Green Innovation in Urban Scale: Activation of Small Cities through Horticultural Exhibitions in Berlin/Brandenburg Metropolitan Region

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Abstract. Garden exhibitions in Germany are organizing urban structures for almost 70 years. Their special formula is premised on choosing degraded areas in different cities. The open-air garden exhibition is open to public for 5-6 months. Then the area is turned into multifunctional leisure park with various sport and cultural facilities. The paper main objective is to analyze the impact of BUGA (abbrev. Bundesgartenschau) garden exhibition on medium and small urban structures. Analyzed cities: Brandenburg an der Havel, Premnitz, Rathenow and Havelberg are located within 85 km radius from the German capital - Berlin. With almost 4 million inhabitants it is a main city of Berlin/Brandenburg Metropolitan Region, inhabited by over 6 million people. Analyzed settlements are located in the Havelland region on western extremities of the metropolitan area. They were hosts of first fully decentralized BUGA (Federal Garden Exhibition) 2015 horticultural exhibition, held at the same time in five venues. Analyzed settlements have population varying from 70 thousands (Brandenburg an der Havel) to 6,6 thousands (Havelberg). They have subsequently different significance in territorial development. However, in the shadow of great European metropolises they are facing very similar socio-economical problems, reflecting urban structure. These settlements, subject to emigration, were gradually degrading. The BUGA 2015 horticultural exhibition was meant to give the new impulse for these settlements. The main objective of the exhibition was to create new positive image of these places by investments in degraded, but still important for local society, public spaces. In general, it was an event promoting the whole trail linking the cities in the Havel River Valley. Each stop, the city or village had different genius loci highlighted and reflected by both revitalized and new structures. Horticultural exhibitions are widely recognized media-events in Germany. Therefore, they function as a travel magnet. They also educate the society not only in terms of horticultural novelties and landscape architecture latest trends, but also in wider aspects like ecological and aesthetic awareness. In decentralized form of the hiking trail, like in Havel River Valley it promotes the whole region. The tradition and spirit of the place become real in festival-related constructed environment. For municipality it is an honour to be a host city of the exhibition. Many local companies are usually involved in the whole process of preparations and promoted during the festival. All this builds and strengthens the cultural identity of the local society. Local society involvement is very important in terms of nurturing cultural distinctiveness, which is one of the main elements driving cultural tourism. Also increased tourist traffic promotes local businesses. The festival as an impulse, forces improvement of municipalities weaknesses e.g. collective transport and infrastructure, which enables further development of tourism and associated services.
1. Introduction
Small and medium cities (up to 100,000 inhabitants) as a basic element of centuries-old settlement structure in Europe, have major cultural and historical importance [14, 24]. Currently they are facing many socio-economic changes. They lose their local identity as a result of disturbed tradition and intangible heritage passing (caused by constant migrations, lack of linkage with 'the land', rising retirement age and less and less contact with grandparents). All these conditions reflect in new landscape patterns - suburban areas extension, increase of the metropolises importance, depopulation of small and medium cities, especially their centers.

Nowadays great metropolises function as a giant cultural magnet, luring new inhabitants with wide variety of employment possibilities, especially in tertiary sector. However, with rising interest in cultural tourism, the cultural landscape could be the driving force of further development of small and medium cities in various aspects. BUGA and IGA (Internationale Gartenschau Ausstellung - International Garden Exhibition) exhibitions are designed to emphasize and reinvigorate the local identity or even create new elements that can be identified with. They can be classified as urban regeneration instrument [13, 22] as they introduce new, high quality public spaces. Diverse benefits of introducing greenery in cityscape cannot be underestimated in terms of air and water purification [10]. Spending time in the green space has especially positive influence on children [23]. The high diversity and accessibility of green spaces is thought to have positive influence on the society [21]. Moreover, the park in a small city is considered as a local tourist attraction and element of identity [27].

Horticultural exhibitions seem to have significant influence on activation of smaller urban settlements [12, 22]. The main objective of the paper is to analyze the impact of BUGA 2015 on 4 urban structures: Brandenburg an der Havel, Rathenow, Premintz and Havelberg. Along with Rhinow/Stölln - a small village of 1,600 inhabitants) they created BUGA 2015 trail that cherished the common location by the river Havel [11]. BUGA and IGA exhibitions often introduce innovative design and new technologies in the landscape [14].

