Water in Krakow's Gardens, Parks and Areas of Greenery

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Abstract. In park and garden design, one of the more valued assets of the natural environment is water. Perceived as the source of life, it has always constituted an essential element of garden compositions, one that is both impressive and symbolic. In subsequent historical periods, designers expanded the possibilities of using water in garden layouts and since the nineteenth century waterfront areas have been an important element of shaping systems of urban parks. The article features a characterisation of the participation of water and waterfront areas in Krakow's gardens and areas of public greenery. The matter of both waterway systems that order the structure of the city, anthropogenic or natural pools, as well as details decorating park spaces were discussed. One of the most essential elements that have crystallised Krakow's urban layout are so-called river parks. The presence of rivers in the city significantly improves its visual attractiveness. Natural points, sequences of views and exposed places are highly distinct, in addition to an attractive waterfront landscape with outstanding landmarks. This is confirmed by historical panoramas and contemporary conceptual proposals of walking areas and boulevards. River parks, which are linear, show highly diverse landscapes, the separate tradition of places, their own identities, including natural identities—not limited to the Vistula River valley—as the Vistula is the main river. Natural and artificial bodies of water and their accompanying recreational areas, e.g. Zakrzówek, Bagry or Przylasek Rusiecki, have a significant share in shaping Krakow's areas of greenery. Water is also present in Krakow's gardens and parks. Its visual qualities, the charm of shimmering light, reflections and the dynamism of, among other things, water jets on a smooth water surface, as well as its sound have all found their use. In gardens or manorial or palatial parks it often constituted an essential compositional element, e.g. in the garden of Łobzów, the parks of Dębniki or Prokocim. It did not survive in any of them. Later on it also became an important part of the programme of public parks, with pools or ponds located, among other places, in Planty Park and Park Jordana. To this day it brings joy and refreshment to its users in the form of representative fountains and water jets. In the article it was presented just how diverse functions does water play in the composing of Krakow's areas of greenery—from the detail to the planning of its urban structure. The fact that, particularly recently, a frontal turn has been made towards the Vistula, as there were voices that the city had its back turned to it. At present, public areas that are open towards the water are being designed. Designs of waterfront areas that have recently been completed in Krakow and which constitute a result of competitions, were shown as well. These include the parks in Zakrzówek or near Płaszów lake. This proves that water still remains an inexhaustible source of inspiration and its accessibility in areas of public greenery attracts large amounts of users.
1. Introduction

One of the most prized natural assets of the environment in the design of gardens and parks is water. Perceived as the source of life, it has always constituted an essential element of a garden composition, one that is impressive and symbolic. Throughout history, designers have expanded the possibilities of its use in garden layouts. Since the nineteenth century, waterfront areas have been an important element of designing systems of municipal parks, which was shown by, among other things, the designs by F. L. Olmsted for Boston or Rochester. The arrangement of areas of greenery combined with ensuring flood safety increased the attractiveness of an area for development, facilitating the development of cities, often determining their form or direction of expansion. Waterfronts have become their hallmarks. Krakow, the capital of Lesser Poland, a former capital city, constitutes an example of a gradual turn with its front towards water, with river parks having become an element of its development policy since the final decade of the twentieth century. Water, introduced to Krakow's parks and public spaces, constitutes a good example of increasing the attractiveness of places, also demonstrating the specificity of their atmosphere.

2. Outline of the use of water in garden design and landscape architecture, as well as its symbolic qualities

Without water there is no garden. It gives life to plants. Since the most ancient times it has been a key part of gardens. The symbolic dimension of water as the source of life and purification, the basis of all things, the vision of the rivers of paradise is in the topos of the garden—Eden—paradise. Water took on a particular significance as an allusion and a symbol, eliciting an atmosphere of contemplation. Buildings reflected in it like in a mirror and the sometimes, foggy image reminded of transience and lability. Springing, falling, under specific circumstances it formed rainbows, providing unforgettable experiences. In classical mythology natural caves with springs inside them were considered the homes of nymphs—Greek spirits of nature—as well as muses. Nymphs were created by the living stream of a river, its magic and strength, residing in grottoes, which are wet and where water trickles down their rocky surfaces. Water was also associated with river deities, the naiads or tritons, which are associated with a wealth of iconography and references to the genius loci.

