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Role of Sports Facilities in the Process of Revitalization of Brownfields

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Abstract. The paper gives an evidence that building a large sports facility can generate beneficial urban space transformation and a significant improvement in the dilapidated urban areas. On the basis of theoretical investigations and case studies it can be proved that sports facilities introduced to urban brownfields could be considered one of the best known large scale revitalization methods. Large urban spaces surrounding sport facilities such as stadiums and other sports arenas create excellent conditions for designing additional recreational function, such as parks and other green areas. Since sports venues are very often located on brownfields and post-industrial spaces, there are usually well related with canals, rivers and other water routes or reservoirs. Such spaces become attractors for large groups of people. This, in effect initiate the process of introducing housing estates to the area and gradually the development of multifunctional urban structure. As research shows such process of favourable urban transformation could be based on implementing several important preconditions. One of the most significant one is the formation of the new communication infrastructure, which links newly formed territories with the well-structured urban core. Well planned program of the new sports facilities is also a very important factor. As research shows multifunctional large sports venues may function in the city as a new kind of public space that stimulates new genres of social relations, offers entertainment and free time activities, not necessarily related with sport. This finally leads to the creation of new jobs and more general improvement of a widely understood image of the district, growing appreciation for the emerging new location and consequently new investments in the neighbouring areas. The research gives new evidence to the ongoing discussion on the drawbacks and benefits of placing stadiums and sports arenas in the urban core.

1. Introduction

When analysing urban space transformation processes generated by an introduction of a large sports facility, one can notice that the strongest transformations occur in the object's closest surroundings. When sports-and-entertainment arenas are built in dilapidated areas using a correctly designed broader plan for change, a revitalization effect of the project may be expected in almost every case.

The primary reason for that effect is the characteristic function of these objects, which generate an influx of large groups of people, but the size and scale of the object, whose presence naturally requires an improvement of the spatial order in the neighbourhood and creation of new transport infrastructure, is also a factor. The comparative analysis shows that this is almost always related to an immediate and considerable increase in land prices and increased number of new developments in the area. This, in a natural way, leads to the creation of new jobs and an improved general perception of the neighbourhood. At the same time, the construction of large, modern sports-and-entertainment facilities



is very often linked to the propagation of the ideas of sustainable development, with regard to appreciation and preservation of the natural environment. The majority of sports arenas built nowadays are fitted with rainwater recycling systems, natural ventilation and solar panels, which deliver energy not only to the facility itself, but also to other buildings located close to it. Recycled materials are also used increasingly often in the construction of objects of this kind. Hence, research shows that the decision to locate large sports-and-entertainment arenas in seriously dilapidated areas allows the “revitalization effect” to take place, with “the revitalization objectives being usually to overcome a socio-economic crisis in the area and change the “negative perception of the neighbourhood.” Viewed from the sustainable development standpoint, revitalization is usually considered to include changes in three areas, i.e. in the area of economic development (such as new jobs), community development (e.g. preventing social pathologies), and the development of infrastructure and spatial planning (e.g. preserving cultural heritage by repairing, upgrading and preserving heritage objects and public space and by improving the natural environment)” [1].

2. Energa Arena in Letniewo, Gdańsk

The first of the analysed sports and entertainment facilities which had a revitalizing impact on the neighbourhood where it was built is located in Gdańsk – one of the eight cities that hosted the 2012 UEFA European Championship.

The site selected as the location of the Energa Arena in Gdańsk raised some controversy as it was the district of Letniewo, considered by local residents to be lacking prestige, marginal or simply dangerous. In addition, the neighbourhood was strongly degraded and it required revitalization. A few years before the start of the construction project hardly anyone would have dared to take a walk in the area. However, the municipal authorities had long entertained plans about developing this location. As early as in 1970s the site was selected as a location for a large sports complex for Gdańsk. However, the beginnings were difficult. The area where the complex was planned to be built is boggy and peaty, and the soil has very low bearing capacity. This required the constructors of the arena to remove almost 800m³ of low quality soil and replace it with a million cubic meters of soil with good bearing capacity. Initially there were concerns whether the placement of such a large and heavy object in the location would make any sense at all.



Figure 1, 2. View of Energa Arena

To protect the structure against being inundated by sea water and to protect it against the high level of groundwater, the decision was also made to raise the level of the plot. In addition, the community living in the neighbourhood and the owners of garden allotments

where the object was to be built had a negative attitude towards the new development. Their concern was that the city would not take proper care of their welfare. However, despite these difficulties, the construction of Energa Arena turned out to be less costly than the construction of arenas in Wrocław or Warsaw and, eventually, it provided the first major impulse for a change in the image of Letniewo, which is now becoming an increasingly valuable area of the city.

