



Expert Panel

Technical Assessment Report

Guimarães

European Green Capital Award  
2020

April 2018

[www.ec.europa.eu/europeangreencapital](http://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 opportunities<sup>1</sup>. However, they are facing ever increasing challenges, with regards to the environment, transport and social cohesion.

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

## 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 twelve priority themes, which are essential 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; Urban Mobility, Circular Economy, Climate Adaptation, Air Quality, Energy Transition and Sustainable Use of Land and Nature-Based Solutions.

Thematic Partnerships representing various governmental levels and stakeholders are the key delivery mechanism within the Urban Agenda for the EU. All the twelve Partnerships, which include cities from across Europe, have been set up in three phases between May 2016 and June 2017. The existing Partnerships have been launched in three steps:

- 'Amsterdam Partnerships': these pilot Partnerships deal with the inclusion of migrants and refugees, affordable housing, air quality, and urban poverty;
- The 'Bratislava Partnerships', launched during 2016, work on circular economy, digital transition, jobs and skills in the local economy, and urban mobility; and

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

- 'Malta Partnerships': established in 2017 comprises Partnerships on climate adaptation, energy transition, responsible and innovative public procurement, and sustainable land use and nature-based solutions.

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.

A European Commission report to the Council published in November 2017 presents the progress of the Urban Agenda for the EU and its Partnerships<sup>2</sup>. The work of the Partnerships is communicated through the 'Futurium' website<sup>3</sup> which enables all those interested to be informed and to give feedback (e.g. on the first drafts of Action Plans proposed by the Partnerships). In February 2018, the Urban Agenda Partnership on Circular Economy published the Draft Action Plan<sup>4</sup> which sets out a series of actions to support the efforts of European cities in the field of circular economy.

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.

## **7<sup>th</sup> Environment Action Programme (EAP)**

The Commission commenced the 7<sup>th</sup> Environment Action Programme (EAP) 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.

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<sup>2</sup> <https://ec.europa.eu/futurium/en/system/files/ged/celex3a52017dc06573aen3atxt.pdf>

<sup>3</sup> <https://ec.europa.eu/futurium/en>

<sup>4</sup> <https://ec.europa.eu/futurium/en/circular-economy/circular-economy-draft-action-plan>

The 7<sup>th</sup> 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**

The European Green Capital Award is the result of an initiative taken by 15 European cities (Tallinn, Helsinki, Riga, Vilnius, Berlin, Warsaw, Madrid, Ljubljana, Prague, Vienna, Kiel, Kotka, Dartford, Tartu & Glasgow) and the Association of Estonian cities on 15 May 2006 in Tallinn, Estonia. Their green vision was translated into a joint Memorandum of Understanding establishing an award to recognise cities that are leading the way with environmentally friendly urban living. The initiative was launched by the European Commission in 2008.

It is important to reward cities which 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. The Award enables cities to inspire each other and share examples of good practices in situ. All winning cities 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;
- 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'.

## **1.1 ANNUAL AWARD PROCESS**

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, and 2019 European Green Capital, Oslo have all been annually awarded. This annual cycle continues on to find the 2020 European Green Capital. The evaluation format was also modified in 2011 in order to streamline the entire process whilst giving the Jury a more significant role in the process.

During the 2016 EGCA cycle, the competition was opened for the first time to applications from cities with a population of over 100,000 inhabitants, as the limit for previous cycles was over

200,000 inhabitants. In addition to this, the competition was opened for the first time to eligible cities from Switzerland. This remained the case for the 2017, 2018, 2019 and 2020 EGCA competition cycles. In June 2014, the 2017 EGCA call opened to over 500 cities from EU Member States and Candidate Countries (Albania, FYROM, Montenegro, Serbia, Turkey); Iceland, Liechtenstein, Norway and Switzerland.

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 (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 shortlisted 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 shortlisted 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 the city to be awarded the title of European Green Capital 2020. The winner will be announced at the EGCA Awards Ceremony in Nijmegen (Netherlands), European Green Capital 2018, on the 21<sup>st</sup> June 2018.

## 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 13 applicant cities, which forms the basis for shortlisting the cities. This is presented per indicator per city for transparency of the overall process.

This report is compiled and edited by RPS, Ireland, acting as Secretariat for the European Green Capital Award.

## 2 TECHNICAL ASSESSMENT PROCEDURE

### 2.1 RULES OF CONTEST

A financial incentive was introduced to the 2020 cycle of the EGCA competition. With the introduction of the financial incentive, Rules of Contest were developed which included rules to ensure a minimum quality standard and to facilitate the screening out of incomplete submissions. The formal requirements for the applicants to follow were set out in the EGCA 2020 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, body and heading (titles) of graphics/images/tables will be included in the word count. These should not exceed 15 words;
- There is a limit of graphics/images/tables to be provided per Indicator Area 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 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 2020 EGC AWARD

A total of 17 cities applied for the 2020 EGC Award, of these, 13 submitted valid applications. Details of the 2020 applicants who submitted valid applications are included in Table 2.1 and Figure 2.1.

All 13 cities evaluated by the Expert Panel are signatories of the Covenant of Mayors Office (CoMO) and 12 of the eligible countries from across Europe are represented. The smallest city by population is Lahti in Finland with a population of 118,743, whereas Budapest in Hungary has the largest population of 1,729,040.

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

No.	City Name	Country	Population
1	Aberdeen	United Kingdom	207,857
2	Budapest	Hungary	1,729,040
3	Bursa	Turkey	1,704,441
4	Ghent	Belgium	259,083
5	Guimarães	Portugal	158,124
6	Lahti	Finland	118,743

No.	City Name	Country	Population
7	Lisbon	Portugal	547,733
8	Ostrava	Czech Republic	301,942
9	Prato	Italy	185,456
10	Reykjavík	Iceland	123,246
11	Seville	Spain	698,042
12	Tallinn	Estonia	411,063
13	Wrocław	Poland	630,131

