

# Greens of the European Green Capitals

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**Abstract.** Well established and maintained green areas have a key role on reaching the high quality of life and sustainability in urban environments. Therefore, green areas must be carefully accounted and evaluated in the urban planning affairs. In this context, the European Green Capitals, which attach a great importance to the green areas, have a great potential to act as a role model for both small and big cities in all around the world. These leading cities (chronologically, Stockholm, Hamburg, Vitoria-Gasteiz, Nantes, Copenhagen, Bristol, Ljubljana, Essen and Nijmegen) are inspiring for the other cities which seek to achieve more sustainable and environmentally friendly places through green areas. From this point of view, the aim of this paper was to investigate the green areas of the European Green Capitals. The paper covered whole European Green Capitals, and the application form of each Green Capital was used as a primary data source. Consequently, the paper put forwarded that the European Green Capitals have considerably large amount and high proportion of green areas. Further, these cities provide an excellent access to the public green areas. As a result of abundant provision and proper distribution, the almost all citizens in most of the Green Capitals live within a distance of 300 meters to a green area. For further researches, the paper suggested that these green capitals should be investigated in terms of their efforts, measures, goals and plans, policies and implications to administer, to protect, to enhance and to expand the green areas.

## 1. Introduction

Open green areas are truly essential to the quality and sustainability of life in the cities [1-4] since the well designed and managed open spaces offer multiple sets of benefits pertaining to numerous aspects of daily life. There is a considerable literature indicating these benefits of open spaces. According to Cömertler's [5] review on open and green area benefits, these areas provide basically three sets of benefits: social, environmental, and economic.

As a social space and a vital part of urban landscape, open green areas provide an outdoor room within a neighbourhood, somewhere to relax, and enjoy the urban experience; a venue for a range of different activities, from outdoor eating to street entertainment, from sport and play areas to a venue for civic or political functions, and for walking or sitting-out [4]. It is possible to summarize all the social benefits of green areas as the provision of places for local residents to meet, social inclusion, recreation and education opportunities, reducing crime, creating stable neighbourhoods with strong community pride, and, public's physical and physiological health benefits [5].

On the other hand, one group of benefits is environmental in nature since the green areas perform important environmental functions. These functions are the pollution abatement, moderating the extremes of the urban climate, controlling storm-water runoff, reducing erosion, maintaining biodiversity and provision of wildlife habitat within developed areas, lessening noise, screening



obtrusive views, and improving the aesthetic quality of a city [4-6]. Finally, open spaces serve certain economic benefits. Dunnett et al. [7] divided these benefits into two groups: on-site benefits such as direct employment and revenue generation, and less tangible off-site benefits including increased nearby property prices, economic revitalization through attracting and retaining businesses and residents, and increasing tourism.

Considering their remarkable benefits, green areas must be carefully studied in the urban affairs. Nevertheless, today, in many cities, green areas are threatened by the diverse demands of ever-growing population, urban development pressures, and budget constraints [8]. The result is generally over use and poor maintenance of open areas, and so the less contribution to the quality of urban life and sustainability [5]. On the other hand, the European Green Capitals which attach a great importance to the green areas are ambitious and famous pioneers in protecting and enhancing the green areas. These cities have a high level of environmental consciousness and a high quality of life conditions for their inhabitants. One important factor contributing to the quality of life in Green Capitals is the abundance of green areas and the proximity to parks and other green areas. Consequently, European Green Capitals have a great potential to act as a role model for other cities in all around the world. Learning from these leading cities' best practices will be inspiring for both small and big cities towards achieving more sustainable and environmentally friendly places through green areas.

