

## ACCESSIBILITY CHALLENGES IN PUBLIC SPACES FOR CHILDREN WITH DISABILITIES IN HISTORIC GREEN DISTRICTS OF KYIV AND KRAKOW

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### Abstract

*The article deals with the problem of access to recreation for children with reduced mobility. Using the example of a historical residential area in the former Kadetskyi Hai (Cadet Grove) in Kyiv, problems with access to playgrounds for children with reduced mobility were revealed. Despite the unique ecological possibilities of the area and its own ecosystem with plenty of greenery and clean air, children's leisure areas remain unorganized. The Polish (in Cracow and Oświęcim) experience of playgrounds designed in historic neighborhoods for children with disabilities was analyzed. In Poland, there are two approaches to meeting the needs of children with disabilities in playgrounds. The first option is the so-called integrated one, when playground equipment is available for both healthy and disabled children. It aims to integrate children into the community. The second option is only for children with disabilities, so the play equipment has some specificity for a child in a wheelchair.*

**Keywords:** historic residential district; Kyiv; Cracow; Oświęcim; Recreation for children with disabilities

### Introduction

The problem of growth in the number of adults and children with disabilities in Ukraine has become increasingly acute in recent years. Despite some measures for inclusion, such as the arrangement of ramps in houses and shops, despite a large number of declared proposals, the situation with the access of people with disabilities to all achievements of social life remains difficult.

The authors focused on one of the most difficult problems, which remains unsolved—the access of children with disabilities to play equipment on playgrounds, with a particular focus on green spaces in the historic districts.

Conducted studies of several playgrounds on the territory of the former Kadetskyi Hai (Cadet Grove) in Kyiv proved that despite the unique natural environment of the historical ecosystem with a large percentage of greening, the organization of the playgrounds is outdated

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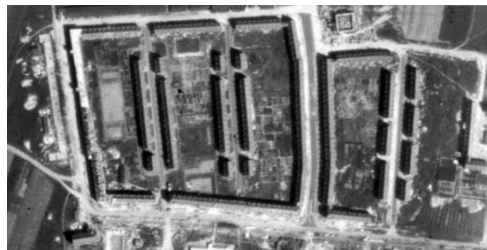
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and does not take into account the needs of children with disabilities. The very territory of the historical Kadetskyi Hai within the boundaries of Chapeka and Nischynskoho streets requires regularization and transformation into a recreational area within the neighborhood.

The problems of the Kadetskyi Hai are that the unique green areas are largely disordered and the bed of the Lybid tributary—the Vershynka River—is cluttered and runs in a concrete tunnel near the railway track. Taking into account the lack of greenery experienced by Kyiv, whose population has grown significantly due to forcibly displaced people and the calls to establish new parks and squares in connection with climate change, the authors studied the example of landscaping in Oświęcim and Cracow and analyzed how this experience can be used in Kadetskyi Hai (Fig. 1). An interesting example is the Peace Park between Słowackiego, Chemików, Dąbrowskiego and Olszewskiego streets in Oświęcim, established between the former chemical factory and the Chemików Housing Estate (Fig. 2), as well as the greenery of the historic Officers' Housing Estate in Kraków with its green squares and playgrounds (Fig. 3).



**Fig. 1.** The former Kadetskyi Hai (Cadet Grove) in Kyiv. Fragment of historic aerial photography from the 2<sup>nd</sup> half of the 20<sup>th</sup> century, photo [in:] Private Archive



**Fig. 2.** The historic Chemików Housing Estate in Oświęcim, next to which the Peace Park was established. Fragment of historic aerial photography from the end of the first half of the 20<sup>th</sup> century, photo [in:] Archive of CUT FA



**Fig. 3.** The historic Officers' Housing Estate in Cracow. Fragment of historic aerial photography from the end of the first half of the 20<sup>th</sup> century, photo [in:] Archive of CUT FA

The Peace Park in Oświęcim was organized on part of the territory of the former green sanitary protection zone, which separated chemical enterprises from the residential neighborhood where their employees lived (and it is still called the chemists' neighborhood). This green area has some features in common with Kadetskyi Hai in Kyiv: significant ecological potential; a large number of green spaces, most of which are unorganized; good location of the recreation area next to residential areas; availability of natural water sources. After long discussions with residents, a

large green area, divided by a street into two parts, was proposed as a recreation area. The opening of a part of the sanitary protection zone for mass visits became possible due to the reduction of production volumes, its modernization and the reduction of harm to the environment.