2. In the shadow of a giant - small cities in Berlin-Brandenburg metropolitan region
The Berlin-Brandenburg metropolitan region comprises of two states (Ger. Land): Brandenburg and Berlin. The metropolis, Germany capital is inhabited by 3.6 millions of residents (within Land borders), with population density reaching 4012 people per km². The number of inhabitants is constantly increasing for last 25 years. The Berlin agglomeration (Ger. Berlin Umland) administratively belonging to Brandenburg Land is inhabited by another 1 million of inhabitants. Brandenburg Land area without Berlin agglomeration is inhabited by 1.5 millions of people with population density of 57 people per km² [29]. The Berlin domination as a metropolis is evident, it is defined as a 'growth pole of the region' [15]. Therefore, one of the main purposes of Landesentwicklungprogramm (abbrev. LEPro 2007 - State Development Program) is to support sustainable, polycentric development of the whole metropolitan area. It's structure, like other metropolitan areas reflects many contemporary phenomena like globalisation, development of communication technology, suburbanization, network connections between cities, car transport domination, centrality crisis [17], as well as European integration [15]. The metropolitan region and its transportation system illustrates Figure 1a, 1b.

2.1. The Brandenburg country landscape - history and present day
The landscape of Berlin-Brandenburg is a result of centuries of interactions between nature and man-made interventions. The natural landscape is rather attractive, shaped mostly during glacial period with broad river valleys and numerous lakes. The open cultural landscapes of Brandenburg region were often shaped by historical city parks and gardens or alleys and avenues leading to palaces and mansions. The importance of this 'soft', non-built-up landscapes should not be underestimated, as they are common throughout the Brandenburg region. To the most famous cultural landscapes of this type

\(^{1}\) after Z. Zuziak
belongs 'Potsdam cultural landscape' on the UNESCO World Heritage List. Special features of these areas should be protected, however their maintenance is often expensive. Therefore, the development of cultural tourism seems to be more and more important [1]. The specific socio-economic situation of Brandenburg Province is related mainly to reunification of Germany. It is worth mentioning that Berlin and Brandenburg since Middle Ages were one region, separated in 1881 [15]. In socialist investments often universal design approach was used, which sometimes led to gradual obliteration of individual character of urban structures [25]. The Eastern Germany have faced many changes during the transformation period, especially in terms of demography and economy, which eventually caused structural and functional changes. The social erosion and depopulation were particularly visible in smaller towns. The switch from socialist to market economy, from manufacturing to knowledge-based industry was particularly hard due to external economic domination of West German and West European entities [15].

The population is constantly ageing, which is particularly visible in the peripheral area, far from the core city. Remote, small cities are suffering from constant reflux of young, active people. According to Kujath the emigration and economic decline may lead to collapse of historical settlement structure. Medium and small cities are likely to lose their centuries-old importance as service supply base for surrounding rural areas [15]. In Brandenburg regional planning documents small cities are recognized as important elements of the cultural landscape, that should be preserved in its diversity. However, the constant growth of Berlin agglomeration (mainly due to immigration) leads to further pressure on open-landscape and development of suburban areas while the peripheral rural areas are subject to depopulation [1]. According to latest research the development of remote communication methods may inhibit or even reverse the deflux of small cities inhabitants. With further changes to information society the distance to workplace would no longer be the key-factor of choosing the place of residence. More importance will gain such factors as calm neighbourhood, green areas proximity or friendly community [4].

Brandenburg State Plan support innovative, sustainable and integrated approach in economy of rural areas, using new technologies and renewable resources. Profitable ventures within rural landscape enable further development of small cities and villages, supports community life and enhances the attachment to the land, eventually helping with preservations of cultural landscape. The eco-friendly space and resource use in rural areas should shape the new cultural landscape and eventually become its vital part [1], the ecological dimension of region image.

![Figure 1a, 1b. BUGA 2015 locations in Havelland district against: 1a Berlin-Brandenburg metropolitan region and 1b its’ transportation system. By A. Wójcik-Popek, 2018](image-url)
2.2. Modern ecological approach in development of cities in Germany

According to overview of Urban Development and Urban Policy in Germany in last 20 years the approach towards non-built-up areas has changed in Germany. 'They have become important elements of urban and regional planning' and have been recognized as important part of city structure complementing and supplementing the developed areas. Both their ecological and recreational functions are highlighted. Also their legal protection is becoming more and more important as a mean of limiting the urban sprawl and forming urban-rural border. The importance of non-built-up areas has lead to various practices of re-use of brownfields and other degraded areas [3]. As the demand for recreational landscapes is constantly increasing [1], the improvement of open areas gains significance.