Water also constitutes one of the main compositional elements. In geometric layouts it was present in the form of ornamental wells, pools, various types of fountains, automatons and water chains, canals, cascades or water parterres. During the Renaissance, garden hydraulics enjoyed an excellent bout of development—as a field concerning itself with intricate ways in which to manipulate water, particularly with the use of pipes and fountains, or in forms that fall as if a curtain or sheet of fabric. Various forms of water features were used, such as water organs or automatons. In automaton theatres water was used to move various water mechanisms—animals, birds or figures playing out a sort of spectacle. In Le Notre's Baroque gardens visual perspectives were shaped using a large share of water mirrors, with meticulously thought-out perspective effects. Water surfaces at different levels were conducive to the obtainment of mirror-like effects that magnified the appearance of spatiality, infinity and provided interiors with depth. Burbling water or thundering cascades were also used in building atmosphere. Charles Perrault wrote that water is the soul of gardens, without which gardens appear dead. In the eighteenth century, when nature triumphed in garden design, water also became an important element of garden landscapes. Its visual qualities, the charm of shimmers of light, reflections and the dynamic of unbound water and its accompanied sounds were all put to use. Rivers, streams, springs and waterfalls were used. If there was no water present, it was introduced artificially. Important elements of artificially created landscapes also included levees, one of the basic tools that the eighteenth and nineteenth-century landscape gardeners operated with. "English rivers" also became common in gardens—ponds shaped in a manner similar to a river, with an elongated shape and irregular shores. Larger water bodies were given distinct, irregular shorelines. It almost became a rule
to place islands on ponds and lakes. Along with the expanding knowledge of engineering, the possibilities of using water and waterfront areas expanded as well.

Water still plays an important role in works of landscape architecture that are currently being created, both in the visual and environmental sense. It improves the quality of urban public spaces, becoming a dynamo for the development of river shores or water bodies, often being an important element in processes of re-cultivating decayed areas. Oftentimes, thanks to interesting ideas for the use of water in parks or squares, these structures gain genius loci of their own and become models of good design practices. Recent decades have also brought with them new tendencies whose goal is to increase the environmental value of a place, e.g. by introducing rain gardens, the renaturalisation of watercourses or programmes of small-scale retention of surface runoff.

3. The significance of water in shaping the structure of Krakow's areas of greenery
The surface area of contemporary Krakow is 327 km$^2$, and its dimensions are 18 km along the north-south direction and 31 km along the east-west direction. The areas of the highest and high natural value, when combined, comprise ca. 10 % of the city's surface, while areas that can be considered precious (which also include urban parks)—ca. 15 % [1].

Krakow's location in the Vistula River Valley, its varied topographic layout, diverse plant cover and location at the edge of the Krakow-Częstochowa Upland and the Niepolomice Forest—comprise its unique natural and landscape values. Outstanding and varied works of architecture and urban planning add to this, ultimately resulting in a landscape that stands out not only on the scale of the country, but the global one as well. The presence of a river in the centre of a city significantly increases the attractiveness of the landscape. The number of natural points, view sequences and exposed locations increases, which is also an effect of topography. This is the case with Krakow, where the Vistula cuts through the city, with smaller rivers and streams connecting with it. Krakow's hydrological layout constitutes a basis for the design of a so-called system of river parks, green wedges that crystallise Krakow's urban layout. These linear water-side parks show various landscapes, separate traditions of various places, their own identity, including the natural one. Systems of municipal greenery, by introducing wedges of greenery outside of the city, connect with suburban regions forming a regional system of open areas [2]. The creation of a system of parks makes it possible to protect the landscape of the natural riverside scenery. This provides broad opportunities for shaping the representative part of the city along rivers, including landscaped park areas.