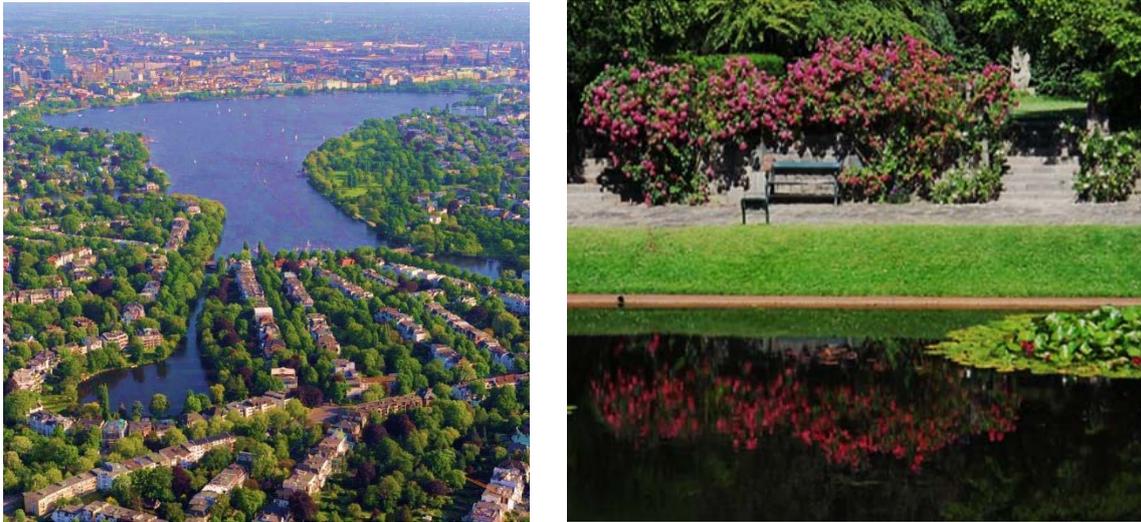
From this point of view, the aim of this paper was to investigate the green areas of the European Green Capitals. The paper covered all the European Green Capitals, holistically. These cities were, chronologically, Stockholm, Hamburg, Vitoria-Gasteiz, Nantes, Copenhagen, Bristol, Ljubljana, Essen and Nijmegen. Green areas of each European Green Capital were studied from the aspects of amount and accessibility since the satisfaction about green areas is closely related to the provision and distribution. These aspects were searched in terms of the present situation in relation to the percentage of citizens living within 300 m from public green areas > 5000 m and public green urban areas of any size; and the total of square metres of public green areas. The required data was obtained mainly from the application form of each city [9-17]. Further, the official reports associated with these Green Capitals were reviewed.

The paper consisted of four main sections. In the first section, the purpose, method and organization of the study were introduced. In the second section, brief information was given about the concept of green capital and the European Green Capitals. The main section of the paper was devoted to the explanation of each Green Capital's green areas. This section was also properly visualized and strengthened with picture and maps. In the last part of the study, the results were put forwarded and the suggestions for further researches were presented.

## **2. European Green Capitals**

The green capital is a brand, a title and a prize. Basically, the message is that the people have a right to live in healthy urban areas. Cities should therefore strive to improve the quality of life of their citizens and reduce their impact on the global environment. This message is brought together in the slogan "Green cities - fit for life". The objectives of European Green Capital Award are to reward cities that have a consistent record of achieving high environmental standards; to encourage cities to commit to ongoing and ambitious goals for further environmental improvement and sustainable development; and to provide a role model to inspire other cities and promote best practices and experience in all other European cities [18].

Stockholm was Europe's first Green Capital in 2010. In the following years, the cities of Hamburg, Vitoria-Gasteiz, Nantes, Copenhagen, Bristol, Ljubljana, Essen and Nijmegen were entitled to receive the European Green Capital award (Figure 1). To date, totally nine cities from eight countries have been rewarded as European Green Capital.



**Figure 1:** Left: Hamburg is one of Europe's greenest cities [19]; Right: One of the most important green areas in Copenhagen, Vestre Cemetery, 2011 [20]

Effort to establish a green system is one of the common features of these green capitals. Other characteristics are sustainable land use composition, green transportation policies and implications, air and water quality, acoustical environmental quality, conservation of natural areas and biodiversity, use of clean energy resources and contemporary infrastructure facilities, eco-innovation and sustainable employment, energy performance and integrated environmental management [21].