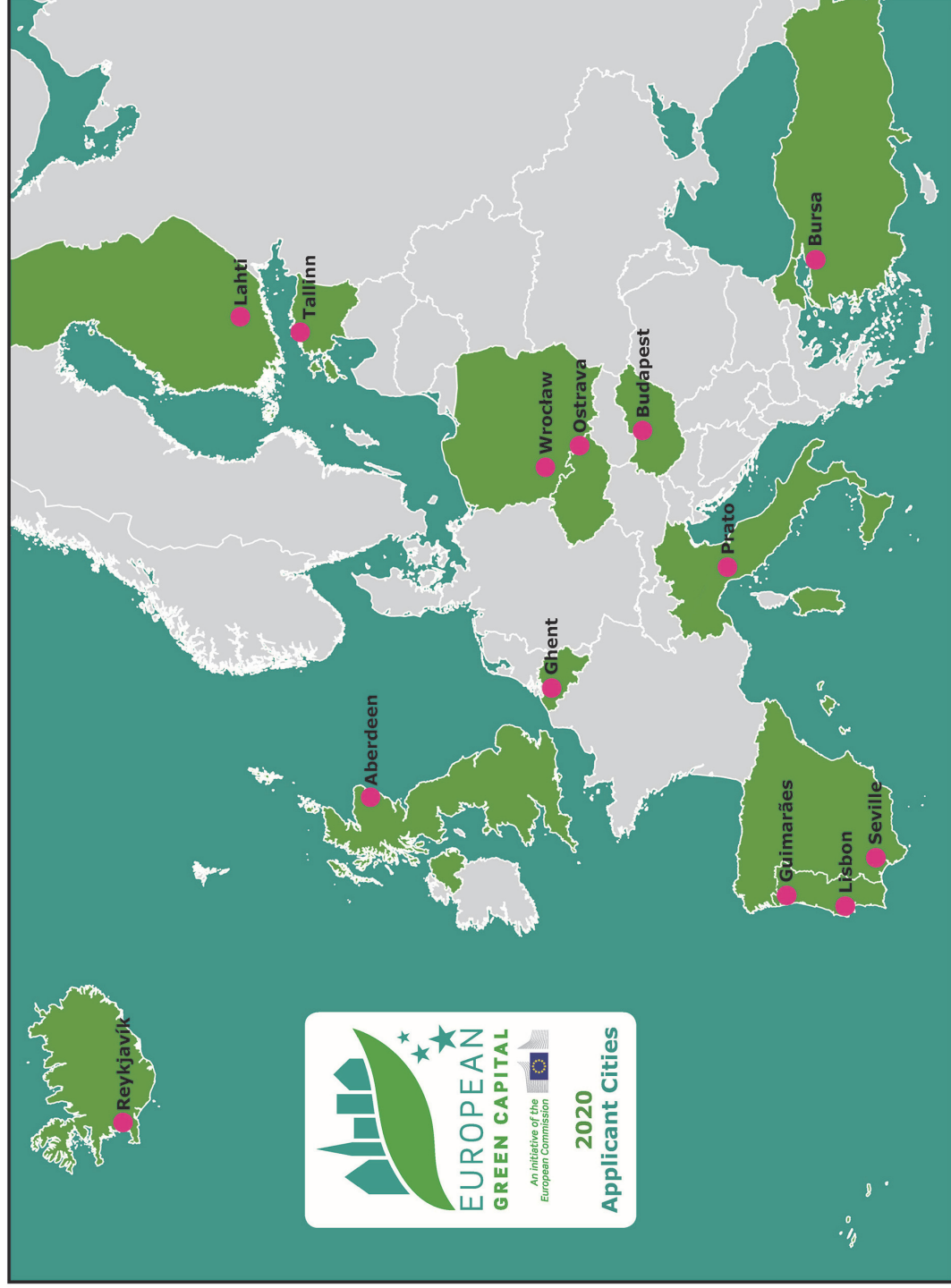


Figure 2.1 - Map of European Green Capital 2020 Applicant Cities

## 2.3 TWELVE ENVIRONMENTAL INDICATORS

The selection of the European Green Capital 2020 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 2020 cycle, some of the 12 indicators have been changed from the previous cycle to incorporate changes to the text content as well as 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 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 was retained for the 2019 and 2020 cycles. Also, 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 2020 cycle. A copy of the 2020 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 cities responses. These revisions were retained for the 2020 cycle. The 2020 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.

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 was retained for the 2017, 2018, 2019 and 2020 EGCA cycles as it is considered to provide valuable insight and context to the Expert Panel. A legislative non-compliance background check of shortlisted cities was also conducted as part of the 2020 award technical assessment.

## 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. Ian Skinner	Director, Transport and Environmental Policy Research, Crowborough, United Kingdom
4	Sustainable Land Use	Dr. Annemieke Smit	Secretary to the Board of Wageningen Environmental Research (part of Wageningen University and Research), The Netherlands
5	Nature and Biodiversity	Mr. David Jamieson	Parks & Green Space Manager, City of Edinburgh Council, and Director, Greenspace Scotland, United Kingdom
6	Air Quality	Mr. Joan Marc Craviotto Arnau	Air Quality Project Manager at Barcelona City Council, Spain
7	Noise	Prof. Dr. Diogo Alarcão	Specialist in Acoustic Engineering. Principal Researcher and Professor at Instituto Superior Técnico University of Lisbon, Portugal & the Polytechnic Institute of Lisbon, Portugal
8	Waste	Mr. Warren Phelan	Technical Director, Waste, Energy & Environment, RPS, Ireland
9	Water	Mr. Christof Mainz	Senior/First Officer at the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), Bonn, Germany
10	Green Growth and Eco-innovation	Mr. Marc Okhuijsen	Co-founder and owner Zonnova BV, Director at RéciProCité, The Netherlands
11	Energy Performance	Prof. Dr. Manfred Fishedick	Vice President of the Wuppertal Institute and Professor at the Schumpeter School of Business and Economics, Wuppertal, Germany
12	Governance	Mr. Alex Minshull	Innovation and Sustainability Service 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. Applications which did not comply with the Rules of Contest were issued to the Commission for confirmation on the findings of the Secretariat regarding their validity. 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 Clarifications & Benchmarking

Due to the introduction of the Rules of Contest and Financial Incentive (see Section 2.1), to ensure a fair and transparent competition process, a clarifications procedure was not undertaken for the 2020 cycle of the competition.

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 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> etc. is applied to each city per indicator. Since there are 13 applications to be evaluated then each city must be ranked from 1<sup>st</sup> as the best to 13<sup>th</sup> 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	Prof. Dr. Manfred Fischedick
2	Climate Change: Adaptation	Ms. Birgit Georgi	Mr. Christof Mainz
3	Sustainable Urban Mobility	Dr. Ian Skinner	Mr. Alex Minshull
4	Sustainable Land Use	Dr. Annemieke Smit	Mr. David Jamieson
5	Nature and Biodiversity	Mr. David Jamieson	Dr. Annemieke Smit
6	Air Quality	Mr. Joan Marc Craviotto Arnau	Prof. Dr. Diogo Alarcão
7	Noise	Prof. Dr. Diogo Alarcão	Mr. Joan Marc Craviotto Arnau
8	Waste	Mr. Warren Phelan	Mr. Marc Okhuijsen
9	Water	Mr. Christof Mainz	Ms. Birgit Georgi
10	Green Growth and Eco-innovation	Mr. Marc Okhuijsen	Mr. Warren Phelan
11	Energy Performance	Prof. Dr. Manfred Fischedick	Dr. Matthew Kennedy
12	Governance	Mr. Alex Minshull	Dr. Ian Skinner

### 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 2020 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 shortlisted cities to identify if any of those shortlisted 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.

### 3 TECHNICAL ASSESSMENT RESULTS

Based on the technical assessment results, the Expert Panel has proposed to shortlist the following three cities (in alphabetical order) for the title of European Green Capital 2020:

**Ghent-Lahti-Lisbon**

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

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

Table 3.1 - Technical Ranking of Shortlisted Cities for European Green Capital Award 2020

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
Ghent	1	1	2	3	4	5	2	1	2	4	1	5
Lahti	10	4	4	6	1	1	1	2	1	2	6	1
Lisbon	6	3	1	1	7	8	6	3	5	1	4	4

### 3.1 GUIMARÃES TECHNICAL ASSESSMENT

Following the technical assessment process, the overall combined ranking of the City of Guimarães 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	Prof. Dr. Manfred Fishedick	7

Guimarães is one of the few cities to present a focus that places the citizen at the centre of municipality. Evidence is presented that documents a two tonne CO<sub>2</sub> reduction per inhabitant from 2008-2017. Good progress on reductions in the energy sector since 2008 (36%), transport (10.6%), public lighting (40%) are also presented.

Further to this, the City has a positive approach to monitoring and verification through the IEMSY platform for monitoring of consumption.

There is a welcome focus on an action plan for sustainable energy around public lighting, PV and building audits, and environmental monitoring of existing actions. The major deficiency, similar to other cities, is the lack of a quantifiable attempt to capture the impact from future measures. Some work on identifying targets across measures with a time horizon would improve the mitigation strategy.

#### 3.1.2 Climate Change: Adaptation

Main Evaluator	Co-evaluator	Ranking
Ms. Birgit Georgi	Mr. Christof Mainz	2

Guimarães has made impressive progress on climate change adaptation action and capacity building in a very short time. The Basis for this success is a systematic and comprehensive approach developed through the project ClimAdaPT-Local (2015-2016), together with 25 other Portuguese municipalities, which the city uses for the follow-up activities. Its methodology ADAM enabled the city to develop a local climate impact profile, in conjunction with a risk matrix was used to prioritise different climate risks in relation to potential needs of adaptation. Accordingly, the relevant adaptation options were systematically identified and evaluated against effectiveness, efficiency, equity, flexibility, legitimacy, urgency, synergies and consistency with other strategic objectives.

The City has already implemented some relevant measures through integrated management of territorial planning, water resources, green areas and biodiversity. Now following its systematic assessment, the City has developed a combined strategy and action plan for climate change adaptation. It defines 28 concrete adaptation options. It foresees a joint approach in terms of mitigation and adaptation to climate change, although it does not describe it in detail (e.g. exemplary measures). To increase the effectiveness of implementation, it plans to implement a City Lab - associated with the Integrated and Strategic Management Office, which will address all

projects and structural or strategic decisions for the municipality ensuring a cross-cutting and multi-disciplinary approach.