In Krakow we can observe, similarly as in many other cities, changes in the function of areas in downtown districts where various industrial structures had been located, as well as those that had featured circulation-related grounds and storage areas. The possibility of developing these "reclaimed" areas as parks is also being used, e.g. the Stacja Wisła park in the former industrial district of Zabłocie. This part of the city changed drastically in the nineteenth century, from a suburban into an industrial one, and at present constitutes an actively revitalised region [3]. A park with an area of 2 ha was built as an element of the Vistula River's river park, in a place formerly occupied by the infrastructure associated with the Kraków Wisła train station, from which it took its name. In 2016 a two-stage competition was concluded. 26 competition entries were submitted, from which the jury chose three. These were once again subjected to consultations and the choice made by jurors and residents was unanimous—the best conceptual design was the one prepared by Michał Grzybowski, a second-tier student of landscape architecture at the Cracow University of Technology. On the 11th of May 2018 another municipal park was officially opened—the Stacja Wisła park. The park features 12 zones that are the result of its functions and target users. It includes the following zones: a recreational zone—with a picnic site, a play zone, with a natural playground, as well as, among others, a flowery meadow, an urban farm with raised beds where residents can cultivate their own plants, a labyrinth, an open-air stage with a dancing space, as well as a bicycle parking space. The park also features a multi-
functional pavilion, designed in accordance with the precepts of sustainable development, i.e. featuring rain gardens. The Stacja Wisła park was acknowledged by the Association of Polish Town Planners (TUP) and won in the "Newly created public space in greenery" category in a competition for the best public space, organised in cooperation with the Union of Polish Cities. The park also received a nomination for the prestigious Mies van der Rohe award in the same year, as one of 18 projects from Poland.

4. Case study—large water bodies in Krakow

Stagnant waters are a distinct element of Krakow's landscape. Some of them include natural water bodies, however, large anthropogenic lakes, out of which Zakrzówek, Bagry, Staw Płaszowski, Przylasek Rusiecki and Zalew Nowohucki have the greatest surface area, are among the largest and most popular among the city's residents. The existence of most stagnant water bodies is associated with the post-industrial heritage of the city—these are former mine grounds or quarries that were flooded with groundwater that had a high water table. Each of the water bodies has its own character, however. Examples of these, along with a listing of their selected properties in terms of size have been presented in the table below (tab.1).

| Water body               | Surface area [ha] | Depth [m]     |
|--------------------------|-------------------|---------------|
| Zakrzówek                | 16.8              | 32            |
| Bagry                    | 31.4              | 10            |
| Staw Płaszowski          | 9                 | Ca. 2 m, the water level lowers periodically |
| Zalew Nowohucki          | 7                 | Up to 2.5     |
| Przylasek Rusiecki       | 86                | Up to 5       |

It would be proper to start their characteristic with Zakrzówek—a water body with accompanying areas whose development has been a cause of controversy and conflict among numerous stakeholders for years. The site is a part of the Eighth District of Dębniki and its surroundings include the charming spot of Skałki Twardowskiego. The water body itself was created in the place of a limestone quarry that was closed down in 1990—shortly afterwards the quarry was flooded with water, whose surface is currently surrounded by several-dozen-metres tall vertical limestone rocky walls that are partially overgrown with tall plants. The water surface itself takes on a turquoise shade (under the influence of natural chemical processes), and its depth reaches up to 30 metres in same places. The site is perceived as very charming—apart from the lake we can also find climbing walls here or observe Krakow's panorama (it has an excellent exposition of the Old Town). Visitors here can not only distance themselves from the hustle and bustle of the city and come into contact with nature, but can also use the services of the scuba-diving school that uses the lake. Its nature is a highly valuable aspect. Apart from the shade-giving dense tall greenery (reports of the Municipal Greenery Authority state that it is comprised of 48 species and over 7 thousand trees [4]), the area of the lake also includes xerothermic grasses [1], with the local fauna also constituting an important aspect, mostly because of its numerous species of butterflies and dragonflies.

