Revitalization of public space along the river Ostravice in the part of Ostrava

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Abstract. An article describes an emphasis on aesthetics and humanisation of a public field in the waterside of the river Ostravice in the city of Ostrava and its surroundings. The aim of a project „The revitalization of the river „Ostravice“ is to improve life conditions and to attract citizens and tourists to spend their free time there.

1. Introduction

Constructions implemented near the Ostravice River are part of the Ostrava City Statutory project “the Ostravice River Revitalization”, which is involved in the so-called “Integrated Urban Development Plan” (IUDP). The purpose of “the Ostravice River Revitalization” projects is to aesthetize and humanize public space in a part of Ostrava along the embankment of the Ostravice River and its immediate surroundings. This is the closest area of the Ostravice River in the place of Comenius Park to the UNIE footbridge, and also the area above the embankment walls, which serve as a flood barrier, in the section from the Pionyr’s Bridge to the UNIE footbridge. All this on the side of Silesian and Moravian Ostrava.

From the historical point of view, the solved part was focused only on the area of Comenius Park. Other sections, i.e. from the Pioneer’s Bridge to the UNION footbridge, on both sides of the Ostravice River, which forms the watershed between the individual cadastral territories, have not been resolved. There was no link between the zones and the link to the city was not resolved. The last modification, which was carried out in a part of the solved area, took place in 1992, and since then no regeneration of the area has been solved to a significant extent [2].

The project “the Ostravice River Revitalization” in cooperation with other IUDPs of the City of Ostrava is trying to deal with these problems. The prerequisite is to create a strong connection among the city and the river. The whole project is solved in a complex way, cycling paths, in-line routes, hanging galleries are created or reconstructed, new barrier-free connections are created, sunbathing areas, weirs are build up, greenery is revitalized [3].

2. Project financing method

The project "the Ostravice River Revitalization" is a part of integrated urban development plan (hereinafter IUDP). IUDP determines under what conditions it is necessary to process projects and at the same time determines conditions for subsequent successful implementation of projects. All IUDP intentions are financed through individual regional operational programs. The IUDP of the City of Ostrava, under the name “Ostrava - The Magnet of the Region”, was evaluated as the best by the Regional Council of the Moravia Silesia Cohesion Region, which brought Ostrava more than 60 million EUR for the development of the city.
The realization of all planned projects from the IUDP "Ostrava - magnet of the region" will require approximately 80 million EUR. The estimated amount of the EU subsidy is about 60 million EUR. The remaining part of the costs will be provided by the city using the credit facility which the Statutory City of Ostrava has concluded with the European Investment Bank. In addition to IUDP projects, the loan will also serve to pre-finance other development projects prepared by the city. The intention of IUDP is to make Ostrava a “vibrant city, fulfilling all metropolitan functions, in which its inhabitants appreciate the quality of life, attract visitors via its specific culture and investors discover the city as a good address for their business and thus create new jobs” [6].

3. Overview of projects and their preliminary costs

In the framework of long-term projects with the common bearing title “the Ostravice River Revitalization”, which was divided into several stages, several buildings have been designed that have already been realized, are currently being implemented or are only in the stage of project preparation. A clear selection of projects aimed at raising the level of quality of life while improving the environment near the watercourse is given in the following table (Table 1):

| Construction                                                                 | Term of construction realization | Total cost of individual constructions approx. [EUR] |
|------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------|
| Building No. 1 - Barrier-free connection of the existing pedestrian road and cycle path at the site at the Milos Sykora’s monument, including the adjoining areas” | 06/2019 - yet                    | 570,627,00                                          |
| Building No. 2.1 - Revitalization of greenery                                | 04/2018 - 06/2018                | 426,692,00                                          |
| Building No. 2.2 - “Reconstruction of the bridge pillar of the former Shooting Bridge on the Silesian Bank, including the connection to the pedestrian road” | 08/ 2018 - 12/2018              | 125,765,00                                          |
| Building No. 2.3 - Urban furniture and modifications at the shipyard         | 2019                             | 118,020,00                                          |

It is a modification of the current state of pedestrian roads, reconstruction of paved areas around the M. Sykora’s Monument, their barrier-free connection to the surrounding pedestrian roads, construction of stepped terraces with staircase, seating and areas of new greenery. Further follow-up observation platform with benches, interconnection of pedestrian roads in the upper and lower level of the area.