The most famous example of complex plan for re-use of post-industrial area in Germany is Emscher Landscape Park in metropolitan region Rhein-Ruhr. 'Within the course of an international building exhibition (IBA), a comprehensive regional concept for open areas was promoted in an old industrialised and densely settled area' [3]. Also BUGA and LAGA exhibitions (abbrev. Landesgartenschau - Regional Garden Exhibition) are known as events improving open areas and turning them into multi-functional green areas. In the study of 'Urban Development and Urban Policy in Germany' by Beckmann and others examples from the Berlin hinterland were also mentioned: 'regional parks are being developed, which not only entail an ecological compensatory function but are also intended to act as a recreational area for the residents'[3].

3. The green city image - a magnet for tourism

The positive city image is crucial in building its brand recognition and supporting the cultural identity of inhabitants. However, at the same time it is very important that the local society fully accepts the newly created city image [2]. According to E. Cichy-Pazder the image of the city can be perceived in terms of its attractiveness and competitiveness. She emphasizes the significance of the city's appearance as an important opinion-forming factor and suggests AIDA model as method of branding. Shaping the city image requires various actions. Core, central areas should be protected from major spatial and character changes. However, the constant improvement of infrastructure and appearance as well as functions adjustments are necessary. Very important is also the landscape of main modern city gates (access points) like railway and coach stations or main entry routes. The public spaces have also major role in shaping the city image [5].

According to B. Baker the city brand should be based on four 'areas': the people - influencing genius loci - their cultural identity and collective memory: customs, traditions, values, heritage, culture; the physical attributes - the visible part of genius loci - setting, architecture, attractions, facilities, events, etc.; the tangible benefits - access, costs, service, safety and cleanliness; the intangibles - described by ambience, atmosphere, authenticity, community pride, trust, reputation, image. However, the most important is that the brand should be distinctive and consistent with the real city features [2].

The European Landscape Convention recognizes landscape 'as an expression of the diversity of their shared cultural and natural heritage, and a foundation of their identity'[6]. The cultural identity and collective memory is accentuated by many researchers as a ground factor of development of cultural tourism, especially in smaller settlements and rural areas. The cultural diversity as well as local and regional identity is perceived as an advantage that helps in further economic development of the whole region [26]. Moreover, according to B. Podhalański the transfer of information (passing intangible heritage) is important to decipher, fully understand and appreciate the urban structure. This is just as important as the urban structure itself [17].

Green areas as public spaces are considered as important element in the city structure. Those with high functional, aesthetical and symbolical values are likely to be part of the city identity. Especially their location in the inner-city seems to be the key-factor improving their impact on the image of the city [19]. Eventually distinctive green areas can become city icons, supporting the positive image of the city [18], e.g. harmonious, saturated with greenery landscape of Vienna is part of the city brand [20]. Citizens and tourists are often attracted to areas with distinctive landscape, creatively continuing
local traditions [28]. Thanks to the cultural significance of historical gardens, they can be perceived as tourist attraction [8]. According to A. Zachariasz both historical and contemporary green areas can be the part of the local identity. They can be considered not only as a place of leisure and rejuvenation, but also they may bring spiritual experiences [27]. Recently the garden tourism is gaining popularity. To main activities of this type of ecotourism belong parks, historical gardens and botanical gardens visiting, but also participation in garden festivals and exhibitions [7].

In Germany the garden exhibitions are recognized as an important social and media event. This multifunctional areas resembling amusement park are visited by whole families. Each exhibition attracts averagely 2 million people [22]. Their main aim is to enhance the value of open areas and subsequently to improve quality of life. The most popular actions are: creating new pedestrian and bicycle connections between green areas, implementing new functions for wastelands, restoring historical green areas, developing neglected neighbourhoods, improving of public transportation system, enhancing the region and city image and boosting their popularity [12]. Among positive aspects P. Kowalski lists the improvement of commune economic situation, as they support the further development of tourism facilities and amenities of the host city. Noteworthy is the participation of business sector, especially at local level in the whole process. Therefore it contributes to the improvement of the local labour market [13].

Garden exhibitions in Germany are often used as branding tool for the host-city. The BUGA 2015 exhibition was advertised as 'Your BUGA': 'This is the festival for romantic souls and bikers, gardeners and gourmets, data-holics and sea dogs, lovebirds and landscape architects, dreamers and active freaks' [11].