The development of Zakrzówek and its surrounding areas has remained a contentious issue for years. The cause of the conflict were the conflicting interests of a developer (who bought a part of the site and planned to place commercial buildings there), the owners of neighbouring private lots, ecologists, as well as residents of the city who want to protect the local environment. The conflict that lasted for over 10 years ultimately ended with a buyout of the land by the city and the planned project of making it accessible in the form of a park. Zakrzówek is also associated with other controversies. Numerous cases of drowning and other accidents have been noted here (including broken limbs), as
well as the incident of the "spring bonfire", when a Krakow-based student, using a social media website, gathered 22 thousand people for a massive party near the lake, therefore leading to an illegal spontaneous mass event [5].

In 2016, the Board of Greenery of the City of Krakow in cooperation with SARP announced an urban-architectural competition for the development of a programme and spatial concept for the Zakrzówek Park. The competition assumptions [6] included, among others, the location of the Ecological Education Centre in the area of the development of the building, the zone of the arranged water sports space, as well as the location and form of the most important architectural and landscape elements. Great emphasis was also placed on minimizing interference in the existing flora and fauna. Despite the great interest in the subject, it was not possible to select the winner, as the jury declared that none of the projects met the competition's objectives, although the proposals presented were of a high standard [7]. The highest score (second place) was given to the work by Aldona Kret, Katarzyna Elwart, Katarzyna Janicka, Alina Ziemiańska and Weronika Jaworska. Among other things, the coherence of the proposed architectural forms was appreciated, as well as the harmonious inclusion of the buildings in the terrain [8]. The failure to select the winner made it necessary to develop a separate concept of land development, which was entrusted to the design studio F11 [9]. It assumes the arrangement of paths of simple shapes and various park functions (such elements as swimming pools, climbing spaces, picnic places or a dog enclosure were located). The buildings of the Ecological Information and Water Sports Centres have been arranged as one-storey facilities with softly running lines of wood-clad facades. In 2018, the process of cleaning up the area and preparing it for the construction of the park began. It is expected that the implementation process may take about 3-4 years.

Another water body is Staw Płaszowski (the Płaszów Lake), which was created in place of a former gravel and clay pit, materials which were procured for the construction of a railroad interchange near the water body. It is a lake located in the eastern part of Krakow, in the district of Płaszów, very close to Powstańców Śląskich Street. The reservoir is located in a part of the city that is valuable in terms of its landscape—in the vicinity of the former Liban quarry, Lasota Hill and the Mound of Krakus, which have good expositions when observed from the paths around the lake. The place has high visual qualities in terms of passive exposure—the extensive lake is partially covered in reeds, surrounded by tall water-side greenery and the nearby hills, it produces picturesque visual effects. Due to its low depth and being placed near public structures (a clearway, big box stores), Staw Płaszowski does not play the role of an urban bathing spot.

Its primary asset is environment, which has so far developed in accordance with natural succession. Along the border of the entire lake there are groupings of reeds from the taxon Phragmitetion. These are floristically poor aggregative communities distinct of eutrophic shores of stagnant water bodies [10]. The areas to the north west and east of the lake are covered with fresh oatgrass meadows (Arrhenatheretum elatioris typic). These are floristically rich, anthropogenic groupings on fertile, slightly damp mineral soils. They are distinct of flatland areas in our country. They are some of the most distinct replacement plant communities in the vicinity of mixed-species deciduous forest communities. They are dominated by lawn grasses such as the meadow oatgrass, as well as flowering legumes [10]. The medium-height and tall plant group includes the plants of the shore shrubbery that covers the remaining part of the area, in this case bearing the closest resemblance to riparian poplar forest community. These are communities of plants that are primarily self-sown. Acer Negundo and Sambucus nigra should be considered its dominant species. The areas surrounding the lake also provide favourable conditions for the development of fauna. The area around Staw Płaszowski has been observed to feature 24 species of dragonfly, including one protected species—Sympecma paedisca. During avifauna studies performed in 2017 a total of 37 bird species were observed, among which there were: the mute swan, the mallard, the great crested grebe, the Eurasian coot, the common
tern, the common blackbird, the common swift, the cuckoo, the great reed warbler, the Eurasian blackcap, the magpie, the jackdaw, the rook, the crow, the seedeater and others. The invertebrate fauna of the water body is also quite rich, as many different groups of animals were observed in it—primarily insects, whose larvae live in aquatic environments [11].

