The Role of Green Public Spaces of the Old Canal in Downtown Bydgoszcz and Its Impact on the City's Cultural Landscape in 1773 – 1971

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Abstract. One of the important roles of greenery in public spaces of cities is to shape and complement, on a par with architectural objects, the image of the city and building its identity. Identity is the existence of a physical reflection of the nature of history and the traditions of the city and its inhabitants or urban community, distinguishing them from other places and communities. Through conscious, rational and professional activities creating urban tissue, spatial order is achieved, which forms the basis of the identity of cities and determines their quality. Each city, developing its own social and cultural image, resulting from both history and tradition, as well as changes taking place, should cultivate its separate image. The greenery also decides about the identity of the urban space as the aforementioned factors. They are important in individualising and shaping his landscape. Harmoniously composed and decorated green areas also decide about creating the character of the city and urban spaces. Competition for urban areas and for economic spheres of influence, underestimation of the role of spatial planning, marketization of all activities and spatial chaos as a result - these are factors that have pushed into the background the priority of conscious urban landscape shaping, including greenery in the city center of Bydgoszcz. The purpose of this study is to analyze the role of green public spaces with against the background of the history and significance of the Old Canal along with the regard to the history and significance of the Old Canal along with the process of individualizing the cultural image of Bydgoszcz over the last 200 years. Used in the past, urban composition solutions can be a reference for new studies and planning activities in this area of the city.

1. Introduction
Contemporary globalization processes have contributed to unification and homogeneity of all spheres of life, including space. A need to maintain the development of urban areas requires cultivating its historical traces. The purpose of this study is to analyze the role of green public spaces with regard to the history and significance of the Old Canal along with the process of individualizing the cultural image of Bydgoszcz over the above mentioned 200 years. Scientific research related to water in the city and the Bydgoszcz Canal concerned mainly the history of its construction, technological and natural assumptions, revitalization and development of tourism and inland navigation [1 – 16]. The applied arrangement solutions constitute an important reference for new solutions in this area.

Public spaces in cities are areas physically accessible to every citizen on equal terms. They are a place of direct communication, constitute a cultural value and common good for all inhabitants of the city, and also determine its identity [12]. The city's natural system is a purposely separated element of
the city, composed of properly selected geocomplexes, fulfilling superior natural functions (mainly climate, hydrological, biological) and subordinated non-natural functions (e.g. housing, leisure, aesthetic). It consists of areas and nodes (power sources) as well as corridors and reachers (power supply routes), connected with each other and with the regional natural system using material and energy exchange processes [20]. Urban green areas can be a part of the city's natural system and a part of the ecological system of protected areas. They take form of parks, greens, squares, gardens, insulating and protective greenery, in downtown, residential, recreational, industrial and suburban areas. Green areas in the city take shape of the following systems: band, wedge, radial, annular, palm irregular, contained or dispersed [20].

The factor that significantly determining the city's identity [17] is landscape and its location in topography and elements of the natural environment. The same factors also apply to Bydgoszcz. Location of the city and the region in the central part of Poland, in the basin of three rivers - Odra, Vistula and Brda in the Toruń-Eberswald valley and geographical and topographic conditions significantly influenced its economic development over the centuries. The watershed breakthrough in Fordon, the eastern district of Bydgoszcz, and the hydrographic system of watercourses has always been the urban axis of the city and a convenient premise for creating land and water crossings. The history of crossings dates back to the 16th century.

2. The development of downtown urban tissue connected with the Old Canal

The first formal plans for setting out a new waterway between the Vistula, Noteć and Odra rivers were created under the direction of Franciszek Florian Czaki in the years 1766 - 1768 during the reign of King Stanisław August Poniatowski. After the partition of Poland, Bydgoszcz became part of the Kingdom of Prussia, and Prussian officials took over plans to join the Vistula and the Odra.

![Figure 1](image1.png)

**Figure 1.** 1. Plan of the Bydgoszcz Canal connecting the cities of Nakło nad Notecią and Bydgoszcz from 1774. 2 - Plan of the route of the canal in Bydgoszcz in 1899 (source: own study based on materials of the State Archives in Provincial and Municipal Library in Bydgoszcz, sign. CII791 access date: 19.09.2019)
In 1773, construction works began in the Noteć valley between Bydgoszcz and Nakło. Within the city of Bydgoszcz, the Canal was set out as a straight watercourse from the west running along today’s streets: Nakielka, Marszalka Focha (southern shore), Grunwaldzka, Garbary (northern shore). It joined the Brda river in a downtown Artur Grottger street at the City Lock. The first successful barge rafting took place in September 1774. The total length of the Canal was 26.77 km, and water level differences were managed by nine locks.