Following its systematic approach, Guimarães could elaborate more on other areas than flooding and extreme events, such as heat and droughts. It could further develop its monitoring system to properly measure the effectiveness of the strategy and actions in terms of reduced risk and to adjust them where needed. While the City plans an impressive number of measures, more emphasis could be given to systematic capacity planning in terms of financing, knowledge, staff etc. to ensure the implementation of all that is planned.

### 3.1.3 Sustainable Urban Mobility

Main Evaluator	Co-evaluator	Ranking
Dr. Ian Skinner	Mr. Alex Minshull	8

Guimarães has a SUMP with some good targets, which aims to promote walking, cycling and public transport and to reduce individual motorised transport, which is good. It was mentioned that the City is committed to the plan and its aims; it would be good to know how the citizens were involved in the development of the plan.

There was a statement that mobility and land use are aligned. It would be good to know more about what this means in practice, and how this promotes the use of public transport, cycling and walking.

The City has a good level of public transport use, although not much cycling. The City has put in some measures to facilitate and encourage the use of public transport, cycling and walking. The application lists a range of measures, but it is not clear what some of these are, and whether or not they have been implemented or are planned. It would be good to have a better idea about the range of measures that have been implemented and which are planned.

While there are some measures directly targeting car use, more information on these would be useful.

The City has taken some actions to encourage shared mobility and the use of alternative fuels. It would have been good to have more information on the planned measures to reduce the environmental performance of freight.

### 3.1.4 Sustainable Land Use

Main Evaluator	Co-evaluator	Ranking
Dr. Annemieke Smit	Mr. David Jamieson	11

The general introduction from Guimarães sketches a city with a rich, but industrial past. Both textile and leather industries are infamous for their polluting processes. The introduction also shows a picture of a restored or redeveloped leather factory. However, in this section of the application

there is no mention of previous, on-going or future projects in relation to polluted, or derelict lands from the aforementioned industries (e.g. despite former industrial activities no brownfields are in need of redevelopment). This raises some questions. If there is no problem (anymore) it would be very interesting to know how these problems were resolved and how this city dealt with these issues.

In Section B there is a paragraph on the increase of fallow lands over the past few decades, which is mentioned in Section C in relation to a programme on reviving the rural areas of Guimarães. This provides a very good connection between past and present projects and policies.

The Brigada Verdes may be an interesting way to involve people in greening the city. It is a pity that no part of the application (within the maximum word count) has been devoted to explain more about these Brigadas, how they are organised, who is in charge to keep people committed, or how budget remains secured.

The programme on the recovery of water lines also seems to depend on public participation, mainly because of the privately owned riverside land. In this context the interactive methods to involve citizens, such as providing a manual with good practices and organising explanatory public sessions may benefit from experiences provided by past applicants. In the previous two competition cycles some of the shortlisted cities proposed very nice developments created with citizen engagement. These are available in the Synopsis Technical Assessment Reports on the European Green Capital website.

This City's application uses almost poetic sentences to illustrate the situation in Guimarães. Unfortunately, between those 'pictures' that almost fit in a tourism brochure, a lot of information is not given or only hinted at. The application form consists of a set of questions and all cities have been strongly advised in both the guidance note and applicant workshop to stick to the form and answer the questions. The questions are there to ensure the cities provide information on comparable topics, while it also leaves room to exhibit some extras. Too many subjects were ignored in this application, resulting in a relatively low ranking. For example, in Section B, the first two pages deal with an historic view of the landscape development in Guimarães, which is quite interesting, but doesn't relate to the application form. On the other hand, measures that have been undertaken to improve green infrastructure or to counteract soil sealing, information on investments made and how citizen's participation was organised seems to be missing. This city obviously has some beautiful things going on; however the application is not demonstrating them.

### 3.1.5 Nature & Biodiversity

Main Evaluator	Co-evaluator	Ranking
Mr. David Jamieson	Dr. Annemieke Smit	2

It is encouraging that Guimarães has identified the importance of its urban ecological network. Although the NER and NAR system affords a degree of protection, there remain ample opportunities to strengthen it further by creating additional green spaces of value to nature, and linking these with ecologically-rich green corridors. The proposed analysis of the ecological network will be an important exercise in aiding good decision-making.

The City has a good array of plans and strategies identifying and seeking to protect and manage landscapes, biodiversity and urban green areas, as well as control the spread of invasive non-native species. This is a promising basis for the sustained improvement of local habitats and species and one which merits continued investment of time and resources to ensure plans and policies evolve from paper to practice.

The large number of community projects delivered via BiodiversityGO, PEGADAS, Guimarães mais Floresta, and Brigades Verdes is very impressive. Joining City Nature Challenge 2018 and initiating nature tourism is another encouraging step forward for a city increasingly taking a lead in the engagement of its people with their local natural environment.

The commitment to plant 2,000 trees each year in the urban area is a credit to the City authorities. This will have multiple benefits for nature as well as for present and future generations of Guimarães residents likely to be affected by the deleterious impacts of climate change.

The 'Coffee with Environment' initiative is a simple but effective way to engage with people in a friendly and comforting setting. When this is combined with all the other opportunities to get involved, such as European Environment Week and the EcoParliament, it is obvious that Guimarães recognises that it is people who will create a better future environment, not just the City authorities.

### 3.1.6 Air Quality

Main Evaluator	Co-evaluator	Ranking
Mr. Joan Marc Craviotto Arnau	Prof. Dr. Diogo Alarcão	6

Air quality data is not updated to 2016 but all the information requested in the table is presented. There is only one monitoring station and it is classified as a traffic site. As Guimarães is a relatively small city, having such a small monitoring network is not problematic, but it reduces the quality of the diagnosis. A background site would give more light to the air quality evaluation, however it is appreciated that it is difficult for smaller cities to control and maintain a monitoring network of their own. The concentration levels of PM are very low and fulfil the EU standards. Conversely, the concentration level of NO<sub>2</sub> is high, which suggests that the site is located near a major road.

An emission inventory is presented, which demonstrates that there is a good knowledge of the pollution sources within the city. However, when it comes to contribution to the concentration levels, the analysis is too basic (background - not background) and the application only refers to the central areas of the city as the background, and does not make reference to the regional area. As a result, the information about regional contribution and long-range transport of pollutants is not clear so it is difficult to foresee the wider context of the city with respect to overall pollution abatement. In terms of effective planning it is critical to have an accurate source contribution analysis.

An air quality plan from 2015 is presented. This is the first locally developed air quality plan as previous iterations were developed at regional level. This indicates political will to improve air quality. Several measures of the plan are presented, most of them traffic oriented, but consideration is also given to public awareness.

Referring to the future planning, it seems that the air quality management plan is already contributing to these goals. The application demonstrates the commitment of the City to implement a LEZ. It also considers the improvement of the monitoring system using a mobile station, that will evaluate the air quality of several areas of the municipality, and other measures related to public awareness. No information about future scenario and budget allocation is provided.

The application conveys that Guimarães is an environmentally active city that is enthusiastic about the European Green Capital Award. Their good management of air quality reflects their commitment to the environment within the context of their size and resources. Generally it is the responsibility of a regional or national administration to manage air quality so therefore Guimarães' intention to work collaboratively with respect to monitoring management is positive and denotes environmental awareness.

Overall the application is clear and the information is easily understood. However, the air quality assessment could be improved upon in many aspects. It is positive to see that these opportunities for improvement are already being considered in the future planning.

### 3.1.7 Noise

Main Evaluator	Co-evaluator	Ranking
Prof. Dr. Diogo Alarcão	Mr. Joan Marc Craviotto Arnau	3

Guimarães finished its strategic noise mapping for road, railway and industrial noise sources in 2016. This exercise showed that the main source of noise is derived from road traffic, especially from major roads. Values for the share of population exposed to total  $L_{den} \geq 55$  dB(A) and  $L_{den} \geq 65$  dB(A) are, respectively, 19.5% and 5%, while the share for exposure to total  $L_n \geq 45$  dB(A) is 21.1% and to  $L_n \geq 55$  dB(A) is 5.2%. The situation seems to portray a very good overall quality of the acoustical environment. Trends are provided for the period 2008-2016, showing a slight improvement in the share of noise exposed population. The City states that 92.6% of the population lives within 300 m of generic quiet zones (Portuguese legislation defines them, generically, as all areas not exposed to more than 55 dB(A) of the  $L_{den}$  indicator, and to more than 45 dB(A) of the  $L_n$  indicator). It should be noted that these generic quiet zones cannot be immediately equated to formal quiet areas, but the City has already undertaken work regarding the future adoption of green and urban quiet areas (two identified quiet zones already have certification for environmental quality management), which is very positive.