The intention was to create an attractive part of the greenery around the mixed path between the shipyard and Milos Sykora’s Bridge. Overall, make the area more transparent, clean and then create greenery insulation strips from the Bohuminska road. Around the pedestrian and cycling path a pleasant walking path complemented by interesting local tree species, perennial belts and undergrowths and thus improve the overall level of the locality and the environment.

The subject of the project documentation is the repair, overhaul and completion of the existing bridge pillar of the Shooting Bridge on the right (Moravian) bank, which will be made accessible to the public as a viewing platform after modifications.

As part of the overall revitalization of the right bank of the Ostravice River in the section between the Milos Sykora’s Bridge
and the Shipyard, the installation of urban furniture is planned - the installation of park benches and waste bins along the existing pedestrian / cycle path passing through the area. Adjustments at the shipyard include the addition of picnic tables with seating, installation of outdoor exercise elements - the so-called workout playground.

Building No. 3 - Solution of walking routes on the Moravian bank (Havlicek embankment) in parallel with the existing cycle path in the section between Milos Sykora’s Bridge and the Castle Bridge “

Not realized - in the project phase

The purpose of the construction is to create another, already the third observation gallery on Havlicek embankment, to raise the embankment wall, whose railing is now "drowned" to the surrounding terrain due to elevated terrain, further adjusting the routes of the existing cycle path and adding pedestrian areas.

Building No. 4 - Solution of planting of climbing and overhanging plants on embankment walls and adjacent areas

Not yet realized - Not known

Planting of lower and climbing plants, which will green the solved space. Places near the embankment walls were selected, which are view zones or there are free places without previous vegetation. The result will be the installation of difficult areas, which have so far been poorly maintained and will now be a quality complementary greenery of the entire environment with added value of flowering or interesting coloring.

3.1. Justification for the implementation of the projects "the Ostravice River Revitalization"

The main idea of all these projects is to make this part of Ostrava accessible to people, to enable them a smooth transition from the city to the zone, which provides opportunities for active and passive rest. To create a safe and easily orientated space for all involved and to attract the general public among citizens as well as tourists to spend their free time here under pleasant conditions. The projects were designed not only for regular pedestrians, but also for people with reduced mobility, athletes, cyclists and skaters (by laying the tiles with a chamfered edge towards the ground so as not to create too large joints between individual tiles). The solution of the situation by the implementation of asphalt surfaces was often unacceptable, a very frequent condition of the concerned authorities was to build pedestrian roads from a demountable surface [1].

4. Comparison of the project with another solved revitalization of public areas near the watercourse

In the following chapters two different proposals for the revitalization of watercourses in the Czech Republic will be compared.

4.1. Ostravice river embankment

The Havlicek embankment revitalization project was selected as an example for comparison within the project “the Ostravice River Revitalization” (building No. 3, see Table 1). The main purpose of this building is to create another, already the third observation hanging gallery on Havlicek embankment. In connection with the construction of the observation gallery, the embankment wall will be increased. Both of these buildings will be completed with newly built cycling and walking paths. Emphasis was placed on traffic regulation, creating barrier-free crossings for safe guidance of pedestrians through the transport infrastructure and minimizing the felling of existing greenery, but rather its appropriate addition. The whole resulting work will be suitably complemented by urban furniture, such as benches, bike stands, information signs, waste bins, concrete loungers, etc.
4.2. Embankment of the river Svratka

The project, elaborated by the team of prof. Ing. Arch. Ivan Ruller was chosen by ČKAIT (Czech Chamber of Authorized Engineers and Technical Active in Construction), which will be realized in the expected term 2020-2023. Modifications are limited primarily to the stretch from the Riviera swimming pool, along Porici Street to the Viaduct on Uhelna Street. The intention is to carry out modifications of the watercourse and reconstruction of most existing embankment walls. The river bed will be expanded and further modified into a more gradual transition to the bottom of the river, the construction of islets and gravel benches, pools and shallow rapids will be created, earth dams. For pedestrian access, footpaths will be created that will lead in close proximity to water, service promenade and cycle paths, colonnade with a wheelchair lift [7].

