Pre-war Inspirations in Shaping Green Spaces in Post-war Warsaw

Alicja Szmelter, Justyna Zdunek-Wielgolaska
Faculty of Architecture, Warsaw University of Technology, Koszykowa 55, 00-659 Warsaw, Poland
justyna.wielgolaska@pw.edu.pl

Abstract. This article explores green space planning in Warsaw between 1916 and 1954, as an example of the creative development of the concept of shaping green spaces through years in the city. Based on relevant plans and documents this study shows that regardless of the conditions or political system, the urban green areas adopted after the war was optimal, because it resulted from the real needs of the state capital, which after many years of partitions, regained independence, and thus the ability to self-decide about its further development. The article examines the impact of planning concepts from the interwar period on the reconstruction of Warsaw in shaping green spaces. The paper focuses on indicating the similarities and differences in urban plans derived from the interwar time and the "social-realistic" period. The research starts with studies at the general level and leads to detailed solutions. The research uses the method of critical analysis of source data, including cartographic studies and the comparative method. In addition to strictly scientific research methods, the study also uses artistic evaluation of the designed urban greenery assumptions. As a result of the war, many European cities suffered severe damages. Warsaw belonged to the most experienced in this area. Paradoxically, the city's destruction has become an opportunity for rebuilding it as a better one, also in terms of strengthening the resources of green urban areas. Already in the pre-war period, the need to increase the city's area resources was strongly articulated to enable a coherent and future-oriented urban policy. The idea of strengthening the field base constituting urban resources was at the root of the idea of cooperative activity so popular in the Scandinavian countries or Germany. However, in Poland, right after the war took a pathological form. Under the so-called decree on communalization, also called the Bierut Decree, the ownership of land within its administrative boundaries was transferred to the municipality of Warsaw, which facilitated the process of implementing changes. The concept of building Warsaw in 1945 assumed functional segregation of the city following the idea of Le Corbusier. The overall thought was to rebuild Warsaw as the town for the new "socialist" type of citizens. Although the urban planners working during the so-called "social-realistic" period (1945-1954) affirmed that their ideas of the development of towns were entirely new, the plans prepared for Warsaw depict many similarities to the ones worked out in the interwar period, from 1916 on. At the same time, the plan assumed maintaining wedge-shaped zones of greenery entering downtown. Subsequent proposals of the first post-war years followed this principle. Subsequent concepts for the development of Warsaw arising in the second half of the 1940s were consistent with the assumptions of the Athens Charter of 1933, guaranteeing residents' access to greenery, accompanying residential districts, or creating a city-wide recreational space.
1. Introduction
Warsaw derives its current functional and spatial structure from the concepts which were born before
the war. Różański gave this principle a clear definition: "for hygienic reasons, the urban organism was
torn apart by parks, cemeteries, reserves, etc. concentrated in wedges. . . Between those wedges, some
districts will, in the future, be natural administrative units. These neighborhoods connect concentrically
with the city's main nucleus" [1]. This idea of green wedges separating individual residential districts
and the ring of reserves as a space free from intensive development from the outside proved so universal
that it was continued in subsequent planning concepts for Warsaw. The issue of building a healthy
residential environment still returns to planning. In this context, highly relevant and rightly recalled are
solutions proposed at the beginning of the 20th century, which, just as then, after bitter experiences of
the industrial revolution, was to restore balance to the urban ecosystem. Like so, today in Poland, we
attempt to restore law and order in Polish cities, which have wasted away their roots as a result of
political transformation. This paper presents a critical overview of the spatial development plan of
Warsaw - from the first so-called regulation plan of the Great Warsaw from 1916 to the plans of the
1960s, presented on the background of the role of green areas in the analyzed plans. This text aims to
demonstrate the degree to which the pre-war way of planning open spaces in the city shaped the vision
of socialist Warsaw in this scope.