The improved status of the neighbourhood resulted primarily from investments directly related to EURO 2012, such as: the construction of the arena itself, development of and improvements in road infrastructure, construction of an underground passage for pedestrians that connects Energa Arena with a transport hub, or the network of new bicycle paths, as well as re-opening of a Fast City Rail station that had been closed for years and now was renamed Stadion Expo. These thorough improvements to the road and public transport networks will surely bring long-term positive results for the neighbourhood. Thanks to the development of Metropolitan Rail, the area surrounding the Arena will soon be very well connected with the airports in Gdańsk and Gdynia. This will also allow to ease the burden on road traffic and provide an easier transportation for football teams. It is planned that in the coming years more elements of the road network will be built, namely two segments of Trasa Słowackiego thoroughfare which will connect to Al. Hallera and with Trasa Zielona (roads of significant importance for local traffic). As a result, this will connect the stadium with another new sports and entertainment arena (Ergo Arena) located at the border of Gdańsk and Sopot. This may allow organizing in the Tri-City sporting events on an unprecedented scale. Such events may provide an impulse for further development and revitalization, not only for the Letniewo district but also for the entire Tri-City conurbation.



Figure 3, 4. The facade of Energa Arena sparkling in the sun

It should also be noted that Energa Arena became a landmark for the city long before the inauguration match which took place in 2011. The building can with no doubts be called a symbol of the city, one of the icons associated with Gdańsk, and very soon it was also described as the most beautiful sports arena in Europe. Its design, by the firm of Rhode Kellermann Wawrowsky, was inspired by a lump of amber shining among pebbles and shaped by sea waves. The author of the stadium concept is architect Wojciech Grabianowski, whereas engineers from the Gdańsk University of Technology worked on the design of the object's construction. The girders of the steel construction of its structure (currently the largest structure in Pomerania) look like frames of a vessel. Despite its huge dimensions the stadium doesn't seem to be gigantic, thanks to a vast expanse of space in front of it, which allows a good view of the object. As a result, fans can feel safe, enjoy the impression of

breathing freely and can admire the stadium in its full glory. It is to a large extent thanks to the space in front of the object, and also thanks to good proportions of its shape and a slightly translucent facade that the stadium is so well integrated into its surroundings. The facade sheathing consists of lit-up polycarbonate panels, which are divided into five basic modules. Moving towards the top, these panels become more and more translucent which makes the form look lighter and, when viewed from the inside, they gradually blend with the blue sky. Two levels of spectator stands are fitted with 43,615 seats in various shades of green and are surrounded with a self-supporting structure consisting of 82 girders connecting the facade and the roof. Both the interior and exterior of the building are amazingly consistent and coherent. This was instrumental in quickly changing the perception of the Letniewo district and it attracted interest of visitors, Poles and foreigners alike.



Figure 5, 6. The interior of Enea Arena with the view of stands and girders

An important factor contributing to the object's popularity is its multi-functional character. Besides a football pitch, the Arena also features an over 9,000m² sports and amusement park comprising a semi-professional skating track, a go-cart track, a Tyrolean traverse (providing an opportunity to see the stadium from a completely new perspective), electronic paintball, bungee jumping, the museum of the Lechia Gdańsk football club, a coffee shop, a bar, a restaurant, and a variety of other attractions addressed not only to children, teenagers and families, but also to senior citizens. The multi-functional character of Enea Arena provides an opportunity to create a public space, inside and around the object, on a scale completely new to Gdańsk, which will be increasingly often used as a venue for family meetings and active leisure. The new facilities of Gdańsk International Fair Co. (MTG SA), designed by architect Piotr Mazur from FORT, a Gdańsk-based firm of architects, may be used as evidence that thanks to the presence of the stadium we will notice in the area the process of densification of the urban fabric by adding new objects and, what's important, these would be buildings that serve important public functions. Thanks to the construction of Enea Arena a dilapidated urban area, considered to be a dangerous neighbourhood, became a friendly district of the city, offering a multitude of development opportunities. The change in the perception of the neighbourhood resulted in migration to Letniewo by residents of other city districts. The Social Housing Society (TBS) of Gdańsk built about 120 new flats in the area, and 29 existing buildings underwent a thorough renovation. Thanks to these projects the residents of the neighbourhood had finally accepted the new development which considerably improved their living conditions. An important decision with this respect was the implementation of a special drainage system, thanks to which the cellars of neighbourhood houses, usually flooded, were dehumidified and renovated. This had a significant impact on the improvement in health status and the quality of life of the youngest residents of Letniewo who, due to humidity and poor living conditions, suffered from many diseases of the respiratory system. In addition, there were also new development projects in the sphere of services, providing new jobs.