The first stage of the revitalization of the former sanitary protection zone (which was named the Oświęcim communication space—the organization of the Peace Park) was planned for 2019–2021; the customer was the city of Oświęcim. Peace Park was financed jointly by the city and the European Union.

The park was laid out on the territory of 7 hectares; the second part—about 2 times larger—still remains unorganized. This unorganized part of the green area, with a stream and old trees, is called Monkey Grove by residents.

Discussions were held between the city authorities and residents regarding the arrangement of both parts of the park. As a result, dilapidated buildings, old small architectural forms and old path surfaces were dismantled.

On the territory of Peace Park, there are two children's playgrounds with universal play equipment, combined with alleys and bike paths, recreation areas with benches, a pool with a fountain, wooden sculptures and mobile service facilities for vacationers (Fig. 4). There are bridges across the stream. White hydrangeas planted around the perimeter of each ground give the effect of coziness.



**Fig. 4.** Park of Peace. (Photo by Y. Ivashko, 2024)

On the other hand, there has always been a lot of greenery in the Officers' Housing Estate in Cracow, located in the center of the city, in the area of Rakowicka, Prażmowskiego, Brodowicza and Grochowska Streets, which was connected with the Bialucha River flowing through here and with the buildings, which are mostly of a single-family nature. However, until recently, there was a lack of places with structured greenery and playgrounds where older residents of the neighborhood and children could spend their free time. Creating such spaces was a difficult task because the Officers' Housing Estate, built between 1930 and 1939 [1, 2], is a finite composition, and its urban layout is mostly invested.

Nevertheless, two such projects have been created in the estate over the past few years. One is a pocket park with a playground on Prażmowskiego Street and the streetcar loop and the other is the Olsza Park on the Bialucha River.

The pocket park on Prażmowskiego Street is a small green space that, on the one hand, allows the elderly to relax and, on the other, provides moments of joy and fun for children (Figs. 5 and 6). This park is called a “wooden” park because it was built mostly from natural, ecological materials. It offers, on the one hand, the opportunity for physical activity and, on the other hand,



for children with disabilities the opportunity to explore the space with the senses of hearing, touch and smell because the plants planted here support this.



**Fig. 5.** The pocket park and playground on Prażmowskiego Street (the Officers' Housing Estate). A view of the ecological playground equipment.  
(Photo by J. Kobylarczyk, 2024)



**Fig. 6.** The pocket park and playground on Prażmowskiego Street (the Officers' Housing Estate). A view of the pergola.  
(Photo by J. Kobylarczyk, 2024)

Just a few months ago, a second park opened on the estate. This is the Olsza Park located on the Białucha River (Fig. 7). The park meets the needs of different user groups. It has been divided into zones, which are connected by walking paths. In the center of the park is a playground made of ecological materials such as wood.



**Fig. 7 a, b.** Olsza Park on the Białucha River (the Officers' Housing Estate).  
(Photo by J. Kobylarczyk, 2024)

The surfaces are also natural (grass, sawdust). There are slides, a climbing wall, a so-called “spider web” and other educational devices. In addition, there are benches and picnic tables in the park. A lot of new greenery was planted in the park, but the existing riverside greenery was also used. Efforts have been made, for the sake of people with disabilities, mainly children, to eliminate all architectural and terrain barriers. The park also has an educational aspect because all the information about the plants and also about the history of the district is described on information boards. Thanks to the above solutions, the space is attractive and friendly to all residents of the estate, including able-bodied and disabled children.