2. The challenges of Warsaw at the beginning of the 20th century
Although at the beginning of the 20th century, the capital of Poland - Warsaw - which had approx. 700
thous. inhabitants could not compete with its total population with European capitals, it faced similar
problems as European metropolises like Paris, London, Berlin, or Moscow. In Warsaw's central districts,
there was an excessive concentration of buildings due to the intentional inhibition of the territorial
development of the city by the invaders, as a result of the construction of a fortification belt at a distance
of 5 km from the city center, and the erection of a citadel on the northern edge of the city (after the fall
of the November Uprising, 1830), and restricting the administrative range of the city to the area covered
by fortifications from 1770.

The ban on erecting buildings, apart from the districts limited by the 18th-century Lubomirski's
embankment, resulted in a densified development - building plots were formed in the gardens of former
municipal residences, parceled out for higher and higher tenement houses with minimum yards. The
standard of Warsaw dwellings, apart from those of the wealthiest sections of the population, was low -
there predominated single-room flats; attics and cellars were inhabited. The recombination in the district
of central Warsaw, developing despite political restrictions, as well as residential houses with production
workshops and small factories, and the use of coal-fired stoves for home heating and cooking, posed a real
threat of pulmonary diseases. Already in the 18th century, in spite of making available to a broader
audience extensive parks accompanying the Warsaw residences of Polish kings, at the beginning of the
20th century, there was only 2 m² of arranged greenery per inhabitant in Warsaw. Entrance to the former
royal parks was also limited by appropriate clothing, the adequacy of which was assessed at the park gate.

3. The role of green areas in the first modern development plan in Warsaw "Draft outline of the
regulation plan of the Capital City of Warsaw" developed by the Association of Architects in
1916
In 1916, as a result of the incorporation of Warsaw to suburban grounds, the area of Warsaw increased
from 3 275 ha to 12 100 ha. It was decided to develop a plan for the newly-incorporated areas to help
integrate them with the existing city structure. The development of the "Draft. . ." was commissioned to
Polish experts, headed by an architect, and a graduate of the Karlsruhe University of Technology,
Tadeusz Tołwiński (1887-1951), who organized the Faculty of Architecture of the Warsaw University
of Technology in parallel with the work on the plan of Warsaw.
After conducting extensive analyses, both of the condition of the city itself, as well as the recent world trends, the authors of the "Draft..." gathered at the Association of Warsaw Architects, cooperating with experts from various fields associated with city-wide design decided that the plan would cover four boards on a ratio of 1:10,000 marked with text explaining their content [2].

The plan uses zoning of the city structure as a binding rule, and one of the boards of the "Draft..." is devoted to the contribution of greenery to the development of a modern metropolis, whose population was to increase from approx. 700 thousand up to 2 million residents in 20 years. The intention of the authors of the plan was for Greater Warsaw to have 7 m² of urban green space per inhabitant.

The formation of wedges aerating the city consisted of combining the existing greenery with that which was designed into green corridors reaching the city center. Green wedges were to remain undeveloped, which was to be guaranteed by the relevant law ultimately binding throughout Poland, and initially in Warsaw, treated as an outpost of the statutory restriction of construction activities. Green wedges were to push fresh air to the densely developed center while separating future residential areas. In line with the radial scheme of Warsaw's development, developed historically, also green wedges repeated the pattern of the radial network of the city structure. The separation of built-up areas with green wedges extending towards the city border was to counteract the concentric development of the city, as intended by the authors of the plan. They believed that creating a green belt around the city in the form of a "green ring" was not appropriate, as such an undeveloped zone would limit the city's territorial development in the future. For enhancing the city's radial arrangement, excellent communication intersects connecting the outskirts with the city center were designed. They were the main axes of new residential areas. These intersects were to be very broad - they would measure 30-50 m in width and would even be planted with triple rows of trees. The broadest intersects would also be walking paths, the center of which was designed to lead elongated water reservoirs among greenery (analogies to the great intersects designed by D. Burnham in the Chicago plan from 1909, or to the design of intersects constituting the backbone of Wagner's plan for the development of greater Vienna in 1911, seem obvious). Green wedges were to consist of a mosaic of areas serving various purposes: designed were new parks and squares, gardens, zoological and botanical gardens, gardens at existing and planned hospitals, nurseries of urban greenery, school and monastery gardens - existing and planned cemeteries networked with existing parks and squares, and on the outskirts of the city connected with agricultural land.