Staw Płaszowski has also encountered problems with maintaining its use as an area of high ecological value. Until recently, the periodic lowering of its water surface was seen as a significant problem, one that can be associated with numerous causes, which can include excessively dense development in the vicinity of the lake, the draining of excavations for the construction of new buildings and atmospheric conditions (summer draughts) [12]. Littering is another problem—it is a space in the city centre that does not possess a clear infrastructure, lighting or monitoring, but is overgrown with tall greenery, resulting in conditions that are suitable for the emergence of illegal waste dumping sites. In 2016, the Board of the Municipal Greenery of the City of Krakow announced a competition for the development of the space surrounding the Płaszów Pond, whose main objective was to locate the park in this area (including areas currently leased by two shopping centres, where technical squares and parking lots were located). The winner was the design team composed of Katarzyna Dorda, Karolina Porada and Joanna Szwed (fig. 1).

Figure 1. The development of the space surrounding the Płaszów Pond – competition winning project. Authors: Katarzyna Dorda, Karolina Porada and Joanna Szwed, 2016

The highest rated concept was to divide the space into zones including recreation and recreation areas, an educational garden, a zone of natural succession, a zone of special protection of ecological
values and a zone of residents of the surrounding settlements. The designed objects (including a café pavilion and platforms) connected the system of paths of a free character. In the basin itself, the location of small breeding islands is envisaged. After the results were announced, a part of the design team in cooperation with Land Arch, run by Małgorzata Tujko, started to develop a detailed design for a part of the area including plots of land owned by the city. The new scope of the study covered areas located along the northern part of the basin, excluding leased areas. Determination of new boundaries of the park forced to develop a new concept of its development, which in terms of functionality and composition refers to the competition work. Finally, it was planned to locate in the park four wooden rest platforms, arbours, two playgrounds with a naturalistic character and a free layout of paths. Postulates of ecologists [11] cooperating with the designers - professor Roman Żurek and Karol Ciężak - were also taken into account. It was decided to exclude from the process of clearing development in the north-western part of the complex, where an educational garden was originally planned. In the future, the area is to be cut off from the mainland with a moat and become a large ecological enclave, playing the role of a breeding island. In May and June 2018, cleanup works were carried out in the area covered by the executive design. Currently, the concept is waiting to be implemented.

At a distance of around 1 km from Staw Płaszowski there is yet another anthropogenic water body called Bagry, which is also a part of the Twelfth District of Podgórze. The lake is located between Lipska and Wielicka streets, a small distance away from the Kraków Prokocim railway station. The genesis of its creation is similar as in the previous case, as it is a former gravel pit that has been flooded. The previously described Staw Płaszowski is also called Male Bagry (Little Bagry) due to the numerous similarities between the two water bodies. This is particularly visible in terms of their environment—the swampy areas of Bagry are also overgrown with wetland reed and bulrush grasses, while the nearby land sports tall and medium-height greenery with a character close to that of a riparian forest. The water body has an expansive infrastructure for sports and recreation. It also offers jetties and water equipment rentals, as well as gastronomic premises that are open during the season. During the sailing season Bagry lake is used for open-air events and competitions.