The authors analyzed the existing Polish experience of setting up modern playgrounds, taking into account the needs of children with disabilities and defined the main criteria that such playgrounds should meet:

- remoteness from highways, safety;
- renovated walkways of sufficient width, providing free access for people in wheelchairs and on crutches;
- modern safe play equipment, designed for children with disabilities;
- possibility of presence of parents/guardians, availability of benches and tables;
- modern design with a national flavor;
- use of ecological materials.

According to the defined criteria of such platforms, the authors formulated the research objectives:

- to determine the % of greening of the territory, which can be transformed into an intra-quarter recreation area within the boundaries of Chapeka and Nischynskoho streets;
- to determine the problems of the current state of this territory;
- record and analyze the situation with children's playgrounds in this district; evaluate their number and compliance with modern needs;
- to analyze the Polish experience of designing children's playgrounds taking into account the needs of inclusion;
- to provide own proposals for the design of modern playgrounds taking into account the needs of children with disabilities.

## Materials and methods

The research objectives determined the choice of general research methods. In particular, it is the method of historical analysis that has been used to study the history of districts in Kyiv (the Kadetskyi Hai), Krakow (Officers' Housing Estate) and Oświęcim (the area between the Chemików Housing Estate and the chemical factory where the Peace Park was created). This method is connected to a literature search and an archival search for historical photographs and maps.

The method of photofixation became an evidence base for identifying the problems of modern use of this green area and developing proposals for their solution. The method of comparative analysis made it possible to compare how the problems of access for children with disabilities are solved in different countries and to determine which of the design techniques of such modern playgrounds can be applied to a specific section of the Kadetskyi Hai.

The graphical-and-analytical method made it possible to present the author's implemented projects of Oleksandr Ivashko of modern children's playgrounds in ethno-style.

Sources were processed in the following areas:

- history of the Kadetskyi Hai [2];
- study of the Kadetskyi Hai [2];
- experience of green zones in historic cities [1–8];
- garden cities [4, 9];
- the specifics of designing playgrounds with inclusiveness requirements [10–14];

– development of historical territories in cities [9-10].

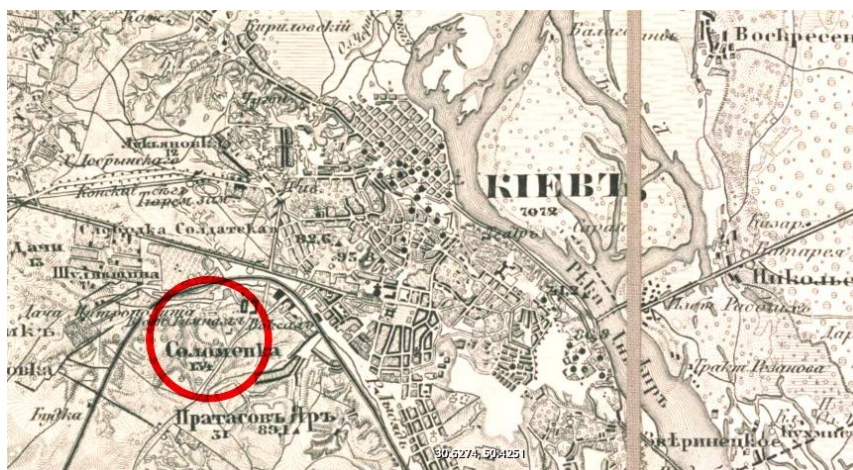
The main two groups of processed sources related to ecosystems in cities, garden cities—on the one hand—and the design of children’s playgrounds with inclusiveness requirements—on the other.

### **The history and current state of the Kadetskyi Hai ecosystem within the boundaries of Chapeka and Nishchynskoho streets**

The article continues the grant research of the Kadetskyi Hai ecosystem. In previous publications, the authors identified several stages of the formation of the Kadetskyi Hai, part of which is the so-called former Pershotravnevyi residential area within the boundaries of Chapeka (Fuchyka)–Nishchynskoho streets.