The Bydgoszcz Canal changed the face of the city and significantly contributed to its economic and spatial development. The city became a trade center of countrywide importance.

The architectural and urban development of Bydgoszcz began, owing to an intersection of the main north - south and east – west, water, road and rail communication routes. Along the Canal route, in the west, new villages and town districts were created (i.a. Szwederowo, Okole, Wilczak, Lisi Ogon). Bydgoszcz saw a creation of new administrative and service buildings, storage, industrial and residential buildings. In the center, on the southern bank of the river, buildings from the time of the beginnings of Bydgoszcz prevailed, with a clear checkered grid of streets, the market square, historic ruins of the castle from the time of Casimir the Great and the predominant, 15th century building of St. Marcin and Mikołaj Cathedral.

![Figure 2. The role of green public spaces of the Old Canal in downtown Bydgoszcz and its impact on the city's cultural landscape in 1773 – 1971. (source: google maps and author's own study)](image-url)
Along the banks there were industrial and craft factories and ports servicing the floating of commercial barges. Layout of residential and factory buildings along Grunwaldzka and Nakielska Streets and perpendicular, secondary streets: Wrocławska, Kanałowa, Św. Trójcy and Fr. A. Kordeckiego, Marcinkowskiego and Lubeckiego, created a clear street interiors leading to the Canal and its infrastructure. Architectural focal points emphasizing the importance of hydrotechnical setup in the city center were special objects like: on the southern shore, the Evangelical church built in 1910-1912 according to the design of architect Roger Sławski and Prussian School of Craft and Artistic Industry built in 1911, 18th-century royal mills on the Mill Island and on the Brda River - St. Marcin and Mikołaj Cathedral, and on the northern high shore a neo-Renaissance brick building of Prussian Railway headquarters (built according to a design by Martin Grupius in the years 1886-1888).

Figure 3. The Bydgoszcz Canal space bounded the urban structure, and thanks the urban design an economic and compositional role and function. (source: https://audiovis.nac.gov.pl/search/, access: 09.09.2019)
3. Green public spaces of the Old Canal

The area of the Bydgoszcz Canal has been linked to the green public spaces of the city in a coherent system. The main elements of this system were natural forms, which included existing forest areas located in the north-west and in the south-eastern part of the city, the areas of the North and South Scarp, and woods in the Brda and Vistula valleys. Boulevards, parks and squares were built in the city. From 1802, rows of trees were planted along the sandy shores of the new waterway. A selection of plant species were used to strengthen the banks and reduce erosion, and to ensure the new plants meet the site's habitat conditions. Linden and poplar alleys were supplemented with black alder trees, chestnuts, elms, beeches, hornbeams, willows and numerous shrubs. The spatial development design provided for the creation of three functional zones. From the west, the park area was adapted for sport venues, in the central part for leisure and recreational function, and in the downtown area for a representative green public space. Particularly beautiful rows of trees were created in the period 1804 - 1808, between locks IV and V at Wrocławska Street. In the years 1833-1835, the area of green boulevards was gradually expanded and several hundred trees from Artura Grottgera Street up to Bronikowskiego Street were planted. Plant nurseries located in the vicinity of the Canal formed decorative flower beds every season. The whole arrangement was connected by tree-lined avenues and walking paths. In the nineteenth century and at the beginning of the 20th century, the area of boulevards along the banks amounted to 74 ha and became a representative and recreational space for the inhabitants of Bydgoszcz. From the 1840s, under the guidance of the City Beautification Society, the Canal area was systematically enriched with new plants. From lock II to Gruwaldzka Street, a linden alley was created, connected with another alley consisting of chestnut trees planted in Bielany.

Along the canal banks of Bydgoszcz there were garden restaurants and cafes, playgrounds for children and adults, play rooms, tennis and sports fields. In the public areas of the boulevards, green spaces were designated for weekly concerts, dance meetings, various types of events for various users. The trees and shrubs in the western and central part of the Canal were left intact by human activity. This created a habitat for nesting various species of birds, especially nightingales.