Another site, this time located in the Nowa Huta district, is Przylasek Rusiecki, which is a complex of 14 water bodies with a combined area of 86 ha. In this case its creation is also associated with human activity—the water bodies are located in the former Vistula River bend, where gravel was procured in the 1950's and 1960's for the construction of the Lenin metallurgy plant (currently the T. Sendzimir metallurgy plant). Ecologists point that the area is important because of environmental considerations, as it constitutes the dwelling of protected animal species such as the great crested grebe, the mute swan, the Eurasian coot, the European green toad and the smooth newt [13]. The actual plant life atlas of Krakow also points to the area's high value in terms of natural greenery. The area of Przylasek Rusiecki is marked on maps as a place of the occurrence of willow and poplar riparian communities (Salici-Populetum), reed grass communities (Phragmitetum), as well as aquatic plants [1]. Due to the picturesque water surfaces of the water bodies and the natural character of their accompanying greenery, the complex is an area of high visual and landscape value, thanks to which it has been nicknamed "Little Mazury”.

Up to 2017 the site was rented by the Krakow Fishing Association, which was associated with the introduction of fish into its lakes. After the agreement expired, plans were formulated to convert the wild area into a generally accessible public park, in accordance with the approved local spatial development plan [14], in which the water bodies and their accompanying areas were described as areas of surface and inland waters and landscaped greenery. In association with this, work has begun on formulating a conceptual proposal of the development of the park as a part of the Nowa Huta Przyszłości project [15]. The planned work includes decluttering and landscaping the area, the construction of a network of paths, pedestrian path sequences, shared bicycle and pedestrian paths and
a parking lot. Places for rest and recreation are also planned to appear—a sandy beach with demarcated bathing spots, an open space for events, as well as footbridges and a platform for launching small boats. The recreational infrastructure is meant to be supplemented by dressing rooms, toilets, as well as a watersports equipment rental. The design is also meant to feature protection of the landscape qualities and biodiversity of the area—interference with the natural environment is meant to be minimal and the landscaping design is based on domestic tree and bush species.

Zalew Nowohucki is also a large anthropogenic water body, located in the district of Bieńczyce. The water body is an artificial lake created in the 1950's in accordance with a design by the engineer A. Ścigalski [16], which also featured the surrounding park space. It has a regular rectangular shape, accentuated by an island. The lake is continuously filled with water from the Dłubnia River, which flows along its eastern shore. In the 1950's and 1960's the site constituted the main recreational space of the residents of the city of Nowa Huta, which was just being established at the time. The period that followed resulted in the area becoming neglected—its infrastructure became damaged, while the site was littered with trash, its waters becoming silted. It was only at the start of the twenty-first century that a process of the modernisation of the lake and its surroundings was initiated. Pedestrian and walking paths were delineated and renovated, the lake was deepened, and the park fitted with new furniture. A sandy beach was prepared near a bathing spot, along with spaces organised for children and the youth—playgrounds, a volleyball pitch, a tennis court. Fish have been introduced into the lake, causing fishermen to make use of it. Furthermore, 2016 also saw the presentation of a conceptual design of further modernisation as a part of the Nowa Huta Przyszłości Project, similarly to Przylasek Rusiecki. It assumes the construction of a new beach, the establishment of an information and history trail, the construction of an open-air gym, the renovation of the observation platform, the replacement of park furniture and the placement of chess tables [17]. Similarly, to other water bodies in Krakow, Zalew Nowohucki is an area of high environmental value, primarily because of the fauna that lives there. It includes several species of birds which have their nests on the islands (e.g. the mute swan, the mallard, the coot and the tern).

