

MODERNIZATION OF URBAN SPACE WITH GREENERY

Andrzej SOBOLEWSKI¹, Roman CZAJKA²
Wrocław University of Technology, Wrocław, Poland

Abstract

Modernization of urban space with greenery is part of a process of revitalization and restoration of building, which today are an important part of the design and realizations activities in the world. Adaptation of urban space to modern needs, often associated with the change of the original function is necessary to improve the quality of this space: utility, technical and aesthetic. Urbanization of the world combined with the destruction of the environment. It is necessary to return to nature in the context of the urban environment. Greater use of green, eco ideas of architecture and sustainable development becomes the norm. The paper presents some aspects of selected projects and activities in the countryside as a method of upgrading urban space.

Keywords: urban space, greenery, modernization, revitalization

1. INTRODUCTION

Urban development is a continuous, fascinating and multi-threaded process. Nowadays, renovation and modernization of urban spaces, especially public, seem to be one of the most important elements of this process. Searching for new models and spatial arrangements is not always beneficial for a traditional urban structure, and normal “wear and tear” of many solutions generate great demand for revitalization. Its literal meaning, derived from the Latin concept

¹ Corresponding author: Wrocław University of Technology, Faculty of Architecture, B. Prusa st 53/55, 50-317 Wrocław, e-mail: andrzejsobolewski@pwr.edu.pl,

² Corresponding author: Wrocław University of Technology, Faculty of Architecture, B. Prusa st 53/55, 50-317 Wrocław, e-mail: roman.czajka@pwr.edu.pl.

(re-vita) means the restoration to life, revival. In towns which perfectly reflect all the social and economic changes, new areas that require such recovery still continue to appear. A number of towns all over the world may already boast successful revitalization processes. They are transformations, often launched on a massive scale, of entire districts. A good example of this kind of transformation is London's Canary Wharf, a district of old docks on the Thames, which since the beginning of the 1980s has turned into a multifunctional complex with a leading office function, now competes with the City of London for the title of the business centre of the city. Equally desirable and successfully modernizing urban spaces are numerous interventions on a smaller scale. Often various repairs, adaptations or revaluation of individual objects or even parts of the city (a square or a street) are mistakenly, and with a slight exaggeration, called revitalization. They primarily involve construction activities and beautifully contribute to the improvement of the aesthetic and technical condition of the existing buildings.

Among the contemporary realizations modernizing urban spaces, ever growing group are those in which greenery and nature play an important, and often a primary role. The concepts of sustainable development, ecological architecture, etc. start to be recognised by residents, investors and local authorities no longer as a novelty, a fad or *idée fixe* of a group of enthusiasts, but as a real need and a sensible, very attractive alternative to the traditional shaping of the urban landscape. Urbanization of the world, from which there is no turning back, seems to be dangerously spreading and threatens the natural environment. "Cities of the future will be overcrowded, so even more we will miss the wildlife. Roofs and facades of urban houses will be filled with greenery. In addition to the sensual experience we will gain more oxygen and a friendly microclimate" – predicts Robert Konieczny, one of the most famous and recognized contemporary Polish architects. Thus, repeating the slogan from the summary of the article: "The city must be green to be suitable for life," the authors, based on a few selected examples of modernization of urban space with the use of greenery, will characterize and systematize this designing method.

The four groups of transformations of urban areas into green areas, discussed in the article, are as follows:

1. Revitalization of post-industrial areas.
2. Revitalization of former transportation areas.
3. Ad hoc measures related to the transformation of existing buildings and supplying them with greenery - Green Vertical Walls.
4. Setting up the so called Urban Farms on the roofs of urban buildings.

2. REVITALIZATION OF POST-INDUSTRIAL AREAS

The development of the postindustrial areas located in downtown areas is one of the biggest challenges facing the authorities in most of the cities where industry had played an important role in the past. High concentration of inactive industries in the centres contribute not only to the degradation of space, but also to obvious financial losses due to non-use of valuable areas because of the existing infrastructure. These areas were in close vicinities of rivers and other waterways due to the need for easy transportation. Some European cities, at least partially, coped with this problem. This includes, inter alia, Hamburg, which transformed post-industrial sites in the areas of recreation, culture, entertainment, science, residential areas and office space. Greenery plays an important role in these transformations. It is not just a softening addition to architecture, but above all an independent element which shapes the urban space. It ceases to be merely a park, a square, a lane. It is nature in a modern city, ordered or unordered. It is a place of life, with rich fauna.