In particular, until the end of the 18th century, evidence about the Cadet Grove states that it was an oak grove where some trees came from ancient Russian times and, according to legends, were used as sacred trees for pagan rituals. In 1722–1730, Kadetskyi Hai became the location of a dacha of Metropolitan Varlaam Vanatovych, Archbishop of Kyiv and Halych. Since then, the Kadetskyi Hai has also become a place of country recreation for seminarians of the Kyiv-Mohyla Academy.

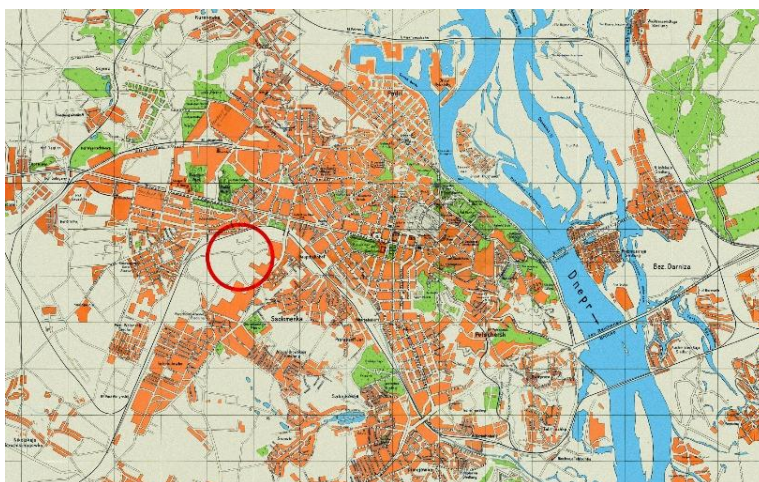
This green area changed its name several times and in the sources of 1786–1846, it is already called Shulyavskiy Hai. In 1847–1917, the grove changed its function; the Volodymyr Cadet School was built here in its place, cutting down a part of the greenery under the Mykolaiv Artillery [2], which led to the cutting down of a significant amount of the oak grove. However, until 1917, this area also had a recreational function and because cadets used to walk here, the next name was Kadetskyi Hai (Cadet Grove).



**Fig. 8.** Map of Kyiv from 1872 indicating the Kadetskyi Hai. Map [in]: Archive of CUT FA

Since 1918, the area of the grove has been constantly decreasing. The process of felling the grove became massive after the Second World War, when the Chokolivka residential area was formed on a large part of the Kadetskyi Hai from medium-story “Khrushchev” development, most of which date back to the 1960s. Since Kadetskyi Hai was characterized by active forms of relief with alternating hills and flat parts, part of the building was located in a terraced manner according to the requirements of the relief and the slopes of the hills are located between the building lines. It is according to this principle that the buildings are located on the sides of the studied area in the limits from Chapek Street to Nishchynskoho Street (Fig. 9).





**Fig. 9.** Map of Kyiv from 1941 indicating the area of the former Kadetskyi Hai. Map [in]: Archive of CUT FA

The research carried out by the authors proved that the territory is located in the zone of active relief, is characterized by subsiding soils and has a high percentage of greening, but this greening has recently been disordered, which has led to the appearance of self-sown green plantations.

Despite the unique ecological properties that open up the potential of transforming this area into intra-quarter recreation, this area is currently not adapted for recreation. Two children's playgrounds, which do not meet either modern design or inclusiveness requirements and one sports playground for playing volleyball were recorded (Fig. 10). Since most of the rides are old and shabby-looking, these sites are almost always empty.



**Fig. 10.** Children's playground located near the buildings in the area of Chapek and Nishchynskogo Streets. Current state. Photo by Y. Ivashko, 2024.

On-site inspections and surveys of residents with children confirmed the lack of playgrounds in general; residents complained that the green zone is unsuitable for children and they have to go to other parks.