5. Water features in Krakow's parks

Water is also present in Krakow's gardens and parks. In manorial and palatial gardens, it often constituted an essential compositional element, with most sites featuring a pond, initially a utilitarian one, which over time became ornamental. Examples are many: the royal garden in Łobzów, residential gardens in Dębniki, Bieżanów, Prokocim and Skotniki. Unfortunately, due to neglect and damage during the post-war period, despite the restoration of numerous parks, water bodies survived in only a handful of them, including in Skotniki. However, they do exist in historical gardens and public parks, considerably improving their attractiveness. Ponds and pools can be found at, among other places, Planty park, the first Krakow green ring created as a result of the demolition of the city's fortifications. They are also in the following parks: Park Krakowski—a former entertainment garden, and Park Jordana—a prototype of a children's garden in Poland. The pond with an island covered by birch trees at Planty park is one of its more picturesque fragments, considered to be secessionist. It was funded by the municipal waterworks plant at the start of the twentieth century, at a time when Planty park was already almost a century old. Another project located in Krakow and in which water played an important role was Park Krakowski, established in 1885 [2]. It was established as a suburban park, placed on land rented from the army. The site included a former army swimming pool, which was converted into a public one over time, with a pond being built as well. Both pools were supplied with water from the Młynówka Królew ska creek as an easement. During summer the pond was used for boat rides, while during winter it constituted an attraction in the form of an ice-skating rink, which was remembered by one of Krakow's residents in the following manner: "The so-called elegant audience would gather at the rink in Park Krakowski. A fountain appeared in the park a little later. A design was prepared before the war (1938, 1939), in which the water layout was completely changed. The lake, which was significantly expanded, was planned to have two islands: an elongated, pear-shaped one
featuring trees and one circular one with a bridge and a gazebo, surrounded by trees. The pond, which would narrow at the centre, was intersected by a small bridge that boats rented at the jetty could sail under [18]. The planned changes were described as follows: "The pond, as a reservoir of clean and running water, on an impermeable base, enlivened by swans, fish and aquatic plants, will be considerably expanded due to the fact that water constitutes a beautiful and attractive garden motif. The jetty for boats and a pavilion with a cafe, located adjacent to the water, will supplement the park. Furthermore, spaces for children to play, with a shallow pool and sandbox were designed". The design that featured these assumptions was not fully completed. Only a pond with an island remained, with a fountain built on it after the war, in the form of a number of jets gushing out of a retaining wall.

There are also representative fountains and water jets in Krakow's parks, belonging to the most beautiful decorations of areas of greenery, although they are not too numerous. The modern fountain by Maria Jarema, which refers to a grand piano with its form and was placed in Planty park in 2006, is undoubtedly, a significant attraction. However, there are still too few of such features being built in greenery.

6. Conclusions
The share of water in the design of areas of greenery is significant due to the river park system, a structural element of Krakow's urban layout. In the planning of land development, the impact of rivers, streams and water bodies in brownfields is a matter of great importance due to their recreational and tourism-related use. An entire array of the possibilities offered by water: sailing using a boat, a kayak, fishing, walking along environmental trails and many others, provides designers with a broad range of opportunities. Much is already happening, often as a result of competitions, which is a good model. Water bodies located in brownfield areas are starting to gain considerable significance in Krakow's structure—they are being landscaped, developed and protected. They are areas that are important from an ecological point of view—they constitute habitats of wild birds, amphibians, lizards or small mammals. Natural plant communities that feature a high degree of diversity also play a significant role—from the swampy bushes of Przylasek Rusiecki to the xerothermic lawns of Zakrzówek. Water bodies also constitute actively used places of recreation—despite the fact that not all of them have so far been equipped with proper infrastructure. The third aspect is the fact that some of them possess cultural value, being a sort of industrial legacy (an effect of recultivation). There are still too few small water features in areas of greenery, even though they enjoy a great deal of popularity, increasing not only the aesthetic, but also the environmental quality of life.

7. Summary
This short and incomplete review does not exhaust the subject but demonstrates on Krakow's example just how varied are the roles that water can play in public areas of greenery and how broad are the possibilities of its use. Starting with the hydrographic network, which can constitute one of the basic elements of urban structure and regional open areas, through water bodies adapted to the needs of rest and recreation, to detail. In Poland water is still not fully used in terms of shaping areas of public greenery, although this seems to be changing lately, as can be seen on the basis of projects that are being initiated in Krakow. Historical examples can provide an entire array of solutions and constantly remain an untapped source of inspiration.

Awareness of the high environmental value of waterfront areas is also increasing, which is why appropriately drafted local plans are being prepared (unfortunately they still do not cover the entirety of Krakow), with forms of protecting the most valuable areas being introduced.

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