Recreational zones of Sverdlovsky district in Irkutsk and the New Green Axis

I Druzhinina

1Department of architectural design, Irkutsk National Research Technical University, 83 Lermontov Street, Irkutsk 664074, Russia
E-mail: irk.allegro.id@gmail.com

Abstract. The article studies recreational areas of Sverdlovsky district in Irkutsk, their location, potential and development prospects. It analyses the occurrence and formation of residential and recreational zones which are of significance for the land-use planning of the district. The article proposes solutions for the restoration of a partially broken green structure of the district, and for the improvement of the social and ecological potential of the territories in the process of modernization. The tendency towards increasing the housing density on the territory for private housing construction (Glazkovo) was the main reason for the identification of the vector of development for the recreational zones of the district. The article touches upon the possibility of formation of the New Green Axis initiated by architects in the last century.

1. Introduction
Sverdlovsky district is located on the left bank of the Angara River and on the right bank of the Irkut River in Irkutsk. Sverdlovsky district is the second largest district in terms of area, but it is the leader in terms of population. According to the official portal of the Irkutsk city administration, in 2020 the population of the district totals a little more than 205,000 people [1]. It gives us a reason to consider this most densely populated district more closely in terms of living comfort, including recreational zones, its history and cultural values.

The history of Sverdlovsky district in Irkutsk goes back three centuries. The mountainous area on the left bank of the Angara River, which used to be called Zarechnyi rayon in the old days, bordered by the Kaya River in the west and by the Irkut River in the north, was pioneered in the 17th century as a Cossack settlement at the Irkutsk Ostrog. Glazkovo was first mentioned in the 1730s [2, 3]. It was spread along the eastern slopes of two mountains: Kaiskaya and Pilnaya and included several settlements: Mikhalevo, Titovo and Kozmikha (now Kuzmikha). In the second half of the 19th century Glazkovo district was built up more actively «figure 1». There are several reasons for that. By the middle of the 19th century, in 1859 a church was built in the name of Nicholas the Wonderworker and Saint Innokenty, the first archbishop of Irkutsk [4]. Thus, a pogost (a cemetery) appeared on the left bank of the Angara, which facilitated the burying in the period of ice cover, when there was no connection with the right bank. The existing Circum-Baikal road and the primary ferry line across the Angara (since 1857) followed by the pontoon bridge (since 1891) triggered the development of Glazkovo district «figure 3» [5]. After a succession of two most devastating fires in the history of Irkutsk that occurred in the summer of 1879, the inhabitants began to actively develop the left bank of the Angara. In 1893, the opening of a cycle race track became an important event in the sports and cultural life of the city. Apart from developing the bicycle sport, the cycle race track provided the
grounds for gymnastics, cycling for children, croquet, bowling, giant strides etc. It became an integral recreational center for the development of physical culture, sport and leisure «figure 2». With the opening of the Trans-Siberian Railway in 1897 [6, 7], and the Circum-Baikal Railway in 1900 [8], the railway station (built in 1896) and the whole railway hub became one of the landmarks of Glazkovo district «figure 4».

In the late 18th century another landmark of the district, a country house “Zvezdochka”, appeared on the maps «figure 2». As is known, in the 19th century there were several country houses built on different sites of Glazkovo, including the country house “Tsar-Devitsa” in Titovo (now the territory of Kurchatova and Igoshina Streets in Studgorodok). Due to the development of steam navigation and the arrangement of quays on the left bank of the Angara, country houses became popular among the citizens. In the early 20th century, there was a park with a restaurant and a photo pavilion at “Tsar-Devitsa”. But the park did not exist for a long time. Due to the new gardens and recreational areas arranged at the Angara and the Ushakovka, it lost its popularity, fell into decay and was sold out through a bidding process in 1910 [2]. Since the 1920s -1930s the territory of the pine grove “Zvezdochka” has been an archaeological monument of history and culture.

![Figure 1. A fragment of the map of Irkutsk with its left-bank part and its prospective development, 1869.](image1)

![Figure 2. A fragment of the map of Irkutsk with the cycle race track and the dacha “Zvezdochka”, 1915.](image2)