Acoustic zoning has been carried out to classify 'sensitive' and 'mixed zones' (in line with national legislation), and acoustic conflict zones were identified.

Implemented noise reduction measures such as low noise asphalts in some municipal roads, traffic reduction in the city centre with pedestrian areas and restricted parking, and the relocation of industrial activities to the outskirts, charging stations for e-vehicles, the more intensive use of public transport, and urban planning taking acoustic quality issues into account are underlined as contributing to a better acoustic environment. Overall, stakeholder interaction and involvement by the City are considered to be good.

A Noise Reduction Plan is still under development, but five priority acoustic conflict zones have been identified in the city centre and measures have drawn up to reduce the conflicts. Other envisaged actions worth mentioning include the promotion of soft modes of transportation and the building of 26 km of cycle paths by 2027, the creation of school paths/routes together with the promotion of walking to school, noisy activities limitation and relocation, recreational and entertainment noise management (noise limiters for bars and events) and the formal definition of quiet areas.

The City wants to establish a monitoring system with fixed sensors and one mobile monitoring unit that will be connected to a public information system, allowing real time broadcasting of noise levels, air pollutants and traffic conditions, which is commendable. The monitoring system is also to be employed towards the protection of the quiet areas.

### 3.1.8 Waste

Main Evaluator	Co-evaluator	Ranking
Mr. Warren Phelan	Mr. Marc Okhuijsen	6

The City's response was of good quality particularly for a first time entrant although improvements can be made in future applications. In response to some questions specific details on measures were omitted in favour of an image which often did not provide sufficient details. A better balance between images and descriptions would help.

The City puts an over-focus on mechanical biological treatment (MBT) in describing its waste treatment infrastructure with limited information on the final treatment post this MBT activity. The true disposal rate was not disclosed even though it is clear that landfill is the destination for significant quantities of waste exiting the MBT plant. The application would have benefited from clearer details on this issue.

The City has made steady progress on source separate waste collections which have seen recycling increase. However the collection of organic waste is low by comparison to other cities. An interesting pilot project for collecting food waste is underway and a wider rollout of the scheme is the next step.

The City demonstrates a good level of future targets and policy objectives. Circular economy policy measures are being integrated and a series of interesting projects are underway such as the production of bioplastics, CONSIGO and soil remediation.

The City is implementing and supporting an interesting mix of recycling and prevention, reuse projects such as the flea market, biofuels project, wax to cutlery project and paper for food campaign. These measures show a strong commitment to the upper tiers of the waste management hierarchy.

### 3.1.9 Water

Main Evaluator	Co-evaluator	Ranking
Mr. Christof Mainz	Ms. Birgit Georgi	11

Guimarães describes the present situation with some waste water and water supply statistics. The connection rate to public service is relatively low demonstrating that improvements in the waste water network could be made.

Some relevant basic information in the context of EU water legislation, for example, compliance with the waste water and drinking water legislation is described. Some information on drinking water quality and the impact of combined sewer overflows are provided. However, aspects regarding the Water Framework Directive are completely missing e.g. groundwater situation, surface water quality status, floods. Similarly, there is no mentioned of projects or initiatives that go beyond legal requirements and/or bring visibility to the public such as rainwater measures and unsealing.

The Water Learning Centre is a positive initiative and the application would have been strengthened by providing further detailing other measures.

Past performance is poorly described and focuses primarily on history, starting in 1853. Only a general description of the goals reached is provided and further information would have been beneficial. Unfortunately, the city does not describe implementation of EU legislation.

Future plans are also described with general statements (improve accessibility, optimise water treatment), with no specific goals detailed. The City does not address citizen engagement, rainwater measures or water in the city concept. Measures on water efficiency and tariff measuring are missing with respect to drinking water.

Overall, besides some basic data collection, the application is poor with respect to this indicator and could be improved.

### 3.1.10 Green Growth & Eco-innovation

Main Evaluator	Co-evaluator	Ranking
Mr. Marc Okhuijsen	Mr. Warren Phelan	5

The Application of Guimarães is clear and well structured, the use of data and figures helps to depict the City's aspirations. Some of the figures gave more information than was conveyed through the text. Cross-references to other Indicators were overwhelming, referring to whole Sections, which made it difficult to keep the focus for the assessor, especially when the cross-reference did not lead to sufficient information. Some of the parts of the application were deleted due to word limit exceedances, so not all the cross-references were read by the assessor.

Through the effective use of working groups, collaboration with citizens, staff expertise and attention to detail, the City is able to 'knit together' environmental, social and economic priorities,

giving appropriate attention to heritage, landscape and inhabitants in both the city and the surrounding area, and finding a harmonious balance in both policy and management. However, circular economy is not sufficiently considered. The life cycle of used materials is not a feature of the municipality's overall policy approach. In setting policy targets there is insufficient attention to existing businesses in the city; the focus is mainly on new incubators. In contrast to this however, there is a good level of cooperation with universities and research institutes.

The application demonstrates future targets, policy objectives and a series of projects underway in the Guimarães Green Growth Plan, from awareness building, to innovation warehouse, landscape laboratory and city development.

### 3.1.11 Energy Performance

Main Evaluator	Co-evaluator	Ranking
Prof. Dr. Manfred Fischedick	Dr. Matthew Kennedy	2

Guimarães joined the Covenant of Mayors in 2013 and submitted the Sustainable Energy Action Plan in 2014 with the target to reduce CO<sub>2</sub> emissions by 20% by 2020; the Action Plan includes measures for 2030. According to the Baseline Emission Inventory (2008) and the Monitoring Emission Inventory (2014), Guimarães had already reached and exceeded its target to reduce CO<sub>2</sub> by 20% by 2020 in 2014. This is commendable and should lead to an improved target. Total final energy consumption was reduced by 10% compared to the 20% target.

Guimarães provides detailed information about the present situation and past development. Final energy declined by 12% between 2008 and 2017 which is considered a significant success. However, the share of locally produced renewable electricity instead only slightly increased, which leaves room for further improvement.

Guimarães has undertaken several positive measures, including the rehabilitation of buildings, promotion of electric mobility and a format for school participation (raising funds to invest in energy efficiency measures). Mobilisation and awareness raising of different stakeholder groups has already become an important topic in preparing the application and clearly marks the willingness of the city to cooperate with its citizens.

According to the SECAP, Guimarães aims to reduce energy consumption by 39% and emissions by 42% by 2030. By 2050, the municipality aims to reduce 100% of its emissions. A supply plan is currently being developed to assess opportunities and define a strategy for the local renewable supply of 100% of the municipality's energy needs by 2050. Calculations demonstrate the extent to which sectors are anticipated to contribute to these reduction targets. The budget required is estimated to be €350 million comprising structural funds, cohesion funds and government programmes. Having clear budget numbers is very important to underline the ambition to fulfil the targets, however it is not explicitly explained how the financial resources can be secured for the future.

Further strategies such as the Municipal Strategy for Adaptation to Climate Change and the Sustainable Urban Mobility Plan demonstrate that an integrative approach plays a key role in the city's administration.

### 3.1.12 Governance

Main Evaluator	Co-evaluator	Ranking
Mr. Alex Minshull	Dr. Ian Skinner	2

The City has a vision based on achieving an ‘unrivalled quality of life’ and describes the importance of environmental sustainability and cultural heritage to this goal. To translate this concept into reality the City has created the 2030 Guimarães Sustainable Plan and has secured cross political and multi-agency buy-in to the plan. Unfortunately, the goals of this plan are not clearly presented in the Governance section of the application, and the city could have been clearer in demonstrating in their application how those goals translate into action.