The authors investigated the issues of revitalization in their previous studies. Urban regeneration, as one of the main tasks facing the contemporary urban planning, can be provocatively referred to as recycling of urban space. It is a series of interdisciplinary activities that are the responsibility and competence of many entities. Revitalization is not just, as it is often seen here in Poland, renovations, repairs and adaptations of individual buildings, or even groups of objects and public spaces. More important seems to be the comprehensive approach to the issue, in terms of both space and architecture as well as society or economy. The so-called New Athens Charter, a document from 1998, considers such understood revitalization as an extremely important challenge, perfectly fitting the principles of sustainable development. The essence of sustainable development is, after all, the rational management of existing resources. In this regard, the role of an urban planner and an architect is changing today. He or she becomes not only a designer, but also a kind of a mediator coordinating multithreaded actions of different actors cooperating in the revitalization process.

One of the most important currents of revitalization, which is recognized in the public consciousness, is to bring new "life" to postindustrial areas, restoring them to cities in the context of their integration to widely and variously understood public space (previously these areas, due to their function, were often closed and did not serve the residents as public areas) [2].

A good example of this type of activity is the new headquarters of the Silesian Museum in Katowice, built on the grounds of the former coal mine "Katowice" (Fig. 1).



Fig. 1. Green public space as an integral part of composition of the Silesian Museum in Katowice. (Phot. by R. Czajka)

It is located strictly in the downtown, near the cult Spodek Hall in Katowice. The facility was designed by an Austrian studio Riegler Riewe Architekten. The museum is situated mostly underground due to the post-mining origin. This allowed to minimize the interference into the postindustrial landscape of the vast post-mining areas situated on varied levels, and thus to make them available for an attractive public space with carefully designed greenery as an important element.

3. REVITALIZATION OF FORMER TRANSPORTATION AREAS

Revitalization of former transportation areas is one of the major problems of large urban agglomerations. Attempts to restore the balance between vehicular traffic and pedestrian or bicycle traffic is a problem in all cities in developed and in most developing countries. Individual vehicular communication, with the ubiquitous car, subordinated the city in all its aspects, i.e. people - mentally, and its structure - territorially. It smashes and crushes cities, occupying their life-giving arteries, pushing the man (residents, us people) into further plans. Although this is us, the city dwellers who use it everyday, but at what cost? The struggle for the restoration of normal relations between the man and the city, the man and the infrastructure, the man and the nature, is the fight largely with individual vehicular communication, communication which is necessary.

However, the needs and the capacities of the city, in this regard, should be balanced. The today's transformation of transport connections of large urban agglomerations into pedestrian lanes or recreation and green areas indicates that this is the proper direction for the desired relations. Jan Gehl, in his studies, shows conclusively that cities for people are cities where vehicular traffic is restricted in favour of pedestrian or bicycle traffic. [4] In such cities, good relations are reverted, and the city life is reborn. People more willingly go out to enjoy the company of others. This facilitates interpersonal contacts, meeting new people and making new friends. After all, man is a social being. Such actions has been applied to a closed overground rail line in New York and highway in Seoul.



Fig. 2. An example of positive actions with the use of greenery in the heart of a huge metropolis - Seoul. The river Cheonggyecheon restored to the city and its residents together with the surrounding greenery (Phot. J. Urbanik)

In Seoul, a multilane highway running through the city carried the vehicular traffic along an overpass to and from the city centre. The city authorities decided to close it and to create in its place a recreation area with rich vegetation and water. Formerly, a river had flowed in place of the highway, and after many years it was restored to the city. Although it was necessary to pump

water from the main river Seoul Han to maintain the river current, the visual, aesthetic and landscape effects exceeded the expectations of even the greatest sceptics of this reconstruction. Today, it is one of the favourite recreation space of Seoul inhabitants. The place which not only changed the landscape of the city, but also contributed to the improvement of health conditions (Fig. 2).

A very interesting example of the revitalization with the use of greenery is the New York project "The High Line". An old railway viaduct from the mid-nineteenth century, unused since the 1980s, which runs through Manhattan fell into disrepair overgrowing with wild vegetation. Since 2005, it has been slowly, in stages, converted into an attractive recreational space, a kind of park stretching for several kilometres, several (up to ten) metres above the ground. A high green line, which arose from a private initiative and which was implemented thanks to the persistence and the consequences of non-profit organization Friends of the High Line, is a part of a whole series of innovative projects using greenery in public spaces in American metropolis and creating unconventional parks.

It is designed by Diller Scofidio + Renfro, Field Operations. In 2003, an international competition, "Designing the High Line", for the development of the viaduct was announced. Altogether 720 projects from 36 countries all around the world were sent in.