In the early Soviet era, Glazkovo was renamed into Sverdlova district «figure 5» and was developed on different sites, spreading over a wide area, including large residential neighborhoods. The bridge named after Lenin was built in 1936, and the Irkutsk Hydroelectric Power Station (HPS) was built in 1956. Akademgorodok, Irkutsk HPS settlements, Studgorodok, Yubileiniiy, Pervomaisky, Universitetsky, Sinyushina Gora also appeared in that period. In those years the development density of most micro districts was higher than it had previously been in Glazkovo. It is noteworthy that the micro districts were developed taking into account the peculiar features of the landscape. For example, Kochumovsky ravine and riverside territories of the Kuzmikh remained around Yubileiniiy micro district to house possible recreational zones for local residents. The same principle of the organization of recreational zones was used when Pervomaisky and Universitetsky micro districts were under
construction. Recreational areas were arranged in Pad Dolgaya and the Kaya waterfront. In the layout 6 can trace the connection between Pad Dolgaya with recreational areas of Akademgorodok, former Glazkovo cemetery, Botanic Garden, up to Kaiskaya grove, as well as through the “Green Cross” of the INRTU Studgorodok campus [9] to the Angara waterfront, in spite of the “gap” in the green territories made by the railroad branch of the East-Siberian Railway. Pad Dolgaya has preserved its status as a recreational area for a long time, having a cascade of small lakes, a spring, and melt and rain water running down the narrow valley to the lower pond bordering the eastern part of Pervomaisky micro district. This zone was assigned a special status. A pedestrian cross connection from the Kaya River runs through Pad Dolgaya, Pervomaisky and Universitetsky to the public center of Sverdlovsky district with such large projects as two sports arenas and two libraries, and goes farther to the Angara waterfront.

**Figure 3.** The view of the pontoon bridge over the Angara and Glazkovo

**Figure 4.** The view of the Circum-Baikal road from the station square. Now it is Tereshkovoi Street.

**Figure 5.** A fragment of the map of Irkutsk with the Sverdlova district, 1934.
Figure 6. The Layout of green spaces in Sverdlovsky district. The Scheme executed by Druzhinina I.

The park in Akademgorodok, a large green space of Sverdlovsky district, is spread along the southwestern border of the city, to the left of Lermontov Street (about 60 ha). The man-made park was planted by the members of the Academy of Science. It attracts the residents of the adjoining residential neighborhoods in all seasons of the year.

The natural asset of Sverdlovsky district is a unique relict grove (Kaisky pine forest). It is located in a scenic area on a steep slope of the Kaiskaya mountain and occupies more than 43 ha. It provides a panoramic view of the valleys of the Kaya and the Irkut.
Today, Sverdlovsky district has a partially broken green structure «figure 7». Being enclosed in a common “green brace” together with the territory of the Angara Resort in the north and the ISU Botanic Garden in the south, the Kaiskaya relict grove is located in the center of the district. Thus, it is worthwhile to arrange the green space of the Angara Resort through the Park Parizhskoi Kommuny in the form of a Northern Cross green axis. This possibility may occur in the case of an appropriate solution for the pedestrian confluence of city highways and the railway branch, providing a comfortable access to the river from the bridgehead of Glazkovsky Bridge.

The second cross axis running along Tereshkova Street in the form of a boulevard is one of the main existing cross green axes of the north-eastern part of the district, from the railway station “Irkutsk-Passazhirsky”, through the Park of the Initiative Youth, to the Kaiskaya relict grove. It used to be the Circum-Baikal road, which provided and horse-drawn connection with Zabaikalskaya Oblast through Pilenaya mountain «figure 1, 4».

In the INRTU campus, it is still possible to form a so-called “Green Cross” [10] with the development of a cross connection from the ISU Botanic Garden to the Angara waterfront. The solution is rather difficult because of the significant length of the bank line (3.7 km) in Sverdlovsky district, from Glazkovsky bridge to Academicchesky bridge. The line is separated from the campus and residential areas by the branch of the East-Siberian Railway. Thus, it has no chance to properly develop as a public recreational zone with an embankment, as a comfortable and continuous green city artery.

The forth cross axis passes through the public neighborhood center from the Kaya to the Angara waterfront, through Pervomaisky, Universitetsky and Akademgorodok micro districts.

The fifth axis runs from the Akademgorodok Park, through the small park of the Residential Complex “Academia”, towards the Angara waterfront, through the School of Art, School № 19 and towards the entertainment park “Polyana”.

The sixth green axis, which is almost lost, follows the water track, which passes along Melentieva Street and 1 Kuzmikhinsky Lane towards the Angara.

The seventh axis goes parallel with the Bolshaya Kuzmikha River, in the ravine between the two micro districts: Energetikov and Poselok Yuzhnii.

The seventh and the eighth axes come together in Kochumovsky Log, where the Malaya Kuzmikha River and the Bolshaya Kuzmikha River pass round two sides of Yubileinyi micro district. Then, in the area of Warm Lakes, the Bolshaya Kuzmikha River flows into the Angara.
The Kaya River is another landscape dominant with riverside floodplains and a picturesque winding course. The Kaya is the biggest among the small rivers in Irkutsk. Its valley is quite impressive. The urban riverside areas are being actively developed. Starting from the area where the Kaya meets the Irkut and further along the bed of the river, individual houses, communal and warehouse facilities are being built; the river bed and the water protection area are suffering from dumping and littering. Some segments of the river are hidden in pipes.