The City has a range of ways of involving citizens in the analysis of problems, decision-making and development of proposals. This includes Participatory Budget, the Eco Youth Parliament, and public participation in the development of the Guimarães Sustainable Plan.

Guimarães has developed a ‘Mission Structure’ for the delivery of its environmental goals through a partnership between City Hall and the University of Minho. The structure includes an External Advisory Committee, composed of prominent individuals recognised internationally in different areas of sustainability; an Advisory Council, composed of 100 representatives of political parties and local associations, schools and Parish Councils; 12 operational units integrating the work of specialists in each European Green Capital Indicator area with Municipal experts; and a Monitoring Committee, created to facilitate political management led by the Municipal Assembly. It has resulted in an action plan for sustainable development, 2015-17 which has been implemented. All political parties and parish councils have taken ownership by signing a declaration of political consensus.

The Governance indicator section describes the philosophy of the City and the principles of how sustainability will be planned and delivered in the city. The application would have been stronger if it had provided a little detail on the objectives other than being ‘more than green’ and ‘Carbon neutral 2050’. Presumably there are some targets in Sustainable Plan 2030, but they are not included in this section of the application.

The General Assembly of the City Council is aware of the bid to be European Green Capital and it is linked to the Mission Structure and its widespread stakeholder engagement, however public and stakeholder involvement and awareness of the bid is not specifically explained in the application.

## **APPENDIX A**

### **APPLICATION FORM FOR THE EUROPEAN GREEN CAPITAL AWARD 2020**

# Application Form for the European Green Capital Award 2020

## City Introduction & 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 also complete the following table:

Indicator		Units	Year of data
Population		Inhabitants	
Area		km <sup>2</sup>	
Population Density		Inh/km <sup>2</sup>	
GDP		€/Capita	
Köppen climate classification			

**(max. 1000 words and five graphics, images or tables)**

# Application Form for the European Green Capital Award 2020

## 1. Climate Change: Mitigation

Refer to Section 2.1 of the Guidance Note

### 1A. Present Situation

Please complete the following table:

	Base Year	Target Year	% Reduction
City reduction targets (add rows if needed for further commitments)			
CO <sub>2</sub> emissions/capita	t CO <sub>2</sub> /inh - Total	Transport t CO <sub>2</sub> /inh	Total (less transport) t CO <sub>2</sub> /inh
Total CO <sub>2</sub> emissions (tonnes) per year		Tonnes	Please insert year of data here
Total CO <sub>2</sub> emissions per MWh electricity consumed		Tonnes	Please insert year of data here

Describe the present situation in relation to CO<sub>2</sub> emissions, including any relevant disadvantages or constraints resulting from historical, geographical and/or socio-economic factors which may have influenced this indicator area.

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 CO<sub>2</sub> 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 CO<sub>2</sub> emissions (tonnes) per year;
2. CO<sub>2</sub> emissions per capita (tonnes) per year;
3. CO<sub>2</sub> emissions per capita (tonnes) resulting from fuel use in transport;
4. CO<sub>2</sub> emissions (tonnes) per MWh electricity consumed;
5. CO<sub>2</sub> 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

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by 2020, adaptation measures set on municipal level).

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

## 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. 1200 words and five graphics, images or tables)**

## 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 arrangements.

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

## 1D. References

List supporting documentation, adding links where possible. Further detail may be requested during the pre-

## Application Form for the European Green Capital Award 2020

selection stage. Documentation should not be forwarded at this stage.

**(max. 400 words)**

## 2. Climate Change: Adaptation

Refer to Section 2.2 of the Guidance Note

### 2A. Present Situation

Mention any target(s) adopted specifically for the municipal administration (e.g. adaptation measures set on municipal level).

Regarding adaptation to climate change, please mention if your city has developed a comprehensive local adaptation strategy and/or integrated adaptation to climate change into existing relevant plans (e.g. if your city has joined or is planning to join the updated 'Covenant of Mayors for Climate and Energy' that has integrated the former Mayors Adapt initiative).

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

### 2B. Past Performance

Describe the overall strategy and action plans for climate change adaptation over the last five to ten years.

Describe the city's approach to adaptation to the impacts of climate change, including details of any analysis / vulnerability studies undertaken, and how the risks identified have been addressed via an adaptation to climate change strategy : action plan for your city.

**(max. 1200 words and five graphics, images or tables)**

### 2C. Future Plans

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 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 arrangements.

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

### 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 this stage.

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(max. 400 words)

## 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:

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:	Car	%	
i) Car;	Public Transport		
ii) Public transport;	Cycling		
iii) Bicycle;	Foot		
iv) Foot; and	Other		
v) Other.			
Proportion of buses operating in the city that are low emission (at least Euro V)		%	

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 for 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:

- Transport infrastructure;
- Vehicle numbers;
- Mobility flows;
- Infrastructure management tools;
- Existing model shares;
- Alternative mobility scheme;
- Use of alternative-fuel vehicles;
- Any disadvantages or constraints of relevance to transport;
- Governance arrangements and responsibilities;

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- Sustainable Urban Mobility Plans (SUMP).

Provide references where possible and relevant details.

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

## 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. This should include both integration between the different modes of transport and also the integration of transport and land use planning in order to avoid unnecessary travel, to limit urban sprawl and to stimulate the use of public transport, cycling and walking. Be explicit about the main principles underlying the development of the plan to demonstrate that it is consistent with a SUMP. Refer to the way in which the city authorities involved stakeholders in the development of these plans, and in the development and implementation of relevant measures.

Describe the **measures** implemented over the last five to ten years. Particular reference should be given to measures 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 cleaner vehicles, freight consolidation and bicycle deliveries;
- Increased use of alternatively-fuelled vehicles, using renewable and sustainable fuels; and
- Spatial planning approaches which have led to more environmentally-friendly transport models.

Comment on which measures have been most effective and lessons learned. Emphasise involvement in and possible benefits from the city's participation in national or European networks and programmes.

**(max. 1200 words and five graphics, images or tables)**

## 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

## Application Form for the European Green Capital Award 2020

**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;
- Increased use of alternatively-fuelled vehicles; and
- Development of alternative mobility schemes.

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

### 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)**

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## 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:

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	Overall City	Unit	Year of Data Provided
Public Green Area			%	
Private Green Area				
(Urban) Agricultural Land				
Blue				
Residential				
Industrial/Economic				
Mixed*				
Brownfield**				
Other***				
<b>Total</b>	<b>100</b>	<b>100</b>		
Population Data	Inner City	Overall City	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 >5000 m <sup>2</sup>			%	

\*Please specify the land use types within the 'mixed land'

\*\*See guidance note for clarification

\*\*\*Please specify 'other'

### Green Urban Areas/Green Infrastructure

1. What types of green urban areas can be found in the city (please refer to the map)?
2. Are green areas connected, and if so, in what way?
3. Why are green urban areas important for the city? What benefits are expected from green urban areas?

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4. What indicators are used to assess the quality of green (and blue) urban areas? What is the quality of the urban green (and blue) areas, according to the indicators used?
5. How is accessibility to green urban areas ensured for all citizens?

### Sustainable Land Use

1. Is there a vision or strategy for sustainable land use?
2. How does the city deal with current and future changes such as economic growth, demographic or climate change integrated in sustainable land use planning?
3. 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)?
4. What is the percentage of sealed surface (with buildings, pavement or otherwise)?
5. Are there any areas allocated for urban agriculture / allotment gardening? If so, to what extent do these areas contribute to supplying the city with resources (food)?

### Maps

- Provide a land use map that indicates a) the municipality boundaries delineating the overall city area and b) the inner city area;
- Provide additional map(s) showing city parks, the scale of 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; and
  - b. Have not been redeveloped (yet).

**(max. 1100 words and five graphics, images or tables plus the three requested maps)**

## **4B. Past Performance**

### Green Urban Areas/Green Infrastructure

1. What measures have been undertaken to increase green infrastructures? (e.g. sustainable urban drainage, green rooftops, vertical gardens, high-quality business parks and public spaces, biodiversity-rich communal gardens, green belts and metropolitan park systems);
2. What investments or policies have been used for promoting the use of green infrastructure? (e.g. tax reductions for green roofs, building permits, funding schemes for green roofs or biodiversity-rich communal gardens);
3. Have those investments or measures been effective or promoted changes in:
  - a. Quality of green (and blue) urban areas? (if so, please show some trends);
  - b. Connectivity of green urban areas; and
  - c. Accessibility of green urban areas.
4. To what extent do green urban areas meet the needs of citizens or have citizens been involved in planning, designing or creating green urban areas?