In the following years, the area of the Bydgoszcz Canal boulevards was connected to the banks of the Brda River, creating a green corridor towards the Vistula [19]. Thus the Canal in the western part of the city, Brda in the center and the Vistula in the east, created a rich linear greenery system. Additional elements were the areas of the Bydgoszcz Forest, surrounding Bydgoszcz from the north and south, and numerous, though small in size, public parks, squares and gardens. Among the green arrangements that formed the cultural landscape together with the Canal, there was also a green in the area of today's Poznański Square, located on its southern side. Trees were planted there in the years 1800-1808, notably a variety of black poplar, as well as elms, common ash, pedunculate oaks, chestnut and maples.

The green has been connected by rows of trees with residential and industrial districts and parks located on the southern bank of the Toruń-Eberswald valley: a park on Gen. Jan Henryk Dąbrowski hill, founded in 1842, a park on Johan Gottlieb Naumann hill, a park on the Książęcy hill, park on the Wolności hill [7]. The boulevards at the mouth of the Canal in the central part of Bydgoszcz, surrounded the Mill Island and formed a beautiful avenue. At the initial stage of development of the left bank boulevards, there was only a passage between the Gdański bridge and the Bernardyński bridge. The focal point was the passenger harbor, which was accompanied by brick neo-Gothic post office and telegraph buildings. In the years 1934 - 1935 the river bank was modernized and the walking route was extended westwards to the bridges on Marshal Foch street, and a long walking path led east of the Bernardyński bridge. The boulevards joined a city park created near the river, in the district of Babia Wieś. The subsequent sections of the Brda river remained wild, with industrial and warehouse buildings developed on both sides. At the mouth of the Brda to the Vistula, in the eastern part of Bydgoszcz, there were city locks, a regatta track and a vast area of a timber port. At this point the greenery system joined the Lower Vistula Valley.

Changes in the architectural and urban structure of the city that took place after 1945 in Bydgoszcz also concerned the role and importance of the Old Canal. The canal was closed out in 1915 during
modernization of the Bydgoszcz section of the international waterway. It served as a reserve line of the waterway, a water reservoir for the northwestern part of Bydgoszcz, and considered to be a monument [1]. After World War II, due to the gradual decline in the importance of inland navigation and the significant development of road and rail transport in the city, a decision was made to disassemble and fill up the Canal. In the nineteen sixties, during the rebuilding and expansion of the Grunwald Junction in the central part of the city, a section of the Canal between locks II and III was disassembled, and the water from former canal was directed to an underground collector. By 1971, historic locks and a stone bridge of Władysław IV, connecting Św. Trójcy street with Grunwaldzka street were dismantled and the layout of the boulevards was sliced by cutting over 100 historic trees. A significant degradation of natural environment around the Canal, an expansion of industrial plants, unregulated sewage disposal, low water outflow and creation of green public spaces in other parts of the city [18] made inhabitants of Bydgoszcz turn away from water banks for the years to come.

4. Conclusions
The requirements of the New Athens Charter [10] indicate the role of urban design as a key factor in the process of modernizing cities and public spaces. It should relate to activities directly connected to the renewal of urban landscape. Revitalizing degraded parts of the city and all activities aimed at creating a unique urban landscape expressing its individuality, beauty and high aesthetic level, based in particular on proper design of public spaces, are the challenges facing cities and their development in the future.

As Anna Agata Kantarek noted in a study on the significance and principles of shaping urban composition, contemporary ways of developing and building an urban formation characterized by globalistic thinking and generally accepted patterns regarding ways of living and implementing the urban environment are prone to standardization [5]. In turn Katarzyna Pluta emphasizes that public spaces with greenery are important and necessary elements of identity of modern cities, and ensuring attractive public spaces with greenery is a necessary condition for shaping the landscape of every city [12]. Thanks to original arrangements of green areas in connection with history and tradition of the place, these spaces become places of social identification and integration and by supporting cultural initiatives, they contribute to giving original features and identity to individual urban landscapes.

Figure 5. A representative territory of the Old Canal complementing the public space of the city with greenery. Condition at the beginning of the 20th century. Devastation of the area along with the expansion of the city's communication system in 1971. (source: a – b own study based on materials of the State Archives in Bydgoszcz, access date: 19.09.2019)
Against this background of the authorities of Bydgoszcz, ignoring generally accepted standards of shaping the city's structure, resulted in discarding orderly urban layout and green public spaces around the Old Canal, and diminished their role in this part of the city. As a result, it was difficult to recover, blurring the individual features of the cultural landscape of the area, deterioration of natural conditions and marginalization of the importance of the Old Canal area in the image of the city. For decades, the channel's composition links with urban tissue were broken and its role was eliminated from the landscape of Bydgoszcz.

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