Green recreational areas of the district are mostly located on cramped territories near such water bodies as the Angara, the Irkut, the Kaya, the Kochumikha, the Bolshaya Kuzmikha and the Malaya Kuzmikha, the brook with a pond in Pad Dolgaya [11] etc. These watershed areas have been decreasing rapidly in recent years. In 2019, to comply with the federal priority project “Formation of a Comfortable Urban Environment” concerning the improvement of urban courtyards and public spaces, an improvement project for public spaces “Pad Dolgaya (Universitetsky and Pervomaisky micro districts)” was implemented. It is a small plot located at lower elevations of Pad, between the by-pass road of Pervomaisky micro district, the pond, the school grounds and the northern slope territory. The natural landscape of the rest of the territory of Pad Dolgaya is systematically disturbed and transformed; the floodplain is filled in to set up parking lots and other commercial facilities. The Bolshaya Kuzmikha and the Malaya Kuzmikha are facing a similar problem [12].

The green space near Ershovsky Bay is preserved thanks to sanitary restrictions of the municipal water intake, although the recreational zone is also being totally “invaded”.

There is a positive, though rare, example. The park of Akademgorodok is being preserved without significant changes, thanks to the active involvement of local residents.

Sverdlovsky district used to be immersed in greenery, but now the amount of green spaces tends downward. Thus, in 2008, a boulevard along the main highway (Lermontov Street) was lost to give way to the widened road and the parking lots necessary for the Technical University and other educational institutions. Another reason for the decrease in green areas and for the environmental disruption is the urban densification [13] by means of building new multi-storey complexes in the old established structure of Glazkovo neighborhoods. Homogeneous coverage is often used for the local surfaces of courtyard spaces, which have displaced estate housing with its gardens and greenery – the so-called green “lungs”. This leads not only to incompliance with the development scale, but also to the soil quality deterioration and the decrease in the intensity of geoinfiltration processes and groundwater recharge due to the homogeneous coverage of surfaces. The only way to decrease the harmful influence of the growing anthropogenic burden on the ecological characteristics of the territory in the context of multi-storey development is to arrange green compensating gaps in the form of parks, public gardens, boulevards and other areas with open grounds and greenery, while using the existing possibilities.

Such green inclusions integrated into a single system could form a New Green Axis of Sverdlovsky district lying along Zhukovskogo Street figure 7: from the Angara waterfront, through the propylaea of residential houses at 79 Gogolya Street, to the ISU Botanic Garden and Kaiskaya grove, and then to Pervomaisky micro district. They would not only diversify and enrich the planning structure, but also provide the opportunities to make living in this district more comfortable.

As is evident from the analysis of the housing of the 1970s along Gogolya Street [14, 15], the architects of that time suggested that the pedestrian area would develop along Zhukovskogo Street. By means of recreational green areas, this proposal would provide a solution for a number of environmental issues. The existing inner boulevard of the complex proves this idea figure 8, 9. Consequently, taking into account the inevitable modernization of the area for private housing, provisions should be made for placing several small public gardens or even a boulevard on the elevation along Zhukovskogo Street to turn them into a new pedestrian green axis leading from the Angara waterfront to a large forestland – Kaiskaya grove. These transformations will ensure the creation of a more comfortable living environment and the organization of a system of high-quality public spaces along this axis. Consequently, these territories will attract businesses, which imply the creation of new jobs and an increase in transparency of the territory in the form of public social
control, first of all, over the condition of territories. The links of the area with other neighborhoods within the district are also of importance.

**Figure 8.** A group of residential houses on Gogolya Street in 1970s. Architects: Aptekman VM, Antipin LF, Buh VF.

**Figure 9.** A fragment of the pedestrian alley along Zhukovskogo Street.

2. Conclusion

Basing on the historical development of residential areas of the district and taking into account landscape peculiarities of the existing green structure, the main recreational zones have been identified. The structure includes: basic landscape axes that usually coincide with the valleys of small rivers and brooks in the district, but are not always classified as recreational zones in the master plan of Irkutsk; specially protected natural territories and territories of historical and cultural significance: forestlands of Kaiskaya grove, Ershovsky bay, Park of Akademgorodok, Zvezdochka grove; partially or completely lost territories of water bodies – natural dominants. It is proposed to consider the lost territories of Pad Dolgaya and waterside territories of all water courses as most valuable landscapes and to enshrine this status at the statutory level.