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## Sustainable Land Use

1. What measures have been taken to minimise the total area of fallow, derelict and contaminated land (brownfields)?
2. How did the city organise (realise) the renovation or regeneration of derelict zones (make reference to involvement of partners, citizens, other cities or governments)?
3. What measures have been taken to minimise the environmental effects of soil sealing? How effective are those measures?
4. What other measures or plans were important for the city in regard to sustainable land use of green urban areas?

**(max. 1200 words and five graphics, images or tables)**

## **4C. Future Plans**

1. What are the short and long term objectives and strategic approaches to the establishment and management (maintenance) of green urban areas (publicly and privately owned)?
2. How are those objectives related to;
  - a. Social benefits of green areas (for people's quality of life, public health and recreation);
  - b. Environmental benefits (regulating water balance, adaptation to weather extremes, filtering air pollution, pesticide risk and use reduction etc.); and
  - c. Economical benefits.
3. What are the short and long term objectives and strategic approaches which address the rehabilitation of brown field sites, derelict and/or contaminated land, both for new development and/or desealing measures for environmental purposes?
4. To what extent are plans supported by commitments and budget allocations?
5. Are there any monitoring and performance evaluation schemes? If so, what criteria will be used to measure progress and impacts?
6. Are there any other future plans concerning Green Urban Areas or Sustainable Land Use worth mentioning?

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

## **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)**

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## 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:

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 <b>national</b> biodiversity importance within the city (habitat/species management areas)			
Number and total area of designated sites of <b>local (city)</b> 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)

### 5B. Past Performance

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

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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. 1200 words and five graphics, images or tables)**

### 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. 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)**

### 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)**

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## 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:

Indicator		Unit	Year of Data
Number of PM <sub>10</sub> monitoring stations		No. of monitoring stations	
For each station provide the number of days per year PM <sub>10</sub> exceeded 50 µg/m <sup>3</sup>		Days	
For each station provide annual average PM <sub>10</sub> concentration		µg/m <sup>3</sup>	
Number of NO <sub>2</sub> monitoring stations		No. of monitoring stations	
For each station provide the number of hours with NO <sub>2</sub> concentrations higher than 120 µg/m <sup>3</sup>		Hours	
For each station provide annual average NO <sub>2</sub> concentration		µg/m <sup>3</sup>	
Number of PM <sub>2.5</sub> monitoring stations		No. of monitoring stations	
For each station provide the annual average PM <sub>2.5</sub> concentration		µg/m <sup>3</sup>	

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 area. Topographical constraints should also be mentioned where relevant. Where available, information/data should be provided from previous years (5-10) to show trends.

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

1. Assess the contribution from local sources and from long-range transport for annual mean concentration of NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>;
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 NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>;
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.

(max. 1000 words and five graphics, images or tables)

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## 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;
2. Local measures taken to improve air quality and quantify their effect on air quality;
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.

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

## 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 effects of proposed measures on air quality.

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)**

## 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)**

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## 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:

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	%	

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 area. Where available, information/data should be provided from previous years (5-10) to show trends.

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)**

### 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;

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3. Communication with citizens;
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).

**(max. 1000 words and five graphics, images or tables)**

## 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;
3. Actions to reduce the impact of noise from roads, railways, industrial areas and air traffic (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 maintain, extend, or improve urban quiet areas;
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)**

## 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)**

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## 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 short explanation and use regional or national data.

Indicator	Type of Data (City/Regional/National)	Unit	Year of Data
Percentage of household waste sent to landfill		%	
Percentage of household waste sent for thermal treatment or similar recovery		%	
Percentage of organic waste collected separately <i>Please indicate what is included within the organic waste collected i.e. food waste only or food and garden waste</i>		%	
Percentage of recycled household waste		%	
Percentage of recycled packaging waste		%	
Percentage of recovered packaging waste		%	
Amount of household waste generated per capita		kg/capita	
Amount of municipal waste generated per capita		kg/capita	

Describe the present situation in relation to waste production and management by responding with details to each of the following questions:

1. Waste strategies or plans in place;
2. Waste prevention measures which reduce food waste, packaging waste and other waste materials;
3. Reuse and/or repair initiatives/partnerships currently in the city (include an example describing the types and quantities of materials reused);
4. Describe current waste collection system, the types of waste collected separately (including organic wastes) and the extent of roll-out (% coverage) of the collection systems;
5. Provide details of the treatment of the separately collected wastes;
6. If thermal treatment operations are in use, describe the scale of the facility, the type of energy recovered, including the energy performance, and the number of households who are part of the facilities energy network;
7. Application of the 'polluter pays' principle, including 'Pay As You Throw' (PAYT) initiatives.

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

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## 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. Historical trends in the amount of household waste produced per capita in the city;
2. Medium to long-term measures/programmes which have promoted waste prevention or recycling;
3. Trends in waste treatment in the city, for example how have rates of recycling, recovery and disposal changed over this period?
4. Evolution of source segregated 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 manage waste including the approach to managing residual waste and progress to date;
7. Use of instruments (economic or regulatory) applied in the city to effect the management of household and or municipal wastes.

**(max. 1000 words and five graphics, images or tables)**

## 8C. Future Plans

Describe the future plans of the city in terms of progressing the management of waste and the transition to a circular economy, which in the context of the waste sector refers to keeping resources within the system through activities such as reuse, repair, refurbishment, and recycling. Your response should include:

1. A description of the short and long term objectives/targets for the management of waste and the approach the city proposes to take to ensure these are achieved;
2. Emphasise to what extent plans are supported by commitments, such as budget allocations;
3. Details of the monitoring and performance evaluations of the waste system;
4. How the city is taking account of EU policy on waste management within the framework of the Circular Economy.

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

## 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)**

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## 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:

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, leakage management and network rehabilitation	%	
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)	%	

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 area, including the situation of your river basin (e.g. if water bodies are in good status, if you are regularly experiencing droughts, scarcity and/or floods and expected future trends). Where available, information/data should be provided from previous years (5-10) to show trends.

Detail the present situation regarding water demand of different sectors and describe plans currently in place to reduce water consumption and to improve water status.

Describe the current general features of waste water treatment according to national requirements and the requirements of the Urban Waste Water Treatment Directive (UWWTD, 91/271/EEC).

Make reference to:

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1. Total water drinking water consumption (in cubic meters/year and litres/capita/year) including a breakdown for different sectors (households, industry, energy, agriculture, small business, tourism, public sector);
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?);
5. Connection to large / small supplies;
6. Water loss in pipelines, leakage management and network rehabilitation; please provide data on total unaccounted water in percentage and whereas available, in specific losses ( $\text{m}^3/\text{km}/\text{day}$ ) and information on leakage management and network rehabilitation;
7. Storm water management (including number of storm water overflows) and use of natural water retention measures ([www.nwrm.eu](http://www.nwrm.eu)) and/or sustainable urban drainage systems (SUDS);
8. Compliance with the Floods Directive and link to the relevant Flood Risk Management Plans;
9. How the links between water and energy consumption (water-energy nexus) (e.g. through pumping, treatment, heating) is taken into account; if available provide data on yearly energy consumption ( $\text{kWh}/\text{m}^3$  of distributed water);
10. Use of 'non-conventional resources' and water recycling initiatives (rain water use and grey water or waste water reuse);
11. 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;
12. The scale of river restoration projects planned - e.g. for resurfacing (lost) rivers, naturalising previous channeled rivers;
13. Projects to reconnect citizens with waterbodies – e.g. creation of wetland parks, cleaning up water quality such that swimming is possible.

