urban environment.

Historical, Geographical and/or Socio-economic Factors

List any disadvantages resulting from historical, geographical and/or socio-economic factors, which may have influenced this indicator.

(max. 800 words and five graphics, images or tables)

[POPULATE TABLE 1: BENCHMARKING DATA - GOVERNANCE ABOVE AND INSERT RESPONSE TO SECTION A HERE]

12B. Governance and Management Arrangements

Organisation

Describe the organisational structure of the city council (administration) and show how the environmental vision/strategies are embedded in the organisation.

Please include an organogram and indicate which department or political body is the driving force behind the environmental vision/strategies.

Budget

Is there a dedicated budget for implementing the environmental vision? If so please describe it.

Management, Monitoring and Evaluation

What management tools are used, to achieve your environmental objectives and targets? For example, sustainability impact assessment of policy proposals, cross departmental project structures, etc.

Describe the system of monitoring, reporting and evaluation of implementation of your environmental strategy and projects. What is generally reported to whom at what frequency?

In delivering its environmental policy does the city use any innovative approaches, tools or instruments?

Leadership by the City Council

Is the city council (administration) leading by example in environmental behavior? With reference to the commitments to ISO14001 and Eco-management and Audit Schemes listed in Table 1: Benchmarking Data - Governance, describe your activities regarding environmental management systems, green public procurement, skills development etc.

(max. 600 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION B HERE]

12C. Partnerships and Public Involvement

Which stakeholders have participated in the development of the city's environmental vision and associated strategies and action plans (e.g. contribution of civil society and citizens)?

How was the participation organised?

How are stakeholders involved in the on-going integrated environmental management of your city?

Involvement of Citizens

Describe your activities and engagement with the different communities within **your city that contribute to**

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the development or implementation of your environmental vision and strategy.

Please reference any structures/projects/programmes that you have in place to involve particular groups of society e.g. young people, elderly citizens, disabled, deprived citizens, or people from different ethnic groups.

Describe the goals of these activities, e.g. awareness raising, shared responsibility, policy development, etc.

Co-operation and Learning

Does your city co-operate with other authorities at different levels or other organisations (regional, national, EU, international) on environmental and sustainability issues? Which of these co-operation activities or projects has your city initiated or acted as leading partner? Please also refer to your participation in European funded projects and to your commitment to international initiatives, charters, etc. (For example Agenda 21, Aalborg Commitments, Covenant of Mayors, C40, Climate Alliance, ICLEI, EUROCITIES, etc.).

Public Awareness and Involvement of your Bid to be the European Green Capital

Demonstrate public awareness of this bid i.e. public consultation, access/availability to read etc.

(max. 800 words and five graphics, images or tables)

[INSERT RESPONSE TO SECTION C HERE]

12D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-selection phase. Documentation should not be forwarded at this stage.

(max. 400 words)

[INSERT RESPONSE TO SECTION D HERE]

Word Count Check

Please complete the below word count check for Indicator 12: Governance Sections 12A, 12B and 12C.

As per the Guidance Note (Annex 2 of the Rules of Contest), the word count includes text in graphics/tables and the body of text. The word count excludes text in the original application form, captions and text in Table 1: Benchmarking Data - Governance.

Section	Number of words in graphics/tables	Number of words in body of text	Total number of words in graphics/tables and body of text	Max. words
12A				800
12B				600



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12C				800
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Good Practices

Please provide details of at least one present or future flagship project that demonstrates your commitment to an integrated approach to the management of the urban environment. This must relate to Indicator 12: Governance (to be completed under heading: Good Practice 1 - Integrated Management Approach).

Please summarise up to five additional good practices, relating to any indicator(s) that demonstrate how your city is improving its environmental record. Please identify to which indicator(s) your good practice is relevant. To be completed under heading(s) Good Practice 2 to Good Practice 6 below.

Good practices should be taken from information already provided within the application form.

Each good practice should be supported by a maximum of three graphics, images or tables (max. 300 words per good practice).