Due to its new status of specially protected natural area, Kaiskaya grove is relatively safe today, while other green areas are constantly shrinking and may disappear entirely. The functional use of riparian water protection zones primarily meant for the purposes of public recreations changing. Instead of being included into the urban improvement program, these areas are filled in to house engineering infrastructure facilities and parking lots. Air and water are polluted, and the soil cover is deteriorated, which leads to an irreparable loss of the most valuable landscapes.
The majority of green areas tend to shrink rapidly. There are changes not only in the ecological comfort, but also in its volumetric and spatial structure, which excludes green spaces, turning the city into concrete jungles. Given the modernization of territories and the increasing development density, it is of great significance to create new recreational zones, well-equipped parks, public gardens, boulevards, which facilitate, among other things, the development of the system of urban public spaces. Besides, the denser the development is the more green areas of various types its structure should contain.

Preventive measures taken to bring back the lost recreational zones will help restore the balance between the built-up areas and the green spaces.

The formation of a new green axis around the district will help improve the residents’ quality of life and the social and economic comfort of the living environment. The growing number of green areas will encourage residents to take promenade and communicate, promote the construction of a cable railway and a pedestrian bridge between the left and the right banks of the Angara, strengthen the link with the city center, and diversify the neighborhood improvements.

References
[1] Irkutsk City Official Portal 2020 October 20 Available at: https://admirk.ru/pages/Sverdlovskii-okrug.aspx
[2] Lenski T 2020 October 23 The Story of Glazkovo: One Peek Irkutsk cultuurs Available at: http://kuluars.info/zhurnal-irkutskie-kulury/irkutskie-kulury-31-32/istoriya-glazkovo-odnim-glazkom.html
[3] Romanov NS 1993 Letopis goroda Irkutsk za 1881 - 1901 (Irkutsk: Vostochno-Sibirskoe knizhnoe izdatelstvo p 544
[4] Druzhinina I 2001 Nicholo-Innokenty’s Church Project Baikal 1 pp XLIV-V Available at: http://www.projectbaikal.com/index.php/pb/article/view/309/2171
[5] Titov V, Potemkin V 2014 Irkutsk transport. Main rout across the river Capitalist Irkutsk magazine for entrepreneurs 8 (71) Available at: http://www.kapitalpress.ru/kapitalist/archive/2013/71/2037
[6] Kobyakova L 2004 Project Baikal 2 p 3 Available at: http://www.projectbaikal.com/index.php/pb/article/view/238/2229
[7] Kobyakova L 2004 Kruglyj stol. Poezd idet na vostok Project Baikal 2 pp 4–8
[8] Chertilov A 2015 Krugobajkalskaya zhelezaya doroga - "Zolotaya pryazhka" Transsiba: istoriya sozdaniya : obekt kulturnogo i prirodnogo naslediya: (istoriya arhitektury i gradostroitelstva Sibiri) (Irkutsk: Irkutskij nacional'nyj issledovatel'skij tekhnicheskij universitet) p 127 ISBN 978-5-8038-0931-9
[9] Bolshakov AG 2019 Strategy for Irkutsk National Research Technical University (INRTU) campus development News of universities. Investment. Constructions. Real estate 9(2) pp 396-407 DOI: 10.21285/2227-2917-2019-2- 96-407
[10] Nyamdorzh N, Smolin E and Bolshakov A 2018 Spatial Behavior as the Basis of the Organization of the Improvement of the Territory of Avenues at the Example of Avenues of the City of Irkutsk Proceedings of Universities Investments. Construction. Real estate 8(1) p 208-221. DOI: 10.21285/2227-2917-2018-1-208-221
[11] Bobryshev DV, Vershinina SE Town-ecological Potential of Coastal Territories of small Rivers of the City of Irkutsk (at the Example of the Valley of the Bolshaia Kuzmikha River) News of universities. Investment. Constructions. Real estate 2(17) pp 204-13 DOI: 10.21285/2227-2917-2016-2-204-213
[12] Bobryshev DV 2010 Principles of the Urban Planning Organization of the Riverine Area as a Singular Functional and Typological Subsystem of Ecological Compensation and City Biogeofiltration News of IrGTU (Irkutsk : National Research Irkutsk State Technical University) 6 (46) p 99-103
[13] Antipin K 2020 The impact of Irkutsk architecture school on its masters’ unique manner Project
[14] Grigorieva E 2014 APTEKMAN (Voronezhskaya) Valeria Markovna Project Baikal 11 (39–40) p 174 https://doi.org/10.7480/projectbaikal.39-40.651