4. Garden exhibition parks influence on small and medium urban structures

Garden exhibitions BUGA and IGA usually take place in big cities or metropolises. BUGA 2015 was the first fully decentralized exhibition, that took place in 5 different locations at the same time. Each city got its nickname that cherished their special feature. Exhibition areas were located mainly in the inner-cities, that are recognized as core areas responsible for 'shaping future of our cities' [3]. The main features of BUGA 2015 cities are presented in Table 1. Table 2 lists main investments in the analyzed areas.

| City          | population | importance within metropolitan area | city status                   | former/current main function     |
|---------------|------------|-------------------------------------|-------------------------------|----------------------------------|
| Brandenburg a. H. | ~71 600    | regional centre                     | city with county rights       | industrial/multifunctional       |
| Rathenow      | ~24 500    | regional subcentre                  | county town of Havelland district | industrial/multifunctional       |
| Premnitz      | ~8 400     | regional subcentre                  | small town                    | industrial/multifunctional       |
| Havelberg     | ~6 600     | regional subcentre                  | small town                    | cultural/touristic               |

Brandenburg a. H. is the biggest of analyzed cities. It is a regional centre with well preserved historical building fabric and local identity [1]. It used to play much more important role as a medieval capital of Margraviate of Brandenburg. At the beginning of 20th century it became major industrial centre. The historical role of the city was reflected by the city nickname 'Ursprung' (origin, source, but also fountain or spring) [11]. The total area of exhibition was 16,5 ha, which is approx. 7% of the total city area. It was divided into 3 sections: Marienberg, St. Johannis Kirche and former shipyard area - Packhof. These sections were linked by renewed public spaces like Humbolthain park [11]. The floristic exhibition in the St. Johannis Kirche was open only during festival. Also the major part of Packhof development including 33 theme gardens was temporary. However, many theme gardens
studied local identity and *genius loci* in many aspects. They referred to close relation of city and Havel river, to the dockyard history of the place, to craft traditions, but also discussed the natural elements of the landscape and typical ecological communities [24]. The main investments were restoration of Marienberg park with retrieved, long-forgotten vineyard tradition and renewal of former shipyard area with new marina. The area provides few playgrounds, recreational area by the river, observation tower Friedenswarte and few other viewing points and many theme gardens such as rose garden, new perennials garden or heather garden. The entrance is free of charge, except the Friedenswarte observation tower.

Rathenow is a county town and regional subcentre also with industrial traditions [15]. Its nickname 'Weitsicht' cherishes the heritage of the worldwide known optic factory (Rathenower Optische Werke). The exhibition area covered over 24 ha, which is around 1/5 of the commune area. It consisted of two parts Optic Park and Weinberg Park connected by Weinberg Bridge. The Optic Park refers to important part of city's *genius loci* with various artefacts presenting optic phenomena. The most renown landmarks are the Bismarck Tower built in 1914 and the largest, still functioning medial telescope constructed in 1953. Among most recognizable elements we can find the floating lighthouse and Colour Pyramid. The area provides few playgrounds, restored cemetery and theme gardens like 'Water lily arena', dahlia garden and rhododendron vale [11]. Currently the entrance to the Optic Park requires fee, the Weinberg Park is open to public free of charge.

Premnitz is a small town with industrial traditions. It got the nickname 'Impulse'. The exhibition area covered over 3 ha, which is 7% of the commune area. It consisted of two parts in the very centre of the city - Grünzug (the green axis linking train station and city hall with the river) and Uferpromenade (the recreational area along the river - former coal port). It is surrounded by multifamily housing and city hall. The area provides water playground and sites for chess and boules playing, open-air sculpture exhibition, observation tower over the Havel plain, outdoor gym and outdoor lab for physics experiences [11]. All exhibitions areas are open to public.

Havelberg is a small town that derived from medieval bishopric seat. Due to its over 1000 years history, it has numerous gothic monuments, especially churches and cloisters, surrounded by centuries-old garden. Thanks to obvious sacral aspect, the city got the nickname 'Erkenntnis' (Cognition). However currently the city is known from the traditional horse market, which is dated back to 1750. In 2008 the city officially got the name of Hansa City Havelberg [11].

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**Figure 2a, 2b.**
Brandenburg a. H.:
a - the renewal of former shipyard area, b - view over the new vineyard in the Marienberg Park. By A. Wójcik-Popek, 2015.

**Figure 3a, 3b.**
Rathenow:
a - Weinberg Bridge over Havel river, b - Optic Park with its main landmark 'Colour pyramid', referring to the city industrial heritage. By A. Wójcik-Popek, 2015.