Good Practice 1 - Integrated Management Approach

(max. 300 words and three graphics, images or tables)

Indicator: 12: Governance

[INSERT RESPONSE HERE]

Good Practice 2

(max. 300 words and three graphics, images or tables)

Indicator: *[INSERT NAME OF RELEVANT INDICATOR(S) HERE]*

[INSERT RESPONSE HERE]

Good Practice 3

(max. 300 words and three graphics, images or tables)

Indicator: *[INSERT NAME OF RELEVANT INDICATOR(S) HERE]*

[INSERT RESPONSE HERE]

Good Practice 4

(max. 300 words and three graphics, images or tables)

Indicator: *[INSERT NAME OF RELEVANT INDICATOR(S) HERE]*

[INSERT RESPONSE HERE]

Good Practice 5

(max. 300 words and three graphics, images or tables)

Indicator: *[INSERT NAME OF RELEVANT INDICATOR(S) HERE]*

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[INSERT RESPONSE HERE]

Good Practice 6

(max. 300 words and three graphics, images or tables)

Indicator: [INSERT NAME OF RELEVANT INDICATOR(S) HERE]

[INSERT RESPONSE HERE]

Word Count Check

Please complete the below word count check for Good Practices.

As per the Guidance Note (Annex 2 of the Rules of Contest), the word count includes text in graphics/tables and the body of text. The word count excludes text in the original application form and captions.

Section	Number of words in graphics/tables	Number of words in body of text	Total number of words in graphics/tables <u>and</u> body of text	Max. words
Good Practice 1 - Integrated Management Approach - Indicator 12				300
Good Practice 2				300
Good Practice 3				300
Good Practice 4				300
Good Practice 5				300
Good Practice 6				300

Appendix B

Expert Panel Profiles

Indicator No. 1 - Climate Change: Mitigation

Expert: Dr. Matthew Kennedy, Head of Strategy and Business, International Energy Research Centre, Ireland



Dr. Matt Kennedy is Head of Strategy and Business in the International Energy Research Centre, an Irish Government supported energy research centre. He was previously National Delegate (Energy) for Horizon 2020 for Ireland and led Energy R&D for the Irish Government's Sustainable Energy Authority of Ireland. Matt held the position of Special Advisor on energy and climate issues.

Matt was lead EU Negotiator for energy technology transfer at the UNFCCC's international climate change negotiations (COP21) and was a member of the UNFCCC's Technology Executive Committee (TEC) responsible for providing mitigation and adaptation technology policy advice to the UN Conference of the Parties.

Matt was Chair of UNEP's Climate Technology Centre and Network, Copenhagen, Chair of the IEA's Renewable Energy Technology Deployment Technology Collaboration Programme, Paris, and the Chair of the Programme Board of the Renewable Energy and Energy Efficiency Partnership (REEEP), Vienna.

Matt holds a PhD from the School of Engineering of Trinity College Dublin, and Masters' degrees from NUI Galway and University College Dublin.

Indicator No. 2 - Climate Change: Adaptation

Expert: Ms. Birgit Georgi, Urban and Adaptation Expert, Founder of 'Strong Cities in a Changing Climate', Germany



Birgit Georgi is a freelance expert in the areas of climate change adaptation, environment and integrated urban development. She has a deep and broad integrated understanding of the urban environment and sustainability due to her long-standing professional experience in these fields for more than 25 years.

From 2007-2017 she worked with the European Environment Agency, initially as Project Manager for urban issues, and, since 2011, on climate change adaptation relating to cities and transport. Among Birgit's key contributions to the sector are the assessment reports; 'Urban Adaptation to Climate Change in Europe' (2012 and 2016), 'Adaptation of transport to climate change in Europe' (2014), and 'Quality of life in Europe's Cities and towns'.

Birgit was responsible for developing the interactive map book on urban vulnerability, the Urban Adaptation Support Tool, and the numerous case studies related to cities of the European Climate Adaptation Platform Climate-ADAPT. She supported the Commission in developing the Mayors Adapt initiative and its integration into the Covenant of Mayors for Climate and Energy. Birgit also organised the annual networking and learning event: Open European Day Resilient Cities - now the European Urban Resilience Forum. She has worked as an adviser for several EU projects such as PLUREL, SUME, RESIN and is a frequent speaker and moderator at many events on her topics.

Birgit's experience is complemented by her work at the German Federal Environment Agency from 1991-2007 where she developed action plans and supervised projects in the fields of sustainability planning, biodiversity, environmental management and sustainable transport. The scope ranged from local demonstration projects in Germany and other European countries to international activities, e.g. technical support in the framework of the UN Convention for Biological Diversity and as national contact point for the UNECE Programme, THE PEP.