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

1. Provide an indication of the fraction (%) of the total annual generated waste water load of the city coming from population and from industry (also specifying type of industry, where information is available);
2. Proportion (%) of total annual 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);
3. 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);
4. Waste water collecting systems: main type of collecting system (combined/separated) and annual proportion (%) of COD-loads discharged via storm water overflows;
5. UWWTPs: organic design capacity (PE), most advanced treatment level, annual incoming and discharged loads (tonnes/year) of  $\text{BOD}_5$ , COD,  $\text{N}_{\text{tot}}$  and  $\text{P}_{\text{tot}}$  and treated waste water amounts

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(m<sup>3</sup>/a) 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;

6. Annual amounts of generated sewage sludge (tonnes/year) and description of treatment/disposal pathways (% of total amount);
7. Provide data on annual energy consumption for waste water treatment in kWh/year/PE, if available. Is an energy management concept available?
8. 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.

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

### 9B. Past Performance

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

On waste water more specifically: if the city is located in an EU Member State special reference should be given to non-expired deadlines for compliance with the UWWTD, when applicable (reference to Accession Treaties or sensitive areas under transitional period). Particular reference should be given to capacity building, measures for maintenance, management and restoration of waste water collecting systems and UWWTPs.

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. Byelaw 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.

**(max. 1200 words and five graphics, images or tables)**

### 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

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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.

Refer to:

1. Improvement/maintenance/management of collecting systems;
2. Improvement of connection to collecting systems (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. Improvement of connection to UWWTPs (inter alia, additional percentage of PE future connections);
5. Improvements of further environmental and economic aspects of waste water treatment (e.g. removal of micropollutants, pollution prevention, energy efficiency at UWWTPs, sludge treatment and disposal, treated waste water re-se, use of integrated constructed wetlands);
6. Measures to improve public participation;
7. Other improvements.

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

### 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)**

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## 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:

Indicator		Unit	Year of Data
Number of electric vehicles owned by the municipality		Number	
Number of electric vehicles owned by the municipality (in % of all cars owned by the municipality)		%	
Number of charging outlets available for cars owned privately		Number	
Number and percentage of procurement contracts that take into consideration green issues, particularly employment and eco-innovation.		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 area. Where available, information/data should be provided from previous years (5-10) to show trends.

Make reference to:

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; new business models (sharing schemes), including actions inspired by circular economy thinking;
2. Awareness raising and training to encourage the development and take-up of environmentally friendly technologies, particularly through training in industrial and business settings. Make reference to the authority launching the initiative as well as its target audience;
3. Efforts to promote green skills, or green jobs;
4. Efforts to promote Green Public Procurement (GPP);
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, clusters and hubs.
7. Share of the city budget dedicated to support environmental R&D (with particular reference to eco-innovation) by public and private entities;
8. Number of jobs created in green sectors in total, as a share of total jobs in the city and as total jobs created during a period of one year;

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9. Share of hybrid or fully electric cars in total stock of vehicles owned by the city. Number of charging outlets available for the cars owned privately.

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

### 10B. Past Performance

Describe the measures implemented over the last five to ten years concerning green growth and eco-innovation. 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 the city level;
3. The publication of reports, such as green accounts, revealing the timely implementation of planned initiatives;
4. Any action which the city is taking 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. 1200 words and five graphics, images or tables)**

### 10C. Future Plans

Describe the future short and long term objectives to promote green growth and eco-innovation 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. 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 of innovation;
3. Participation at green business networks or partnerships and covenants and cooperation with knowledge institutions, such as universities;
4. Programmes to reach the population and industries promoting green economy thinking;
5. Identify the key future plan which is considered as the flagship of eco-innovation in your city.

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

### **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)**

## 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:

Indicator		Unit	Year of Data
Final Energy Consumption		MWh	
Final Energy Use/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 <sup>2</sup>	
Final Energy Usage /Sector			
Agriculture & Fisheries		%	
Industry & Commercial			
Transport			
Domestic			
Services			
Other			
<b>Total</b>	<b>100</b>		

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 area.

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/m<sup>2</sup>) 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, electricity and transport; expressed in kWh, MWh or GWh);
4. The current plan for integration and performance of renewable energy technology in municipal

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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)**

### 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. cogeneration) 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)**

### 11C. Future Plans

Describe the future short and long term objectives for shaping a sustainable energy system and the proposed approach for 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.

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, as well as of the renewable energy mix per se (the percentage of different renewable energy sources). Describe the

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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)**

### 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)**

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## 12. Governance

Refer to Section 2.12 of the Guidance Note

### 12A. Present Situation

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

Indicator	Yes/No	Date From:
Signatory of CoM		
Aalborg Signatory		

#### Vision, Strategy:

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

Is this vision reflected in different strategies and action plans, which include objectives and targets for individual sectors? Please list the most important strategies and plans and indicate their relationship to the overall vision.

Have your vision and the corresponding strategies been endorsed and implemented by the city council? Is there a dedicated budget for implementing the environmental vision?

#### Management, Monitoring and Evaluation:

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 the management structures of your city organised, and what management tools are used, to achieve your environmental objectives and targets? For example management circles, obligatory sustainability impact assessments of policy proposals, project structures, management groups of different departments, skills promotion, periodic evaluations, etc.

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

#### Leadership:

Is the city (administration) leading by example in environmental behaviour? Describe your activities regarding environmental management systems, green public procurement, skills development, etc.

Does your city cooperate with other authorities at different levels or other organisations (regional, national, EU, international) on environmental and sustainability issues? Which of these cooperation 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. Agenda 21,

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Aalborg Commitments, Covenant of Mayors, C40, Climate Alliance, ICLEI, EUROCITIES, etc.).

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

## Involvement of Citizens

Describe your activities and engagement with the different communities within your city with particular attention to youth participation.

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

Please reference any structures/projects/programmes that you have in place i.e. youth council, elderly citizens, disabled, socially deprived citizens; number of activities that were completed with different groups, the reach and objectives/impacts of these activities.

**(max. 1000 words and five graphics, images or tables)**

## **12B. Implementation**

Describe the organisational structure of the city administration and show how the environmental 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.

## Innovative instruments

Does the city use, in its environmental policy, innovative instruments like 'nudges', citizen participation in environmental enforcement, awareness-raising through social media, innovative financing etc.?

Above the level of basic monitoring, do you periodically evaluate the progress of your policies/strategies/projects and do you adopt them according to findings?

**(max. 400 words and five graphics, images or tables)**

## **12C. Future Plans**

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

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

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

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

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### 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)**

## 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; Indicator 12.

Please summarise up to six good practices, in any six different indicators (one of which must show the integrated management approach, mentioned above), that demonstrate how your city is improving its environmental record.

Please identify to which indicator(s) your good practice is relevant.

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

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

Indicator:

### Good Practice 2

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

Indicator:

### Good Practice 3

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

Indicator:

### Good Practice 4

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

Indicator:

### Good Practice 5

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

Indicator:

### Good Practice 6

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

Indicator:

## **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. 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. Ian Skinner, Director of Transport and Environmental Policy Research, Crowborough, London, United Kingdom**

Ian Skinner is an independent researcher and consultant with over 20 years of experience in undertaking research and consultancy projects focusing on the environmental impacts of transport.

His PhD from University College London was on the implementation of sustainable transport policies in South East England and he has also undertaken research at the University of Kent on the marginal cost pricing of transport.



Since his PhD, Ian has worked at the Institute for European Environmental Policy (IEEP) and AEA (now Ricardo-AEA) before co-founding TEPR in 2009. Ian's work focuses on the implementation and evaluation of sustainable transport policies for national and international organisations. Much of Ian's work has been undertaken at the European level for the European Commission, which has involved impact assessments and evaluations of various EU transport and environmental policies.

Ian has also drafted reports for UNEP, WHO and UNECE in the context of THE PEP (Transport, Health and Environment Pan European Programme) on jobs in sustainable transport, the most recent of which was presented at the 'Environment for Europe' Ministerial Conference in Batumi, Georgia in June 2016.

### **Indicator No. 4 - Sustainable Land Use**

**Expert: Dr. Annemieke Smit, Secretary to the Board of Wageningen Environmental Research (part of Wageningen University and Research), The Netherlands**

Annemieke Smit is a Physical Geographer with a PhD in Ecology. In 2001 she started working at Alterra (currently known as Wageningen Environmental Research) with a focus on Sustainable Soil and Land Use. She is an expert on sustainable land use management, both in urban, peri-urban and rural areas. She was one of the core team member of the Dutch Community of Practice CoP Sustainable land use management in spatial planning.