This topic became an occasion to look at the problem more broadly, since in Ukraine not only are there not enough modern playgrounds, but there are also no playgrounds adapted to the needs of children with disabilities, which requires the modification of play equipment.

### **Modern examples of playgrounds based on modernized ethno-style**

The war prompted the search for ways to rebuild the destroyed environment, including playgrounds. To reconstruct and restore mutilated playgrounds in the de-occupied territories and develop architectural forms of family leisure, the team of volunteers of the project initiated the development and further construction of public facilities for open spaces. Such an experimental project of a playground in ethno-style, but in a modern interpretation, became a project called “Klapytk” for the city of Makarov, under the slogan “Playground, where they chirp in Ukrainian” (design author Oleksandr Ivashko, implementation Ivan Kovaliov, LLC “Workshop of Miracles” and Andrii Matiashchuk, initiator and project manager of the project).

The main values of the modern playground in the understanding of the project participants were as follows:

- safety – for children;
- new identity – for the audience;
- ease of use – for families.

Additional values:

- possibility of adaptation and customization – for partners;
- architectural attractiveness – for neighbors;
- environmental friendliness – for the whole world;
- investment transparency – for participants.

The main thesis of the project was defined as the safe and understandable operation of the playground of the correct shape, built using the national Ukrainian identity.

Thanks to the local community of the city of Makariv, Kyiv region, a children's playground in the public space of Molodizhnyi Park, which was damaged as a result of shelling, was identified as a pilot project, with the aim of its reconstruction into the first project of the “Klapytk” children’s playground.

The project participants departed from the “slide-sandbox-swing” stereotype and created an open interactive art space for children and adults. The modernized and adapted Ukrainian embroidery was taken as the basis of the design.

Depending on the configuration, the site may contain objects directed in at least three directions:

- 1) static and dynamic play structures for children 2–5 years old;
- 2) static and dynamic play structures for children 6–12 years old;
- 3) a place for parents to rest (landing, cover from the sun and rain, informational materials, a charging point for gadgets etc.);
- 4) interactive and art objects (mechanical objects, sound accompaniment of birdsong, dynamic layouts of regional monuments, artistic decoratio etc.).

The project participants envisioned the possibility of placing the “Klapytk” children’s playground not only in areas where there are prerequisites or the need to install a children’s play module. It is important to integrate and adapt to family visiting areas—supermarkets and hypermarkets, administrative service centers, medical service centers etc. Children’s playground “Klapytk” is not only a space for children; it is a solution to the problem of waiting or spending time with children. Thanks to architectural and construction flexibility, the site can be integrated into parking lots, the surrounding area, parks and recreation areas and other public spaces.



## Requirements for the design of playgrounds for children with disabilities: the experience of Poland

As noted in many media sources, there is also a problem of access to playgrounds for children with disabilities in Poland. However, Poland has already accumulated experience in solving such problems; in particular, play equipment is also designed for children in wheelchairs.

According to the studied sources of manufacturers of children's play equipment, today in Poland there are two approaches to providing leisure time for children with reduced mobility on playgrounds. The first approach is the joint leisure of such children with healthy peers; the second is the creation of specialized playgrounds for children with disabilities, where play equipment has a certain structural and design specificity.

In Polish sources, the difference between these two approaches is defined in detail and it is proved that the integration platform and the inclusive platform are not the same [11, 12].