The landscape was designed by Dutchman Piet Oudolf's studio. Wild vegetation overgrowing the deteriorating structure prompted the new feature for the viaduct. Designers were inspired by the "melancholy, untamed beauty of this postindustrial ruins, where nature assimilated once lively piece of urban infrastructure, and the new park is an interpretation of its heritage." The main idea was to maintain the revitalised area in an ongoing - intentionally unfinished and changing in time - process of sustainable development. A number of elements of public realm were designed: paths, promenades, ramps, terraces, seats, etc., and the steel construction of the viaduct was partially unveiled. All that is united by diverse greenery, once wild and seemingly random, elsewhere groomed and neatly designed. Leaving a significant margin of freedom to nature serves maintaining a character of romantic ruins, though tamed into an attractive, multi-faceted public space. This "agri-tecture" strategy (a combination of agriculture and architecture) incorporates rich biotops into various elements of small architecture to create unique corners along the entire viaduct.

4. GREENERY AS AN ELEMENT OF SPATIAL COMPOSITION - GREEN VERTICAL WALLS

In recent times, facades of buildings are more and more frequently decorated with green, living elevations, which are much more than a mere romantic climber growing up along the wall. Green walls have become increasingly fashionable. They apply cutting edge technologies which enable their “growth” to the size of a huge flowery carpet which is hung on a building like a rug. This fashion is most welcome, and designing in the spirit of sustainable development and modern ecological architecture is slowly becoming a canon. This beautiful combination of pragmatism (e.g. a vegetable screen can reduce the temperature inside the building up to 50%) with artistry, the fusion of technology and nature, allows us to hope that this is not a transient fashion. A special grid (frame), placed at an appropriate distance from the wall face, as well as innovative vegetation conditions enable the realization of complex plant compositions. It is purposeful creation of green vertical spaces. The number of examples is growing exponentially. They can be found in the dossiers of the greatest, world-famous, contemporary architects.



Fig. 3. Caixa Forum in Madrid with a distinctive green wall on the building next to the centre (Phot. A. Sobolewski)

Caixa Forum - Art and Culture Center in Madrid. An excellent implementation of revitalization (2001-2007) of a postindustrial building from the early twentieth century, located in the centre of Madrid, together with its adaptation to new functions, designed by Jacques Herzog and Pierre de Meuron, Swiss architects from an outstanding design studio (Fig. 3).

An extremely important and attractive feature of the spatial design was the inclusion of a blind gable wall of a neighbouring building into the composition, closing (from one side) the presentable entrance square in front of the centre. The architects and Patrick Blanc, a French artist-botanist, hid the wall behind a green screen of an openwork structure, independent from the wall of the building, filled with 15 thousand plants (250 species), planted landless and vegetating on the basis of water and delivered nutrients. The visual effect of this vertical garden is delightful. It complements the equally great architecture of the centre combining the original brick walls of the postindustrial building, which optically almost float above the floor of the square, with the modern, characteristically rusty steel superstructure. The whole creates a unique, easily recognizable complex, beautifully blending in with the cultural and museal context of this part of Spain's capital.



Fig. 4. A vegetable, multispecies carpet superimposed on the building of the pavilion.
(Phot. A. Sobolewski)

Plaza de Espana, in Santa Cruz de Tenerife, the capital of the Canary island of Tenerife. The town owes the new look of the square to Herzog and de Meuron, Swiss architects. The square, which is the focal point of a seaside boulevard and the place of the famous February carnival, after the reconstruction in 2008 lures locals and tourists with its beauty of the harmonious solution. Architects introduced an amazing “lake” into the vast space of the square. This water reservoir, which is surrounded by several service pavilions, gives respite on hot days (Fig. 4).

They are most interesting in the context of this article. They symbolize Tenerife, the island where lush vegetation soothes its volcanic and rocky nature. The dynamic shapes of the pavilions, the bases of which can be associated with grey and harsh volcanic lava, have been covered with a green carpet, composed of numerous plant species. The author, similarly to the Madrid implementation, is artist-botanist Patrick Blanc. Pavilions are perfectly blended in with the surrounding, mostly historic buildings and beautifully fit into the natural landscape of the island, thanks to the “softening” by vegetation.