Indicator No. 3 - Sustainable Urban Mobility

Expert: Dr. George Angelou, Staff member of the Greek Ministry of Transport and Networks, HCAA HANSP Headquarters, Greece

George Angelou possesses 20 years of industrial and academic experience working in the USA (IBM T.J Watson Research Center, NY), UK (CISCO Systems, London) and Greece (Assistant Professor, Institute of Technology). He is also the co-founder of *Mobile E-Commerce Technologies Ltd.* based in London, UK and the Founder and Director of *G-Alpha Telecomms* based in Athens, Greece.



George is the recipient of the 2018 *EGNOS Award*, awarded from the European GNSS Agency (GSA) in the 2018 World ATM Congress, the recipient of *UK Research Excellence* in 2000, awarded from RACAL Research, London, UK and the owner of one patent awarded from the Industrial Property Organisation of Greece.

Dr. Angelou is the author of three international books published from McGraw-Hill International, New York, USA and over thirty technical articles published in peer-reviewed journals and international conferences.

Indicator No. 4 - Sustainable Land Use

Expert: Dr. Henk Wolfert, Programme Manager at the Amsterdam Institute for Advanced Metropolitan Solutions, and at Wageningen Environmental Research, The Netherlands

Henk Wolfert is a programme manager at the Amsterdam Institute for Advanced Metropolitan Solutions. He is responsible for the Vital City research theme, which addresses the issues of urban climate resilience, metropolitan food systems and healthy urban living in Amsterdam. His main interest is strategic and applied research and setting up living labs, with both public and private partners.



He is one of the initiators of the Flevo Campus in the City of Almere and its scientific programme 'The Feeding City', focusing on a transition into more regionally oriented urban food systems. In addition, he is the driver behind the Wageningen City Agenda, aiming at cooperation between the city of Wageningen and Wageningen University & Research.

Henk has been working at Wageningen Environmental Research in various positions: researcher of geomorphology, team leader Landscape Systems Research, executive secretary of the Board of Directors and coordinator of the Wageningen Research programme System Earth Management. Henk was member of several peer and governmental advisory commissions.

He is a member of the team of coordinators of the Partnership for European Environmental Research (PEER), member of the advisory board of the New Water Ways project in Oslo and involved in an expert team of the European Science for Environment Policy News Alert.

Henk holds a master's degree in Physical Geography from the University of Amsterdam, and a PhD degree from Utrecht University. His PhD was on river rehabilitation and geomorphological change.

Indicator No. 5 - Nature & Biodiversity

Expert: Mr. David Jamieson, Parks Greenspace & Cemeteries Manager, City of Edinburgh Council, and Director of Greenspace Scotland, United Kingdom



Based in Scotland, David is responsible for managing Edinburgh's public parks and greenspace network, including the city's nature reserves, woodlands, allotments, cemeteries and urban forest. As head of Edinburgh's Parks Service he has secured a number of green accolades for the city, including winner of Britain in Bloom, Entente Florale Gold Medal, Eurocities, COSLA Gold Medal for Service Innovation & Improvement, the UK's Best Parks, Grounds and Horticultural Service Team award, and Fields in Trusts' Best UK Landowner.

Having led the development and implementation of Edinburgh's Nature Conservation Strategy, Urban Forestry Strategy, and Biodiversity Action Plan, he is presently directing the Edinburgh Living Landscape initiative in partnership with local universities, wildlife trust, botanic garden and green space trust. This is an innovative ecosystems approach to urban open space management, bringing nature closer to people's homes and work-places.

Having recently arranged a city-wide count and ecosystem services analysis of Edinburgh's urban trees, he is now heading up a multi-agency effort to make Scotland's capital a 'Million Tree City' by 2030. This aims to help address both the climate crisis and species extinction commitments made on behalf of Edinburgh's residents and visitors by the local authority.

David is also Director and chair of the national charity, greenspace Scotland, championing the value of green space to government and other decision-makers. As a chartered ecologist and environmental manager, with degrees from Stirling, Heriot-Watt and Huddersfield universities, his career has ranged across the public, academic and voluntary sectors. In recent years he has also been a director of Volunteer Development Scotland, BTCV Scotland, Oatridge Agricultural College and the Falkirk Environment Trust - promoting volunteering as a means for positive social and environmental change.

As well as being the Expert Panel member for Nature and Biodiversity, David is also a UK-level judge for Britain in Bloom and assessor for Green Flag Award, the two largest green award programmes in Great Britain. This gives him insight into current best practice in green space management, urban ecology, community-driven environmental initiatives, and sustainable development.