For four years she has been involved in the Alterra Green Cities programme, combining ecological, social and economic knowledge about multiple benefits of Green Infrastructure to the urban public and private stakeholders. As a Senior researcher on Nature Based Solution for Society she specialised in multi-stakeholder projects and is often involved in national input of EU assessments on sustainable development. She was part of the Dutch advisory board for the development of

BREEAM-Community. For the last year, she has been Secretary to the Board of Wageningen Environmental Research.

With a focus on good and clear communication, Annemieke always keeps in mind that experts tend to go deep into the subject, while policy makers or non-scientific partners want to know about the impact of the research on their world, work and options.

#### **Indicator No. 5 - Nature & Biodiversity**

**Expert: Mr. David Jamieson, Parks & Green Space 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.

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 Project Manager at Barcelona City Council, Spain**



Joan Marc Craviotto Arnau is an Air Quality Project Manager in Barcelona City Council, where he has worked since 2009. He has 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.

In his role as Air Quality Project Manager for Barcelona City Council, Joan Marc has gained extensive experience in managing air quality issues at city level. He undertakes air quality assessment and provides technical and policy advice in the field of air quality. He has also contributed to the development and assessment of the city's emission inventory and takes responsibility for the air quality modelling and monitoring for the City of Barcelona. Furthermore, Joan Marc steers the design and implementation of important measures to abate air pollution.

Joan Marc is a key contributor to the air quality public awareness campaign for the City of Barcelona. He 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: Prof. Dr. Diogo Alarcão, Principal Researcher and Professor in the scientific area of Acoustics at Instituto Superior Técnico - University of Lisbon and at the Polytechnic Institute of Lisbon, Portugal**

Diogo studied Physics Engineering and holds a PhD in Acoustics from the University of Lisbon. He is a Chartered Acoustical Engineer, member of the Board of the Portuguese Acoustical Society and a Coordinator of the Executive Commission for the Acoustical Engineering Specialization of Ordem dos Engenheiros.



Diogo has been responsible for major projects in Environmental Acoustics and Noise Control, including Noise Mapping and Action Plans for large urban areas and for large transport infrastructures. He has also been responsible for several projects in the area of Room Acoustics and Virtual Acoustics including real time simulation and auralization of sound fields in enclosures.

#### **Indicator No. 8 - Waste**

**Expert: Mr. Warren Phelan, Technical Director, Waste, Energy & Environment, RPS Group Ltd., Dublin, Ireland**

Warren Phelan is a Technical Director with the Waste, Energy and Environment Section of RPS. Warren is a Chartered Waste Manager and a Chartered Civil Engineer with a Masters degree in Engineering Science from University College Dublin.



He is also a Chartered Waste Manager and a member of the Chartered Institute of Waste Managers. For the last 12 years Warren has specialised in the waste and resource management sector, developing expertise in waste policy and legislation, strategy and planning, data analysis, online resource applications and technical assessments.

Recently Warren served as co-ordinator for the national waste committee set up by the Irish Department of the Environment, Community and Local Government and tasked with completing the evaluation of the regional waste management plans. He has also served as the project manager for the EPA National Waste Statistics Project and the national online reuse website FreeTrade Ireland.

#### **Indicator No. 9 - Water**

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

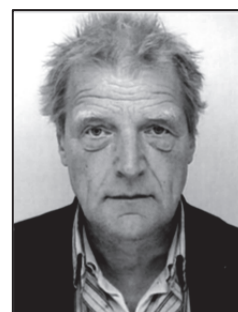


Prior to his current position, he worked at the European Commission in Brussels (2011-2017) and at the regional Ministry for the Environment in Düsseldorf, North Rhine-Westphalia (1998-2011). While working at the European Commission's Directorate General for the Environment (DG ENV), within the unit 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: Mr. Marc Okjuiksen, Co-founder and owner Zonnova BV, Director at Réciprocité, The Netherlands**

Marc is an independent consultant specialising in the application of ecological principles to spatial and energy-related initiatives for urban sustainability, with a specific focus on social relationships between partners from different sectors.



Marc runs his own company, Réciprocité and works with several different consortia, including BOnDS, a cooperative organisation he co-founded in 2013, through which specialist SMEs work together for the sustainable development and resilience of the City of Breda, Netherlands, and its surroundings. With BOnDS Marc developed the largest privately-owned crowd-funded PV solar farm in the Netherlands. Nowadays BOnDS uses its expertise far beyond the city borders.

Marc has extensive experience developing and managing EU funded cooperation projects. These have included projects in the area of water management, suburban and rural land use, Maglev transport systems and social energy cooperatives. The most recent projects support circular economy approaches, involving symbiotic industrial energy systems in business innovation zones and the use of bi-directional shared e-cars in different European cities. With BOnDS, Marc is also an assessor for the Green Destination Award and Quality Coast Award in the south of the Netherlands and for ECOXXI with FEE International.

Marc originally studied Biology and Physical and Social Geography at Fontys University. He started his career at the Dutch Ministry of Agriculture, Nature and Fisheries where he worked in the late 1980s on the creation and implementation of the national and provincial structure plans for the Primary Ecological Networks (EHS and GHS) and then on the integration of urban areas into these major networks.

In 1993 Marc was appointed City Ecologist, City of Breda, later becoming Sustainability Coordinator, Head of the Department of Habitat-Environment and then Senior Strategist - Sustainable City Development until 2014. Whilst at Breda he participated in a 10-year project on the urban regeneration of the Metropolitan Municipality of Ekurhuleni, South Africa, worked for several years with the French Ministère de l'Écologie, de l'Énergie du Développement Durable et de l'Aménagement du Territoire on the specification of the sustainable city in their 'Projet urbain' and was the main speaker at several conferences in Europe on practical approaches for sustainability in cities. Marc has an excellent overview of eco-innovation and green growth in the European context, having supported Breda's commitment to the Aalborg Charter and later initiatives such as the Covenant of Mayors.

### **Indicator No. 11 - Energy Performance**

**Expert: Prof. Dr. Manfred Fischedick, Vice President of the Wuppertal Institute and Professor at the Schumpeter School of Business and Economics, Wuppertal, Germany**



Manfred Fischedick is the Vice President of the Wuppertal Institute, an international well known think tank investigating transformation processes to a sustainable development. With particular reference to the areas of climate, energy, resources and mobility, the institute is looking for technical, infrastructure and social innovations supporting the transition to sustainable structures. Special focus is given on the transition process of the energy system and cities.

Manfred is also leading the research group 'Future Energy and Mobility Structures' of the Wuppertal Institute and is professor at the Schumpeter School of Business and Economics at the University of Wuppertal. He has been working for more than 20 years in the field of energy system analysis (including sustainable urban infrastructure analysis).

He is adviser to the German government as well as the Bundesland of North Rhine-Westphalia, author of various publications and peer reviewed articles. Manfred is coordinating lead author for the IPCC, member of several national and international scientific boards and advisory councils.

Manfred has been intensively working in the context of sustainable urban infrastructures and energy efficient cities. His project experience comprises among others the development of long term concepts for the German cities of Munich and Düsseldorf and the Chinese city of Wuxi.

For the Innovation City Ruhr Bottrop, which is kind of a real-term laboratory in the Ruhr Valley aiming for an emission reduction by 50% between 2010 and 2020 he is leading the scientific accompaniment process. In addition he was appointed as member of the Scientific International Advisory Council of the mayor of the city of Seoul. For the Innovation City Ruhr Bottrop, which is kind of a real-term laboratory in the Ruhr Valley aiming for an emission reduction by 50% between

2010 and 2020 he is leading the scientific accompaniment process. In addition he was appointed as member of the Scientific International Advisory Council of the Mayor of the City of Seoul.

## **Indicator No. 12 - Governance**

**Expert: Mr. Alex Minshull, Innovation and Sustainability Service, Bristol City Council, Bristol, United Kingdom**

Alex Minshull is based in Bristol, United Kingdom, where he leads Bristol City Council's Innovation and Sustainability Service. His responsibilities include the City Council's smart city, climate change 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 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 ISO14001 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.