Integrative playgrounds are designed taking into account the following requirements [11, 12]:

- principles of universal design;
- taking into account the needs of both healthy people and people in wheelchairs, with visual and hearing impairments, other limitations, pregnant women, elderly people accompanying children;
- the project of an integration playground includes play equipment, landscaping, additional equipment with benches, gazebos, tables and trash cans and covering of the playground;
- the playground is interpreted as an inclusive space, accessible both to healthy children and to children with disabilities and this is its difference from specialized playgrounds, where all play equipment is designed for the requirements of inclusion;
- the integration playground is often interpreted as more favorable for the socialization of children with disabilities, as it is an intermediate link between the playground for healthy children and the playground only for children with disabilities;
- when children with disabilities play as equals with healthy children, they learn to accept each other and communicate; the example of healthy children becomes the desire of a child with disabilities to develop motivation for self-improvement so as not to be worse;
- communication with healthy, positive peers contributes to the emotional, mental and physical development of a child with disabilities and teaches peers tolerance, especially in group games;
- the financial advantage of such playgrounds lies in the versatility of play equipment when it does not need to be adapted to the needs of a specific group.

In Poland, there is a type of specialized playground where all playground equipment is designed for children with disabilities and therefore performs specific functions:

- contribute to physical development;
- develop coordination of movements;
- reduce fear of movement and heights;
- contribute to the socialization of children.

There are manufacturers in Poland who specialize in play equipment for children with disabilities. They manufacture special types of swings, carousels, street trampolines, verticalizers etc. Special types of swings provide a platform for a wheelchair or are equipped with large seats with backrests and safety belts. All play equipment is equipped with a special low-floor wheelchair ramp. All elements of such a playground are designed for the specifics of the movements of children with disabilities, where children may not be able to walk, have limitations in hand movements etc.

Although this is a specialized playground, its design should not be worse than the design of a playground for healthy children; the same applies to the design of playground equipment, which should be attractive [13, 14].

When designing such a specialized site, the following requirements are observed:

- modern design, environmentally safe materials;
- development of gaming equipment in accordance with the needs of inclusion;
- creation of conditions for the development and socialization of children with disabilities.

Play equipment for children with disabilities has design specifics. Yes, swings for children on strollers have a platform for the stroller, reinforced fasteners and an exit lock; they are protected from excessive swinging and if desired, they can be swung and stopped using ropes. Such a swing can be for one child or for several children.

Special types of carousels have also been developed for children in wheelchairs, which have gate protection and brakes that prevent the carousel from rotating quickly. There are also benches for attendants.

Special playgrounds are decorated with “castles” with a tower, slides, bridges with handrails, a platform, a vertical bar with a rotating wheel, ladders with a traction handle and stairs with handrails, a fire pole with hoops, a tubular slide (snail), a rope wall and a tunnel rope bridge. Trampolines are adapted for people in wheelchairs.

When designing such specialized playgrounds, each type of play equipment has ramps for wheelchairs, additional barriers, handrails, handles at different heights and many other necessary elements. All play equipment has certificates [13-19].

## Conclusions

This paper analyzes the problem of recreational spaces for children (with a particular focus on children with disabilities) in the historic districts of historic cities: Kyiv, Cracow and Oświęcim.

The ecosystem of the historic Kadetskyi Hai area in Kyiv was analyzed particularly closely in this aspect. The study identified a number of problems with the organization of this territory for recreational purposes. One of the problems is the lack of modern playgrounds. The two existing playgrounds are neglected and outdated, so children hardly ever visit them. In contrast, an example of the experimental playground “Klapyk” in the city of Makariv, based on modernized Ukrainian ethnographic traditions, is given, which is part of a volunteer initiative to rebuild playgrounds destroyed by the war.

It should be noted that despite the fact that every major Ukrainian manufacturer has play equipment for children with disabilities in its catalogue [15], in general, the problem of providing playgrounds for children with reduced mobility remains unresolved.

The authors analyzed the experience of solving this problem in Polish historic cities and their historic districts. They found, among other things, that modern recreational spaces, including modern playgrounds with facilities for children with disabilities, do not disturb the historic cultural landscape of these areas.

It is therefore requested that recreational spaces, including playgrounds in the historic districts of Ukrainian cities, be modernized and made accessible to children with disabilities. Modern solutions in terms of materials and equipment can be used for this purpose, as they do not negatively affect the perception of historic architecture and natural green spaces, as shown in selected examples in Poland.

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