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The exhibition area covered almost 4 ha, which is 3% of the whole commune area. The exhibition area is crowned with the St. Mary Cathedral from 12th century, overlooking the city. It consisted of three parts separated by Havel river - Dombezirk (Cathedral district), Stadtsinzel (City island) and 'Haus der Flüsse' (River home). The area provides theme Slavic Village playground, Paradise Garden, Monk Garden. Stadtsinzel's public areas were restored, enhanced with greenery, especially fragrant gardens and herb gardens. Also many public spaces within Dombezirk area like Krugtorohlhweg, Pralätenweg or Old Cathedral Cemetery were restored. Ecological education centre 'Haus der Flüsse' focuses on exceptional natural features of the place, protected as the Middle Elbe Biosphere Reserve [11]. The information centre is accompanied with open-air, interactive exhibition, enabling to learn by fun. Currently exhibitions areas are open to public, except of allotment gardens.

Table 2. Analysed exhibition areas and main investments. By A. Wójcik-Popek, 2017

| City         | Exhibition area [ha] | % of commune area [%] | Main investments                                      | Restorations                                                                 |
|--------------|----------------------|------------------------|-------------------------------------------------------|------------------------------------------------------------------------------|
| Brandenburg  | 16,5                 | 7%                     | Vineyard on Marienberg                                | Marienberg - public park with various viewpoints over the city                |
| a. H.        |                      |                        | Marina in the Packhof area                            | Packhof - revitalization of former shipyard area                             |
| Rathenow     | 24,2                 | 21%                    | Optic Park partially created for LAGA 2006            | Weinberg - public park with abandoned cemetery and famous Bismarck Tower     |
|              |                      |                        | Weinberg Bridge connecting Optic Park with Weinberg Park |                                                                              |
| Premnitz     | 3,3                  | 7%                     | Grünzug - green axis main public areas - train station and city hall with the river | Uferpromenade - recreational area by the river (former coal port)            |
| Havelberg    | 3,9                  | 3%                     | Ecological education centre 'Haus der Flüsse'         | Dombezirk - restoration of abandoned cemetery and other public areas in the Cathedral district |
|              |                      |                        | Slavic village playground                              |                                                                              |

Figure 4a, 4b
Premnitz:
- a - advertising column recalling BUGA 2015, b - multifunctional green area by Havel - Uferpromenade. By A. Wójcik-Popek, 2017.

Figure 5a, 5b
Havelberg:
- a - restoration of Krugtorohlhweg within the Dombezirk area, b - Ecological education centre 'Haus der Flüsse' (River Home). By A. Wójcik-Popek, 2017.
5. Results and Discussion
Horticultural exhibitions are important, widely recognized events in Germany. They can be considered a continuation of the idea of the urban beautification and sanitation movement. In a modern form, based on public-private partnership, they change many spaces in different cities. Their formula is based on the search for economically viable solutions that, at the same time, bring long-term positive effects for cities and society. In decentralized form of the touristic trail they promote the region.

The tradition and genius loci become real in festival-related constructed environment. For municipality it is an honour to be a host city of the exhibition. Many local companies are usually involved in preparations and promoted during festival. All this builds and strengthens the cultural identity of the inhabitants. Local society involvement is very important in terms of nurturing cultural distinctiveness, which is one of the main elements driving cultural tourism. Also increased tourist traffic promotes local businesses. The festival as an impulse, forces improvement of municipalities weaknesses e.g. collective transport and infrastructure, which enables further development of tourism and associated services.

Analysed cities, gradually degrading, got new impulse to develop thanks to BUGA 2015 horticultural exhibition. Many important public spaces gained new image, some were enriched by new functions. Thanks to the diverse structure, interweaving functions with aesthetic green areas and clear identity the analysed inner-cities can be considered as an innovation and development medium. The significance of exhibitions' impact on urban structures depends on the size of the city, it's main functions and the location of the exhibition grounds. This can be considered as green innovation in terms of planning the city socio-economic development based on improving the public spaces [9] in creative way, highlighting the local identity.

6. Conclusions
German horticultural exhibitions have influence on urban organisms on different levels and aspects both tangible and intangible. Aspects connected to branding and sustaining cultural identity mainly work on intangible level. However, they often reflect in the way how the physical city structure is improved. Cherishing the heritage, also this intangible is the driving force of cultural tourism. In case of obliterated local identity, the new investments may have the power to retrieve it, especially in small cities. The new green areas as multi-functional spaces for human integration may have big influence of shaping the local identity cherishing cultural heritage and encouraging modern eco-friendly attitude.

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