Indicator No. 6 - Air Quality

Expert: Mr. Joan Marc Craviotto Arnau, Air Quality Consultant at Barcelona City Council, Spain



Joan Marc Craviotto Arnau is an Air Quality Consultant with extensive experience in urban air quality management and planning. He holds a degree in Industrial Engineering from the Polytechnic University of Catalonia and a postgraduate degree in Air Quality Management and Atmospheric Pollution Control from the University of Santiago de Chile.

For over 10 years he has collaborated with Barcelona City Council in its aim to improve citizens' well-being. In his role, he has contributed to create a professional air quality management scheme and has advised on new policies and abatement measures. He also managed the development of Barcelona's Air Quality Improvement plan and played a key role in the implementation of important abatement measures such as the Low Emission Zone. Joan Marc has put technology at the core of the strategy, promoting the use of state-of-the-art techniques in the decision-making process.

Joan Marc is a key contributor to the air quality public awareness campaign for the City of Barcelona, and is committed to sharing knowledge and raising awareness of environmental issues related to air quality. He engages with and promotes scientific research to increase the knowledge of the air quality dynamics in the city of Barcelona and is a regular speaker and attendant at air quality conferences, congresses and workshops.

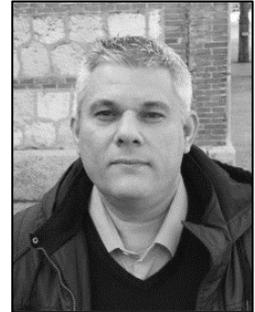
Indicator No. 7 - Noise

Expert: Dr César Asensio, Researcher at the Instrumentation and Applied Acoustics Research Group of the Technical University of Madrid

Dr. César Asensio has a BSc in Telecommunication Engineering, MSc in Acoustics Engineering in Industry and Transport and a PhD in Acoustics Engineering.

He has vast experience in environmental acoustics including noise modelling, strategic noise mapping and noise monitoring in cities, industry and transport infrastructures. He was nominated by Spain as technical expert to be part of the CNOSSOS-EU Technical Committee (Common Noise assessment methods), which is aimed at improving the consistency and comparability of noise assessments results across the EU Member states. CNOSSOS-EU defined a methodological framework that formed the basis for the amendment of Annex II of Directive 2002/49/EC of the European Parliament and of the Council relating to the assessment and management of environmental noise in Europe.

César is highly committed to environmental noise research and information dissemination, aiming to raise the awareness of public administrations, citizens and other stakeholders about the risks that community noise can pose to public health. He is particularly interested in the influence that non-acoustic factors have on the response of citizens to noise, as well as in the exploitation of new technologies and smart city capabilities in the management of environmental noise.



Indicator No. 8 - Waste

Expert: Mr. Olivier Gaillot, Director of Environment, Energy and Resource Management, RPS Group Ltd., Ireland

Olivier Gaillot is Director of Environment, Energy, and Resource Management in RPS. Olivier is a Chartered Waste Manager with a master's Degrees in Strategic Procurement and Environmental Engineering.

For the last 18 years Olivier has specialised in the waste and resource management sector, developing expertise in waste policy and legislation, strategy and planning, data analysis and technical assessments. Olivier served as project manager for rx3, 'rethink recycle remake', a national platform whose main focus was on closing the material loop, through the development of markets for reusable, remanufactured and recyclable materials. This closed loop recycling project correctly anticipated the 'circular economy' policy by the EU Commission favouring eco-innovation, economic development and job creation. The project received the best public sector award at the 2013 Green Awards. He has also served as the project manager for the development of green public procurement guidance and review of Extended Producer Responsibility in Ireland. Olivier is a member of the Irish National Waste Prevention Committee chaired by the EPA. In his current role in RPS, Olivier manages teams of engineers and scientists delivering high quality projects across the environmental, energy, waste/resource efficiency sectors.



Indicator No. 9 - Water

Expert: Mr. Christof Mainz, Senior/First Officer at the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), Germany

Christof Mainz is a civil engineer specialised in the environment and water sector. In May 2017 he commenced working at the Directorate for Water management at the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) in Bonn, Germany.

Prior to his current position, he worked at the European Commission in Brussels (2011-2017) and at the regional Ministry for the Environment in Düsseldorf, North Rhine-Westphalia (1998-2011). While working at the European Commission's Directorate General for the Environment (DG ENV), within the unit responsible for the Marine Environment and Water Industry, his main responsibilities were linked to several EU Water Industry Directives and their relationship with other EU legislation and policy areas, as well as supporting EU actions on innovation in the water sector, such as strategies for water reuse and resource efficiency. Prior to this, he worked in different regional administrations on technical checks and monitoring of urban waste water treatment plants.