In Warsaw, the worst situation prevailed in central districts, so it was assumed that some land would have to be purchased by the city authorities in order to arrange squares and parks within walking distance of about 15 minutes. They were not drawn on the planning board, as it was presumed that the future local authorities of districts would decide on the most appropriate distribution.

In the southern zone of the city, in the Siekierki area in the bend of the Vistula River, preserved was a great acreage of existing grasslands, which would supplement areas for the leisure of Warsaw inhabitants. There were plans to build a people's park, the Great National Park, [3] here fulfilling a role of an Olympic complex, with a racing square, an Olympic stadium, sports fields and squares, swimming pools, and a canoe track. The meadows of this monumental green complex were also to be used for rallies of paramilitary organizations. On the right bank of the Vistula, on the Praga side of the river, exhibition areas were designed to complement the greenery of Skaryszewski Park, established in 1906. The greenery of the exhibition acreage, across the river, corresponded with the planned Olympic acreage. Warsaw inhabitants would, therefore, have two people's parks in the northern and southern outskirts of the city: one in the above-mentioned Młociński Forest, and the other in the Siekierki area.

The Vistula River, with its raised embankments and structured boulevards, was to be framed with greenery and push air to the city center in a natural way. The arrangement and greening of the areas below the edge of the Escarpment, which stretches on the left bank along the Vistula valley, was
supposed to help the visibility of government buildings. Buildings serving the city administration, state authorities, and cultural institutions were to be erected on the edge of the Escarpment, rising about 30m above the level of the lower terrace of Powiśle. Monumental objects would complement the historical panorama of Warsaw, visible from the Praga side above the Vistula surface. At that time, the plan already outlined the concept of the arrangement along the slope of the promenade, which would connect the Old Town with the area of the former royal residence from the 18th century – the Royal Baths Park. The areas on the Escarpment slope were to be supplemented with new parks flowing down terraces towards the river. This concept was taken up after the Second World War - in 1958 the Central Park of Culture in Powiśle was established according to this principle (according to the design by Alina Scholtzówna).

4. Greenery in the development plans of Warsaw in the interwar period

For urban planners preparing subsequent plans of Warsaw's development after the First World War in the setting of reborn independence, the plan of the Association of Architects from 1916 was a starting point for taking up work on a much grander scale and with even more panache. Already in 1917, the Office for the regulation and development of the city was established, which as the basis for further activities, drew up the necessary ownership plan, and marked areas of all kinds of ownership, as well as an elevation plan with the number of storeys. The absence of measurement plans was supplemented in 1927 with photos taken from military planes. The Office commissioned the preparation of further sketch and zone plans. Another, the fifth regulatory plan was created in 1929, when a special section was established in the Bureau, headed by Stanisław Różański, which developed further assumptions for the development plan of Warsaw. A read of the plan's assumptions demonstrates that the principles outlined in 1916 contained in the "Draft..." were largely preserved in the interwar plans. The 1929 plan was approved in 1931 and was in force until the outbreak of World War II. This plan was developed for an estimated population of 1.6 million inhabitants and assumed a time horizon of the 1960s. The general development plan from 1931 included a division into 10 zones, which were assigned indicators for the permissible number of storeys, development surface, and arrangement, divided into compact, loose, and group. [4]