### 3. Green areas in European Green Capitals

#### 3.1. Stockholm

In the Stockholm Application Form for European Green Capital Award, it is stated that the green retreats of Stockholm are utilized for recreation, sporting, social events and other open-air activities; the pure lakes and waterways provide unique opportunities for swimming, boating and fishing and the forests in the vicinity of the city and the exceptionally beautiful and unique Stockholm archipelago are all central for the citizens' outdoor life. Apart from their sheer aesthetic values, the green areas of Stockholm also mediate the citizens' health and wellbeing, help to reduce noise, filter the air, and purify the water running through its wetland areas. The green areas provide also the flora and fauna with habitats [9].

In Europe's first Green Capital, the percentage of citizens living within 300 meters of public green areas exceeded 90-95%. This estimate was based on the report Sociotopic Map for parks and other open spaces in the city of Stockholm [22]. Further, according to an ambitious guideline principle of The Stockholm Park Programme, park areas should be present within 200 meters from the residents. In the City of Stockholm, the total size of green areas was 6870 ha, 68 % of city's all land area in the time of application to the Green Capital Award [9] [22-23].

#### 3.2. Hamburg

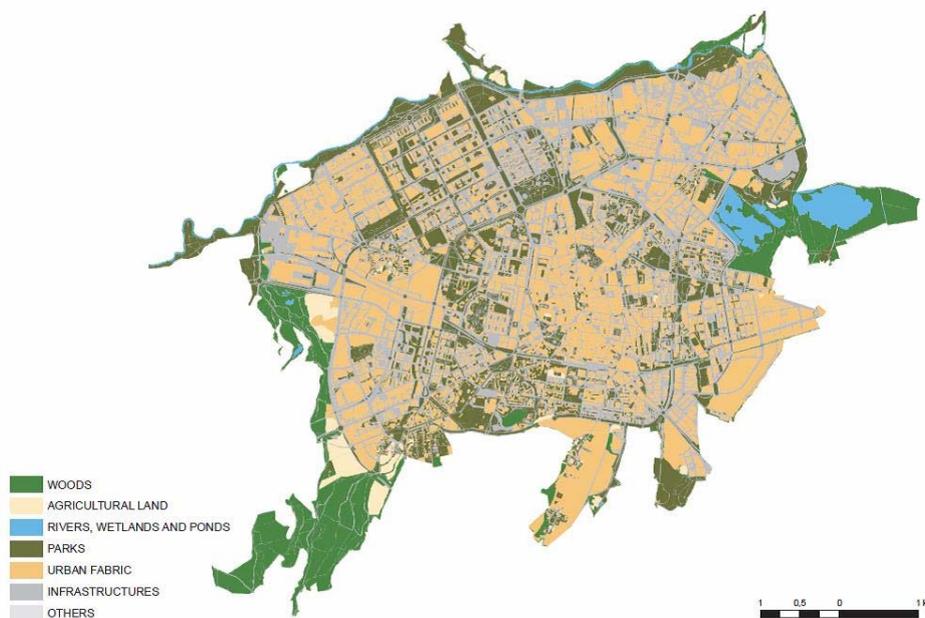
Hamburg is one of the greenest cities in Europe. Hamburg's networked system of open spaces is a comprehensive urban open space concept and a prerequisite for ecological and social development of the city as well as for maintenance of the city's unique structural qualities in terms of natural landscape. Radial landscape axes and the two tangential green rings form the principal structural elements of the open space network. This basis is supplemented by recreational hubs serving half-day and all-day recreation: district parks, regional parks and local recreation areas. In order to sufficiently provide the population with green and open areas for leisure, sport and recreation within an

appropriate distance of residential areas, the landscape axes and green rings are complimented with a compact open area structure comprising individual spaces such as parks, playgrounds, sports fields and allotments. These individual areas are interlinked with each other as well as with the landscapes axes and green rings via a network of green corridors and paths [10].

According to Hamburg's application data, 1,541,823 inhabitants, or approximately 89% of Hamburg's population, live within a maximum distance of 300 metres from a park. Hamburg has a total area of 75,524 ha and, with 6,800 ha of public green areas (9% of total area). Apart from public green areas, Hamburg has 29 nature reserves and 4,400 ha of forestry. Regional forestry in Hamburg is classed as recreational woodland and can be used by everyone for recreational purposes. Further, the number of trees in Hamburg's private gardens has been estimated to be at least 500,000 trees [10].