Indicator No. 10 - Green Growth & Eco-innovation

Expert: Ms. Zita Dibácsi, Senior Expert, Integrated Sustainable Urban Civil Engineering Planning & Management, UNITEF Engineering, Hungary

Zita works for UNITEF Engineering in Hungary, as a senior expert on integrated sustainable urban civil engineering planning & management. Her responsibilities include feasibility studies, and licensing of projects which significantly contribute to the upgrading and transformation of local and regional development, in line with the long-term strategic plans and policy framework.

She holds a BSc in Environmental Engineering and MSc in Renewable Energy Engineering.

Since 2005, she has dedicated her professional activity to environmental and renewable energy technology. Zita is also passionate about environmental and sustainability issues, as well as climate change mitigation which she follows with interest. She has extensive experience working on international programmes and projects for both private and public organisations.

Throughout her career, she has gained an in-depth understanding of urban & regional planning from different perspectives, such as resource efficiency, waste management, water, noise, air pollution, climate change mitigation and adaptation, and low carbon technologies through integrating renewable energy sources.

Zita has expertise in Green Technologies and Environmental impact assessments [EIA], and holds a full-scale Environmental Expert Licence from the Hungarian Chamber of Engineers for Air Quality, Noise and vibration, Water, and Geological media protection, Waste management.

Since 2013, she has evaluated and reviewed more than 100 research and innovation projects under the FP7, EEA Grants and HORIZON 2020 calls related to Low Carbon/Sustainable projects submitted by public and private entities.



Indicator No. 11 - Energy Performance

Expert: Ms. Vesna Kolega, Independent Consultant, Croatia

Vesna Kolega has 28 years of experience in the field of sustainable energy, particularly sustainable energy urban planning. With 2 years at the Croatian Power Utility Institute, 14 years at Energy Institute Hrvoje Pozar, 8 years at North-west Croatia Regional Energy Agency and most recently 4 years as an independent consultant.



As the member of the Croatian negotiation team for EU access - Chapter 15: Energy and Environment, a key expert to high level advisory support for accession negotiations in Albania, a member of numerous working groups for transposition of EU energy policies, an author of numerous Croatian energy efficiency legislative documents, an author of numerous position papers and different analyses of energy legislation and policies, a project coordinator of multiple international energy efficiency and sustainable energy planning projects, Vesna has developed an in-depth knowledge and experience on the energy situation at Croatian, SEE countries, and EU level.

Vesna obtained her BSc and MSc at the Faculty of Electrical Engineering and Computing, University of Zagreb, Croatia. Throughout her professional career, as an engineer, researcher, projects coordinator, head of different departments, and finally an independent consultant, Vesna has been fully dedicated to sustainable energy and environmental protection as the most important imperative of the 21st century.

Indicator No. 12 - Governance

Expert: Mr. Alex Minshull, Sustainable City and Climate Change Manager, Bristol City Council, United Kingdom

Alex Minshull is based in Bristol, United Kingdom, where he leads Bristol City Council's Innovation and Sustainable City and Climate Change Service. His responsibilities include the City Council's climate change, sustainable development, sustainable food, and air quality programmes.



He studied for his environmental science degree at Southampton University and for his master's degree in the energy and environmental aspects of architecture at the Centre for Alternative Technology.

Alex has worked as a sustainability professional for over 20 years, in the private and public sectors, as well as volunteering with environmental NGOs.

At the Environment Agency (England) he produced integrated river catchment management plans and advised on urban development to achieve environmental protection within the Midlands region of England. In later years at the Environment Agency, and then at Bristol City Council, he implemented new environmental management systems, secured ISO 14001 and Eco Management and Audit Scheme accreditation, and delivered significant improvements in environmental performance of these organisations.

Since 2006 his role has focused on the sustainable development of the city of Bristol and he has managed professionals working on a range of sustainability issues including, urban development, water, food, energy, electric mobility, climate change and air quality. He has worked to create effective partnerships between the city council and other organisations, including universities, businesses and environmental NGO's, bringing together their different capabilities to create a more sustainable city.

He has been involved with the European Green Capital Award since it began. He led Bristol's bids to become European Green Capital, being shortlisted twice and securing the Award for the year of 2015. Alex is passionate about the role of cities in leading the transition to a sustainable world and in cities working

together to accelerate the transition. He has shared the learnings from Bristol with many cities across Europe, and across the globe.