Continuation of the previously developed concepts, already present in the 1916 plan, concerns both the general assumptions of the plan and the unique role of greenery in shaping the future development of the city. The principle was maintained that fresh air would be pushed into the city center thanks to the design of green wedges that would separate residential areas. The districts were to be "a kind of peninsulas around the city's shopping center." The town with a diameter of about 14 km and an area of about 16 200 ha was separated by huge wedges of greenery, running from the green border to almost the city center. The green wedges in the interwar plans were less numerous than in the previous plan, but they were much more extensive (figure 1).
The Vistula Valley was considered the most crucial aeration wedge, assuming that the Vistula boulevards would be maximally widened by connecting them with the new parks designed on the slope, which was also previously proposed. In order to obtain a relaxed character of the development of residential areas, it was decided to set tighter buildings only along communication intersects. It was envisaged that the development of residential districts would be of low intensity (the surface area was to be 10-30%) and would consist of houses with gardens placed inside, framed by larger blocks of flats (figure 2). The proposal to create an industrial district in the north-west of the city, on the right bank of the Vistula, isolated from the city by a green belt, was also upheld. Some areas of Greater Warsaw would be excluded from development due to the fact that they were waterish and required drainage. It is a part of the Czerniaków, Siekierek, Wilanów, and Saska Kępa grounds, which were intended for a people's park and exhibition areas in the plan of the Association of Architects from 1916. The city areas were to be separated from the garden city estates developing outside the city limits and from the satellite estates by the so-called "Reserves" or agricultural areas with a very low intensity of development.

The "Study of parks and sports fields" prepared for drawing up the plan showed that the inhabitants of the central district lacked about 200 hectares of parks. The balance was intended to be evened by transforming the interiors of larger blocks with tenement houses into pitches and green areas, and by arranging new, spacious recreation areas outside the city. The study of cemeteries stated that each new district should have a designed cemetery, the area of which, like that of existing cemeteries, would be included in the overall balance of urban greenery. The cemeteries are distributed in green wedges and in "reserves", outside built environments. The creation of large green boulevards radially extending from

Figure 1. Warsaw’s green wedges, around 1930. Legend: 1. Green Wedge, 2. Rural land, 3. Railway line, 4. Streets, 5. Mediaeval city core. A. Szmelter, 2020. Sketch based on [5]
the city was planned again. A certain novum in the plan from 1929 was a proposal to create boulevards in the post-fortress belt surrounding the city.

Private and government forests, which were located relatively close to the city, were postulated to be kept and excluded from the parceling, which was an unrealistic demand against the intentions of private forest owners.

Figure 2. Warsaw. The development plan of 1928. The scheme shows wedge-shaped green areas pumping the fresh air into the city-center from the rural and forestry land. The town is encircled in a green belt, which separates the new settlements from the already built-in areas [6]

The realization of plans to regulate the city, regarding the provision of health conditions of life there, was facing certain problems of financial nature, however, in line with the postulates contained in the plan from 1916, and in subsequent regulatory plans, the plans for the park stretching along the bank of the Vistula River, between the Poniatowski Bridge and the Kierbedź Bridge, were taken up, as well as plans for the park on Mokotow Ground, where a government and university district intersected by a monumental axis of composition was to be created. In 1934-39, Stefan Starzyński, the mayor of Warsaw, initiated the preparation of plans for sports grounds located along the Vistula River. On the initiative of the city mayor, sports, sailing and canoeing clubs, marinas, and bathing areas were to be established here.

It is also worth noting another update of the general plan prepared in the interwar period, this time drafted under the guidance of Marian Spychalski, which was not adopted due to the outbreak of the war. This plan was, by essence, supposed to be an update to that approved in 1931. However, according to the true intention of the leader of the developing team, it was a conceptually new plan [7]. Importantly,
it assumed that 35% of the city's area would be green zones. The plan divided the city into zones: city, the Old Town, two mixed zones, four residential zones, a village zone, an industrial zone, and a public utility zone, but at the same time it maintained the current principle of concentric green wedges, of which the widest four were to be 0.5 km in size, while the others were narrower - with a width of at least 100 m were to penetrate urban sprawl as deeply as possible [8].