### 3.3. Vitoria-Gasteiz

Vitoria-Gasteiz has hundreds of green areas of different sizes and shapes, ranging from large parks to small gardens as seen in figure 2. These areas form a complex and unique urban biodiversity resource. In Vitoria-Gasteiz, parks are conceived as urban gardens designed for public use. The distribution of green areas around the city is relatively uniform. In the City of Vitoria-Gasteiz, the creation of excessively large green areas has been avoided with the exception of the Green Belt parks [11] [24].



**Figure 2:** Land-use map of Vitoria-Gasteiz [11]

Nearly 100% of the population in Vitoria-Gasteiz live within 300 m of open and green spaces. The city has 1,091ha of public green areas (32.67% of the city's urban area). Such a green network extends over the entire city and interconnects an excellent offer of gardens, parks, avenues, boulevards and plazas, linking these to the Green Belt and the surrounding countryside. Further, the city has 33 km of urban footpaths. Each urban footpath connects the urban parks and the Green Belt. In the Green Belt itself there are almost 91 km of pedestrian and cycling itineraries that cross the different parks and connect the green areas to each other. [11].

### 3.4. Nantes

The city of Nantes is very green (Figure 3). There are an estimated 100,000 trees, which gives an idea of the size of an urban forest. In the City of Nantes, the percentage of citizens living within a 300 m

perimeter around a green space has been 100% since 1999, and has not decreased. The inhabitants of all of the municipalities of the cities of Nantes benefit from 3,366 ha of green space, a ratio of 57 m<sup>2</sup> of green spaces per inhabitant, that is, 6% of the agglomeration's surface area (53,491 ha). Even, the inner city centre has 37 m<sup>2</sup> of public green space per inhabitant [12] [25-26].



**Figure 3:** Green spaces in Nantes [12]

### 3.5. Copenhagen

The Copenhagen green areas comprise all publicly accessible green areas within the municipal border. Green areas include garden facilities, parks, nature areas, small parks and areas, sports facilities, allotments and cemeteries. Fresh watercourses and lakes situated in green areas are also included [13].



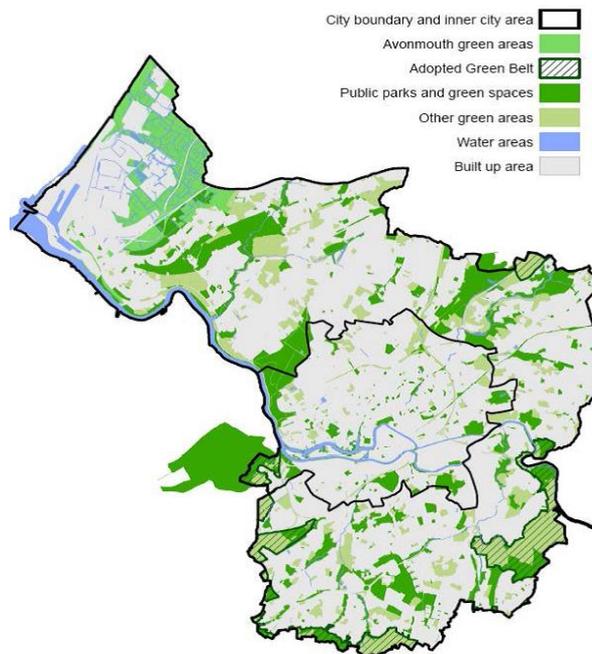
**Figure 4:** Green areas in Copenhagen [13]

Minimum 80% of Copenhageners live within a distance of 300 metres to a green area. Within the municipal border, about 2260 hectares of green areas with public access, of which 200 hectares are lakes and aquatic areas, were registered. The City of Copenhagen also has about 92 km of coastline

and 14.7 km of open watercourses. The city's green areas represent about 25% of the city's overall area and on average, each Copenhagener has 42.4 m<sup>2</sup> of green area at his or her disposal [13] [27].

### 3.6. Bristol

Bristol City Council manages a diverse range of parks and green spaces, which support wildlife, recreation and environmental balance throughout the urban area (Figure 5).