5. URBAN FARMING

Yet another form of introducing greenery to a highly urbanized city space is the so called urban farm. This idea, originated in the United States by civil groups of enthusiasts, is spreading rapidly. According to estimates, in the mid-twenty-first century, the world population will comprise 10 billion people of whom 80 percent will live in cities. This enforces considerable thickening of buildings. Experts in various fields argue that it is necessary to make a sensible use of roofs of buildings since they constitute a vast, mostly undeveloped area. Roofs could constitute a multi-hectare area where food, mainly vegetables and fruit, could be produced for a growing urban population. It is estimated that it is possible to produce up to 40 tons of vegetables annually on the roof area of thousand-square-meters. Such projects have already been launched. The largest urban farm in the world is located in Brooklyn, New York. Brooklyn Grange was founded in 2010 on a roof of a six-story building, on an area of over 3700 m². Vegetables and fruit are grown there. There also is a breeding farm (laying hens) as well as an apiary. The recipients of the production are local shops and restaurants.

Urban farming is growing fast. Urban farms, often just on the roofs of buildings are built in the US, Canada, China and in many European countries. They will obviously not substitute the traditional agriculture, but constitute an interesting form of food supplies in cities. In addition, they activate and integrate local

communities. And, as it turns out, affect positively the appearance of cities, public spaces of which become healthier and more beautiful.

6. CONCLUSIONS

The reasons for the introduction of greenery in a city structure:

1. Utility aspect – the need to give a new function to degraded or forgotten areas, for example post-industrial areas.
2. The aesthetic aspect – in heavily urbanized areas, greenery, as a nice part of public realm, is an opportunity to restore the balance between technology and nature in the urban landscape.
3. The economic aspect – urban farms – introducing crops into the cities, which can provide an alternative to traditional agriculture in supplying local communities with food.
4. Educational aspect - the formation of social sensitivity to the quality of urban space, with greenery as its attractive and valuable element. Activities in this field are supplemented by, among others, educational workshops for various age groups.
5. Health aspect – highlighting the healthy values of greenery and its impact on the city microclimate, the health condition of inhabitants and on the condition of building physics.

REFERENCES

1. Czajka R., Gronostajska B., Sobolewski A.: *Tereny postindustrialne we współczesnym mieście – koncepcje studenckie*. w: *Nowoczesność w architekturze. Urbanistyka i architektura miasta postindustrialnego*, Katowice 2012, ISBN 978-83-934068-2-1.
2. Czajka R., Sobolewski A.: *Mieszkać w porcie – „stary spichlerz” we Wrocławiu, Park naukowy – projekt koncepcyjny rewitalizacji doków postoczniowych na wyspie Ile de Nantes, Francja*. Raport Politechniki Wrocławskiej, Wrocław 2011.
3. Gehl J.: *Miasta dla ludzi*. Wydawnictwo RAM, Kraków 2014, ISBN 978-83-928610-4-1.
4. Gronostajska B., Sobolewski A.: *Green Vertical Walls – an Element of Healthy House.*, Mezinárodní Konference Zdravé Domy 2013. © Josef Chybík, Miloslav Meixner, 2013, ISBN 978-80-214-4737-0.

MODERNIZACJA PRZESTRZENI MIEJSKIEJ ZIELENIĄ

Streszczenie

Modernizacja przestrzeni miejskiej zielenią wpisuje się w procesy rewitalizacji i rewaloryzacji zabudowy, które współcześnie stanowią ważną część działań projektowych i realizacyjnych na całym świecie. Dostosowanie przestrzeni miejskiej do współczesnych potrzeb, często połączone ze zmianą pierwotnej funkcji jest konieczne dla poprawy jakości tej przestrzeni: użytkowej, technicznej i estetycznej. Gwałtowna urbanizacja świata łączy się z niszczeniem środowiska naturalnego. Konieczny jest powrót do natury również w kontekście środowiska miejskiego. Intensywniejsze wykorzystanie zieleni, idei eko architektury i zrównoważonego rozwoju staje się normą. „Miasto musi być zielone, żeby nadawało się do życia” – to hasło, będące przeniesieniem tytułu felietonu z jednego z dzienników dobrze ilustruje merytoryczne intencje autorów. Otóż zieleń w mieście może być postrzegana jako najprostszy i najskuteczniejszy sposób na poprawienie estetyki krajobrazu miejskiego i korektę tych działań człowieka, które na fali nadmiernej urbanizacji przestrzeni doprowadziły do tego, iż współczesne miasta to często betonowe pustynie. W artykule przedstawiono niektóre aspekty i wybrane realizacje działania zielenią jako metodą modernizacji przestrzeni miejskiej.

Słowa kluczowe: przestrzeń miejska, zieleń, modernizacja, rewitalizacja.

Editor received the manuscript: 20.03.2015