The outbreak of the Second World War wrecked these plans and brought devastation to the city, including the park forest stand, which was destroyed by 60% in historical parks.

5. Greenery in the development plans of Warsaw in the aftermath of the Second World War

As a result of the war, many European cities suffered enormous damage. Warsaw was one of the most experienced in this respect - damages to the left-bank portion reached 84% [9]. Paradoxically, the act of destruction became an opportunity and awoke hopes for its reconstruction in a new, better form. Although even prior to the war, there was discussion about the scenarios for qualitative reconstruction, undoubtedly, an obstacle for undertaking actions on a larger scale at the time was the functional and spatial structure established over the years of development, not devoid of defects and pathologies resulting from planning omissions. The way in which Warsaw was finally rebuilt causes a wave of criticism to this day, but it also has many supporters1 [10].

Noble objectives were pursued by all who were engaged in the idea of restoring Warsaw. This was best characterized by the words recorded in the archives of the Capital Reconstruction Office by Stanisław Jankowski, who co-created the Perspective Development Plan for Warsaw and the Warsaw Municipal Complex: "Referring to the centuries-old development of the city and its priceless cultural heritage, the point is to erect a new city, being an expression of our times, our social, architectural and technical postulates, a city efficiently serving as the capital of Poland and the future center of international cooperation in Central Europe " [11].

Already in the pre-war period, the need to increase the territorial resources of cities in order to enable a coherent and future-oriented urban policy was strongly articulated. The idea of strengthening the field base constituting urban resources became a basis of the notion of cooperatives, so popular in Scandinavian countries and Germany, but it took a pathological form just after the war in Poland. Under the so-called communalization decree, also known as the Bierut Decree, the ownership of land within its administrative borders was transferred to the commune of Warsaw, which greatly facilitated the implementation process of the planned changes.

In 1939, Warsaw had green zones including recreational areas (parks, lawns, supplementary greenery, small squares - 204 ha, which was 1.6 m per inhabitant)², to this must be added didactic gardens of ca. 40 ha, which constituted 0.2m² per capita, long-range recreational areas, i.e. the Bielański Forest, covering a surface of 80 ha in the city's administrative area, and 150 ha in total, which gave the indicator per capita of 0.8 m². The resources also covered Jordans Gardens with a total area of 10 ha (0.08m² per capita) and allotment gardens (the largest at Mokotów Field, Żwirki i Wigury Avenue, Jana Olbracht, Libawskiej, Krasińskiego Streets), with a total area of 99 ha (0.8 m² per capita). The green base was also built by cemeteries with an area of ca 255 ha (2 m² per capita), as well as 2 ha of urban greenery (0.01 m² per capita) and greenery regulating the environment, i.e. protective forests and trees with an area of 118 ha (0.9 m² per capita). To conclude, in 1939 Warsaw offered 819 ha of greenery, which gave the index of 6.4 m² per capita. The area of green zones accounted for 6% of the overall city territory [12].

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¹ This was discussed, among others, during the “Warsaw rebuilt or remodeled” conference. Spatial planning in the People’s Poland of 1945-1989 organized at the Faculty of Architecture of the Warsaw University of Technology in 2006 or, most recently, during the festival of designing the city of Warsaw under construction - organized by the Museum of Modern Art in Warsaw and the Museum of Warsaw.
Thanks to the planning output of the interwar period and the works undertaken in hiding already during the occupation, works on restoring Warsaw were pursued immediately. The concept of the development of Warsaw from 1945 assumed the functional segregation of the city in accordance with the idea of Le Corbusier. Concurrently, the plan assumed maintaining wedge areas introducing greenery to the city center. Further proposals of the first post-war years retained this principle. Subsequent concepts for the development of Warsaw created in the second half of the 1940s were consistent with the assumptions of the Athens Charter of 1933, providing residents with access to greenery accompanying residential districts or creating a city-wide recreational space.