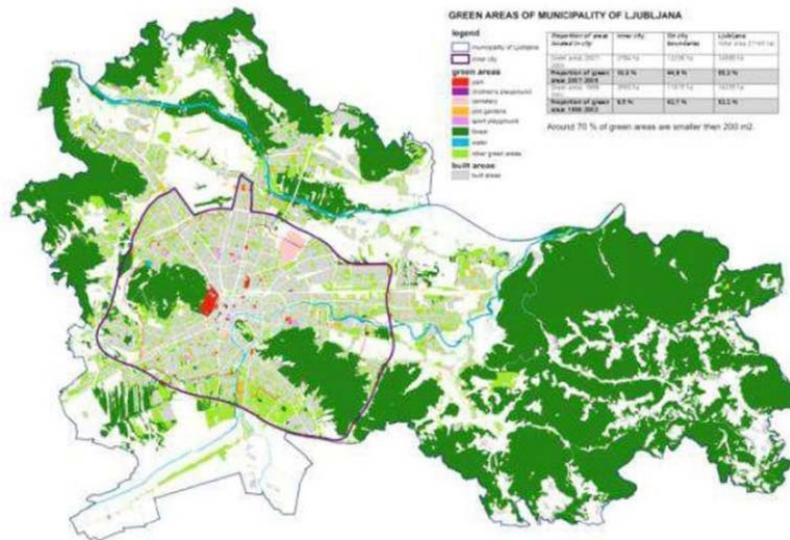


**Figure 5:** Green and built up areas in Bristol [14]

Bristol provides excellent access to public green areas that 88% of residents live within a distance of 300m to a green space. Inner-city access to larger green areas is slightly less due to compact development and high land values. Green and blue areas cover almost a third of the Bristol City Council area, including 1,600 hectares of public parks and green spaces. The inner city has a similar proportion of public parks and water areas to the rest of Bristol. The proportion of private green areas is smaller due to compact development. The amount of green areas in Bristol has remained relatively stable over the last 10 years [14].

### 3.7. Ljubljana

Ljubljana has a distinctly green identity. The Municipal spatial plan (Figure 6) shows that green areas make up nearly three quarters of the entire territory of the City of Ljubljana. The high proportion of green areas is linked primarily to the hilly, marshy and aquatic natural hinterland of the city, an area that was historically less attractive for construction and urban development. Almost 81% of all green areas lie in the city hinterland (contiguous aquatic, forest and agricultural areas) which extend right into the historical city centre via green wedges and riparian corridors. The other green areas (19%) are in the compact city, where their presence is even more important in terms of quality of life, such as: gardens, parks, playgrounds, green areas between apartment buildings etc. Green areas are evenly distributed across the entire city: all parks lie within the extended city centre, while playgrounds and playing fields are adjacent to residential areas [15].



**Figure 6:** Green areas of Municipality of Ljubljana [15]

In Ljubljana, almost all the residential areas lie within a 300 m radius from public green spaces. The city has almost 560 m<sup>2</sup> of green area per inhabitant. Even, in the compact city Ljubljana has 106 m<sup>2</sup> of green area per inhabitant. The size of the dedicated green areas in the city differs greatly, with children's playgrounds and playing fields ranging from 10m<sup>2</sup> to more than 2 ha, grassy areas ranging from 1m<sup>2</sup> to 30 ha and forest areas from 100 m<sup>2</sup> to 500 ha in the hinterland [15].

### 3.8. Essen

With over 60,000 trees on the streets, Essen is the third-greenest major city in Germany. Essen's early green concepts dated back to the first half of the 20th century. Starting from individual historical garden complexes, and the purchase and opening of the first public parks, plans for a municipal green area system were developed as early as 1927. Nevertheless, the holistic orientation of green policy towards sustainable urban development, growth and employment began in the early 1970s. In the new millennium, a new phase in relation to green areas began that has been networking throughout the city and sustainable environmental improvement. Presently, the development of green areas is the motor for urban development in the city.

The City of Essen maintains 718 green areas, 436 playgrounds and around 1750 ha of woodland, as well as 80 sports facilities. The 23 municipal cemeteries also fulfil a variety of social, cultural and ecological functions. Further, the Green Open Space Network offers recreation, nature, sport and leisure options, away from road traffic. At the same time, the action plan makes an efficient contribution to climate change adaptation [16].