| Adjustments                        | Ostrava/Ostravice | Brno/Svratka |
|------------------------------------|-------------------|--------------|
| Routing traffic                    | Yes               | No           |
| Construction of walking routes     | Yes               | Yes          |
| Construction of cycle paths        | Yes               | Yes          |
| Barrier-free solution              | Yes               | Yes          |
| Topography - demanding terrain     | No                | Yes          |
| Improving the quality of the environment | Yes          | Yes          |
| Felling                            | Yes               | Yes          |
| Landscaping                        | Yes               | Yes          |
| Treatment of watercourse           | No                | Yes          |
| Modification of embankment walls   | Yes               | Yes          |
| Elimination of environmental burdens | No              | No           |
| Improvement of public greenery     | Yes               | Yes          |
| Number of stages                   | approx. 5         | approx. 28   |
| Costs                              | approx. EUR 0,952 million | approx. 40 million EUR |
| Subsidies from European funds      | Yes               | Yes          |

4.3. Comparison

Comparative criteria (please see Table 2) shows that any revitalization of the immediate vicinity of any watercourse carries to a large extent common features. With regard to legal regulations, when builders are forced to comply with the legislation, the projects are destined to coincide at least in terms of barrier-free construction. In the case of both of the above-mentioned projects, accessibility of public space to persons with reduced mobility (hereinafter referred to as OSSP) was addressed to a significant extent. The Brno project did not forget to include a lift for wheelchair users to overcome the height difference. Due to the simplicity of the topography in the case of revitalization of Havlicek embankment, the introduction of an elevator was not necessary. However, there was a need to address safe guidance of OSSPs on pedestrian crossings at the point of transport infrastructure where free movement of pedestrians with movement restrictions could be impeded. The modifications were solved in accordance with Decree No. 398/2009 Coll. on general technical requirements ensuring barrier-free use of buildings, by safe guidance through guide lines, warning and signal strips by suitably selected relief pavement [8].

Also cities' interest in improving the environment makes it possible to cover a significant part of construction costs from EU funds. Given the considerable extent of these constructions, the common feature in all cases is the conditional investments, such as relocation of utilities or felling of trees.
Accordingly, substitute landscaping arrangements are always designed to compensate for felled trees. The extent of compensation is always determined by the Department of the Environment of a specific municipal office by calculation according to the landscaping values of trees [4]. A different component is primarily the artistic aspect, which is dependent on the author of the project documentation, the habits of the place and also the scope of the specific project, from which the total cost of the construction is subsequently derived. Other restrictions, such as easements, such as ownership of plots on which construction is carried out, are also different. However, this aspect was largely simplified by a change in the Building Act, when the builder suffices to prove the authority of the parcel owner. Pursuant to Section 184a of Act No. 183/2006 Coll.

5. Conclusion
In conclusion, it should be noted that in all the above-mentioned cases the solution of the closest neighbourhood of the river embankments in cities can be found a priori in economic terms, where each city / region is forced to manage a different amount of allocated funds / subsidies for the events. Price then greatly affects the quality of the resulting work in terms of functionality, aesthetics, but also primarily in terms of sustainability of the building and thus its resulting life. Another difference of the mentioned works is the approach of individual companies to problem solving, which is given both by tradition in the given places and partly by subjectivity. Furthermore, the complexity of the topography, the structure of the city and, above all, the legal aspect, which also largely influences the resulting solution, mainly the existing easements in the territory and the permitting processes of buildings. However, it can be said with certainty that, apart from the differences in the solution of the projects, all these works bear the common features of the river's neighbourhood and that is the effort to create a safe, attractive and representative space for locals and the wider surroundings. All proposals take into account the use of disabled people and try to make the banks of the rivers accessible for active and passive recreation. Any such solution can be an inspiration for solving other or similar projects and with each new solution new ideas and improvements can be brought to every work [5].

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