After the Second World War, the plan for restoring Warsaw was supplemented with new elements. In the first postwar plan, developed by the Capital Reconstruction Office in 1945, the principle of separating the city districts with green wedges was maintained, but the city's radial structure was abandoned. On the left bank of the Vistula, districts of the restored city were to create a belt stretching along the river. Only in this strip were they separated by wide green zones, connected with a strip of insulating greenery running along the residential strip, parallel to it. The strip of isolating greenery was to separate the residential area from the great industrial zone designed in the western part of the city and developed already since the 19th century. A similar layout was also proposed for right-bank Warsaw, where residential zones would be separated from the industrial district, located north of the city, as previously agreed, by a wide strip of open space. Recognizing such a plan as overly extensive, and probably also excessively inspired by avant-garde urbanism in Le Corbusier's circle, the next series of plans were prepared. Although its creators J. Chmielewski and Z. Skibniewski conjured away from borrowing from pre-war plans, probably for political reasons (in Poland the political system changed after the war), the BOS plan from 1946-1947 largely returned to the solutions known from the interwar period (figure 3). Rebuilt Warsaw could not be completely redesigned "anew", and although the city was rubble, it was necessary to use the preserved infrastructure and the substance of buildings that had survived the war. However, the concept of preserving the strip of undeveloped land reserve around Warsaw was totally rejected, striving to develop the city by creating "development belts" stretching along the rail-bound system running perpendicularly to the Vistula and parallel to its course, on both sides of the Vistula. This was, nota bene, coinciding with the concept of development of the region near Warsaw, which appeared in the study of the so-called "Functional Warsaw" in 1934.

Because the green wedges were undeveloped zones and the focus was put on rebuilding the central areas, they were kept, albeit in a reduced size, in subsequent plans until the 1990s, restoring their former function of "the green lungs of the city." In the plan of Greater Warsaw from 1950-54, (authors Stanislaw Dzewulski, Stanisław Jankowski and Halina Wiśniewska), the preservation of green wedges were predestined by health considerations. In subsequent plans from the 1950s, the green belt was also preserved, and the western industrial district was isolated from the central zone of the city, but it was reduced to several hundred meters wide.

The planned exemption from the development of the land near the Escarpment was also maintained, and it was allocated to a complex of recreational areas. Similarly, as in the case of the plan from 1916 and from the interwar period, the dominant architectural complexes were to be located on the edge of the Escarpment [13]. Within the area of the former city center, efforts continued to loosen the development, which was favored by the fact that most of the pre-war substance of the city was destroyed during the war, or was only suitable for demolition. Plazas or school sports fields were built on the sites of burned-down tenement houses.
Figure 3. Central districts of the future Warsaw. Diagram according to the Rebuilding Office Plans\(^2\).

Legend: 1. Main work centers, 2. Industrial centers, 3. Residential areas, 4. University district, 5. Undeveloped areas, 6. Public parks, 7. Sports grounds, 8. Escarpment, 9. Commentaries, 10. Areas connected do the escarpment, 11. Railway areas, 12. First category roads, 13. Second category roads [14]

The six-year plan for the reconstruction of Warsaw, carried out until 1955, was part of the nationwide program of rebuilding the country in the spirit of socialism, declaratively ensuring a better life for working people. The plan described the first years of rebuilding the capital as spontaneous and devoid of systemic management, which was precisely the purpose of its establishment. However, a certain

\(^2\) Plan’s originals in the State Archives of the Capital City of Warsaw.
flexibility of it was assumed in advance, which was to adapt to the current needs, as it turned out later - to a large extent political. It was assumed that the plan would cover an enlarged territory known as the Warsaw City Complex.

The best-planned investments at that time are presented in the list of two maps. The board on the left shows the long-term development prospects with a functional division into areas to be invested over a period longer than six years. This concept involved clearly defined green wedges that separated the residential strips. The stretches were made up of urban greenery, housing estate and insulation greenery, allotment gardens, and, to a large extent, agricultural lands.