Almost all residents in the City of Essen (> 99%) can find a public green area within 300 metres of their residence. Around 95% of the population lives no more than 300m from public municipal green areas with areas larger than 5,000 m<sup>2</sup> in size. Green areas and open spaces account for 53% of the city area. In the densely built-up inner-city area, the proportion of green areas is only 10.2%; however, private gardens, green buffer zones and residential gardens create a proportion of greenery that is significantly higher [16].



**Figure 7:** Green main routes, Essen [16]

### 3.9. Nijmegen

Since 2003, Nijmegen has been adopting the following norms: 1.5 play area/100 children up to the age of 12, one play area/100 children aged 12-18. Design and management of play areas are in accordance with stringent legislation. Design of play areas, but also spaces for youngsters and senior citizens takes place in close consultation with target groups [17].

All residents in the City of Nijmegen can find a public green area within 300 metres of their residence. And, it is like in Essen, almost all residents (96% of the population) lives no more than 300m from public municipal green areas with areas larger than 5,000 m<sup>2</sup> in size. Public green areas cover % 24.8 of the city. Nantes benefits a ratio of 40 m<sup>2</sup> of green spaces per inhabitant [17].

## 4. Results and discussions

In this paper, green areas of whole European Green Capitals have been investigated by using first-hand data obtained from Green Capitals' application forms. Consequently, the examination has shown that these cities - Stockholm, Hamburg, Vitoria-Gasteiz, Nantes, Copenhagen, Bristol, Ljubljana, Essen and Nijmegen - have demonstrated a strong performance associated with green areas that they are characterised with green. Even, the development of green areas is seen as the motor for urban development. In the European Green Capitals, the green areas are conceived as urban gardens designed for public use. They are utilized for recreation, sporting, social events and other open-air activities. Apart from their aesthetic values, the green areas also mediate the citizens' health and wellbeing. They help to reduce noise, filter the air, purify the water, and provide the flora and fauna.

Satisfaction about green is closely related to the spread, quality and quantity of provisions. In this context, Green Capitals demonstrates a remarkable performance. They have hundreds of green areas of different sizes and shapes, ranging from large parks to small gardens, from district parks to regional parks, from cemeteries to allotments and recreational areas. Apart from public green areas, they have

nature reserves and forests. To sum, Green Capitals have considerably diverse range, large amount and high proportion of green areas, and these cities provide an excellent access to the public green areas. As a result of abundant provision and proper distribution, the almost all citizens in most of the Green Capitals live within a distance of 300 meters to a green area. Further, it has been traced that there are some admirable efforts to enhance the existing situation such as in the case of Stockholm Park Programme, which states that park areas should be present within 200 meters from the residents. Moreover, in order to sufficiently provide the population with green areas within an appropriate distance of residential areas, the landscape axes, green paths and rings are utilized in Green Capitals.

These findings support the literature on green areas and quality of life and sustainability. Nevertheless, it should be noted that, actually, there are more lessons to be gained from the experiences of the greenest cities of Europe. For further researches, European Green Capitals should be investigated in terms of their efforts, various measures for short and long terms, established goals and future plans, policies and implications to administer, to protect, to enhance and to expand the green areas. By studying these leading cities' best practices and policies, it will be possible that the better understanding of how cities could achieve more sustainable and environmentally friendly places through well-established and managed green areas.