The description of the plan leaves no doubt that most of the investment efforts were to be focused on improving the living conditions of the working group, which should also have access to recreation, green areas, light, and culture. As a result of investment pressure and the increase in land prices in central districts, in the previous period, working-class districts were pushed to the outskirts of the city, to areas with inadequate infrastructure. Therefore, their location needed to be supplemented in this regard as well. The arrangement of these districts also allowed, in respect of the principle of shaping the concentric-radial development of the city, to follow on from the idea of green wedges so that they would increase the quality of life in the city. The plan introduced new working-class housing estates.

Much importance was attached to the issues of greenery, both in central zones and in suburban areas. Therefore, planned large-scale works also covered areas outside the city's administrative borders, since there was an awareness of their major impact on the quality of life in the city.

One of the key determinants of the landscape of Warsaw is the Vistula and its valley, along which the main axis of Warsaw's urban development, concentrating as many housing estates and recreation centers as possible, has been determined. In the suburban zone, measures were to be taken to restore the largely degraded forest resources, which were to "become huge green massifs approaching the city areas directly" [15]. It has been agreed that these elements were the most relevant for the model of urban development of the Warsaw Municipal Complex. The heavily built-up strips departing from the center are interwoven with wedge areas composed of forests, agricultural and horticultural lands with a small percentage of low-impact buildings and airports.

The makers of early post-war plans assumed that Warsaw would reach over a million inhabitants around 1965 and that its structure would be largely relaxed in relation to pre-war standards. On the one hand, this involved continuation of the Warsaw planning process from its earliest development plans, and on the other, the evolution of urban design standards which, since the times of the Athens Charter and CIAM congresses, were to provide every inhabitant of a large city with access to greenery, sunlight and fresh air.

6. Results and Discussion
The analysis of subsequent spatial development plans of Warsaw was created over approx. 40 years and in dramatically changing circumstances of the city history; two world wars and the change of social system after World War II showed that there is continuity in urban planning. The choice of the role of green zones in planning the development of a large city as the leitmotif of the research allowed us to conclude that the way of loosening the city structure thanks to green wedges established at the beginning of the 20th century has become a fixed element of subsequent development plans for the city and its region in urban planning in Warsaw. The scale of the city's aeration wedges varied. The plan from 1916 involved a dozen or so wedges, while in the interwar period there were 4 large wedges. In postwar plans, their role was retained, but they were gradually restricted, allowing their development along with the evolution of new districts. On the other hand, the concept of surrounding Warsaw with a band of green, which was proposed in 1911 and rejected in the 1916 plan, returned to plans from the interwar period.
The exclusion of agricultural land surrounding Warsaw from development was present in the capital's design plans as early as the 1980s before the next change of social policy and was supposed to administratively limit the uncontrolled expansion of the city. The tendency to loosen the city structure and its deglomeration after the Second World War coincided with the vision of a big city promoted in avant-garde circles admired by urban planners, at the time. Warsaw's wedges of greenery found themselves in this stream, as did the concept of making the Vistula and its boulevards a place of recreation and entertainment, and at the same time a green foot of monumental buildings perfectly exposed on the edge of the Escarpment.

7. Conclusions
The carried-out analysis of the sequence of Warsaw's development plans over nearly a half-century demonstrated that green aeration wedges used in the urban planning of Warsaw were an element improving the functioning of the city, providing access to recreation areas and fresh air to the city center. Their role in the history of Warsaw's urban planning is exceptional. Successive planners appreciated the health values of green wedges and protected their existence, even though the city spilled across their borders. Playing such an important role in the space of Warsaw, they should remain protected against development even today.

Acknowledgment
The authors wish to acknowledge financial support from the Warsaw University of Technology (504/03625).

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[15] „Materiały urbanistyczne do planu perspektywicznego i sześcioletniego Warszawy“, Warszawa: nakł. Naczelnej Rady Odbudowy Warszawy, 1949 (in Polish).