## References

- [1] European Commission, "Making our cities attractive and sustainable", European Union Publications, Belgium, 2010
- [2] A. Chiesura, "The role of urban parks for the sustainable city", *Landscape and Urban Planning*, Vol: 68 (1), pp. 129-138, 2004
- [3] P. Harnik, "The excellent city park system, what makes it great and how to get there", The Trust for Public Land Publication, San Francisco, 2003
- [4] C. W. Thompson "Urban open space in the 21st century", *Landscape and Urban Planning*, Vol: 60 (2), pp. 59-72, 2002
- [5] S. Cömertler, "The role of open spaces on the attractiveness and quality of urban life" (Rola terenow otwartych w podnoszeniu atrakcyjnosci i jakosci zycia miejskiego). *Czasopismo Techniczne*. Wydawnictwo Politechniki Krakowskiej, Krakow, Poland, pp. 25-34, 2007
- [6] M. Laurie "An Introduction to Landscape Architecture", Prentice Hall Press, 1986
- [7] N. Dunnett, C. Swanwick, H. Woolley, "Improving urban parks, play areas and green spaces", Urban Research Report, Department for Transport, Local Government and the Regions Publication, U.K., 2002
- [8] L. Tyrvaïnen and A. Miettinen "Property Prices and Urban Forest Amenities", *Journal of Environmental Economics and Management*, Vol: 39 (2), pp. 205-223, 2000
- [9] The City of Stockholm, "Stockholm application for European Green Capital Award", [<http://ec.europa.eu/environment/europeangreencapital/winning-cities/2010-stockholm/>] pp. 23-27
- [10] The City of Hamburg, "Hamburg application for European Green Capital Award", [<http://ec.europa.eu/environment/europeangreencapital/winning-cities/2011-hamburg/>] Part 3, pp. 1-3
- [11] The City of Vitoria-Gasteiz, "European Green Capital Award 2012-2013 Vitoria-Gasteiz", [<http://ec.europa.eu/environment/europeangreencapital/winning-cities/2012-vitoria-gasteiz/>] pp. 33-38
- [12] The City of Nantes, "Nantes application for European Green Capital Award", [<http://ec.europa.eu/environment/europeangreencapital/winning-cities/2013-nantes/>] Chap3, pp. 40-44
- [13] The City of Copenhagen, "Copenhagen application for European Green Capital Award", [<http://ec.europa.eu/environment/europeangreencapital/winning-cities/2014-copenhagen/>] Section-3, pp. 1-2
- [14] The City of Bristol, "Bristol application for European Green Capital Award", [<http://ec.europa.eu/environmenteuropeangreencapital/winning-cities/2015-bristol/>] Indicator-3, pp. 1-11
- [15] The City of Ljubljana, "Ljubljana application for European Green Capital Award", [<http://ec.europa.eu/environmenteuropeangreencapital/winning-cities/2015-ljubljana/>]

- ropa.eu/environment/europeangreencapital/winning-cities/2016-ljubljana/] Indicator3, pp.1-4
- [16] The City of Essen, “Essen application for European Green Capital Award”, [<http://ec.europa.eu/environment/europeangreencapital/winning-cities/2017-essen/>] Part-3, pp. 1-20
- [17] The City of Nijmegen, “Nijmegen application for European Green Capital Award”, [<http://ec.europa.eu/environment/europeangreencapital/winning-cities/2018-nijmegen/>] Indicator-3, pp. 1-6
- [18] European Green Capital, “FAQ” [<http://ec.europa.eu/environment/europeangreencapital/about-the-award/faqs/>]
- [19] European Commission, “Hamburg European Green Capital 2011”, European Union Publications, Belgium, pp. 12, 2011
- [20] S. Cömertler, “Documentary Urban Photos Collection”, 1992-2017
- [21] S. Cömertler, “2010-2018 European Green Capitals”, Uşak University, *Journal of Science and Nature*, Vol. 1, to be published, ISSN 2149-262X, 2017
- [22] “Sociotopic Map for parks and other open spaces in the city of Stockholm - method, dialogue and results” [<http://www.stockholm.se/TrafikStadsplanering/Stadsplanering/Gronstrukturplanering/Sociotopkarta/>]
- [23] European Commission, “Stockholm European Green Capital 2010”, European Union Publications, Belgium, 2010
- [24] European Commission, “Vitoria - Gasteiz European Green Capital 2012”, European Union Publications, Belgium, 2012
- [25] European Commission, “Nantes European Green Capital 2013”, European Union Publications, Belgium, 2012.
- [26] “Landscapes and cityscapes in the City of Nantes. From the existing situation to the Landscape Plan” [[http://www.cmaintenant.eu/files/file/Plan\\_de\\_paysage\\_synthese\\_Avril\\_2010.pdf](http://www.cmaintenant.eu/files/file/Plan_de_paysage_synthese_Avril_2010.pdf)]
- [27] European Commission, “Copenhagen European Green Capital 2014”, European Union Publications, Belgium, 2013