It should be mentioned that, as the image of the neighbourhood improved, some plans were emerging with regard to the rejuvenation of the Zaspas lake, not far from the Letniewo site. This will be connected with the creation of a green amusement park around the lake. Besides other attractions the park could also host a camping site and a space allowing the organization of mass events, such as concerts. The possibility to transfer the venue of Open'er, the well-known music festival, from Gdynia's Babie Doły to Gdańsk was also considered. There were also concepts that favoured a construction of a F1 racing course, or others that envisaged a new "city" with high-rise buildings. The opportunity to develop plans related to a possible revitalization of almost 40 hectares around the former Zaspas lake occurred as a result of a thorough revitalization of Letniewo, initiated by the fact of building there a large sports-and-entertainment facility. But the most important fact is that Letniewo is an environmentally precious polder area, where the water circulation system is supported by mechanical devices. The environmental restoration of the existing water systems is a very important aspect in the urbanisation of this territory. Lucyna Nyka argues that Letniewo should be considered as an "experimental landscape, a unique laboratory for implementing innovative architectural and urban solutions (...). The integration of the hydrological and the urban projects is the most important prerequisite in the process of developing new visions and strategies for the city-polder edge" [2].

It should also be mentioned that Letniewo is a location of historical significance for Gdańsk. Even though these days it is an area buried under tonnes of waste and garbage, in the past it served as an important fishing and tourist area. Unfortunately, in the 1970s a detrimental decision was made to gradually fill up the existing lake with ash waste from the Wybrzeże Heat and Electricity Plant. As the revitalization of the neighbourhood continues, there are plans to designate a new place for the Wybrzeże Plant ash dumping site or, alternatively, to use waste ash as a material for building roads. Despite an indubitable success of the revitalization of Letniewo initiated by the construction of the stadium, it should be said that "in the majority of cases there are scarce opportunities for revitalization of brownfields in cities or urbanized areas. This is related to a number of barriers of diverse nature: economic, community, social and legal. To ensure that the actions taken will be effective, planning tools must be used. The assumption behind the environmental revitalization of brownfields is the conviction that the economic development of a brownfield area depends on the quality of the natural environment and attractiveness of the urban space. However, the objective of the action taken is not to restore its former natural structure, but to bring the dilapidated areas to a "near natural" status, shaping new values important for the user of urban space, creating function-and-space alignments and achieving the balance between the area and its surroundings." [3] Even though such projects are very complex, they are certainly worth the financial effort and the investment risk.

It should also be concluded that the revitalization of brownfield areas plays an important role, not only because it prevents a spread of chaotic urban developments, but also because it plays a role in improving the quality of the urban environment. Thus, revitalization is conducive to creating conditions necessary for sustainable development. Additionally, the framework of revitalization supports efforts to eliminate social and spatial segregation – both of which reduce the competitiveness of European cities. Viewed as such, revitalization is an exceptionally important activity in the context of matching the EU standards. In the specific example of the Letniewo district in Gdańsk, an extra benefit is the possibility of connecting the lake with the Bay of Gdańsk, located only 750m away, and by doing this – of opening this part of the city to the sea. This would allow completely new functions to appear in this district and would also make it possible to build a sea marina, which the city lacks nowadays. A closer integration of the city with the sea would definitely bring about a significant development of service infrastructure in the area and, consequently, a heightened interest in the location which, despite being close to water and located almost in the heart of the city, was totally neglected and laid to waste over many years. The latent potential of the revitalized district of Letniewo that can be tapped out represents a development opportunity not only for Gdańsk, but also for the entire region.

3. Queen Elizabeth II Olympic Park in Stratford, London

Another good example of large-scale revitalization is the development of the Olympic Park for the 2012 London Olympic Games. “One of the examples of successful revitalization quoted often in the UK is the example of Barcelona revitalization at the time of 1992 Olympics, as one of the most successful example of a large-scale revitalization projects ever attempted.” [4] Following this example, a decision was made in London to locate the Olympic Park on a site that included some seriously deteriorated brownfield land. As a result of that decision, Stratford, an outer suburb of the city, has undergone a complete re-design and revitalization. London authorities decided that locating an investment project of this kind in a dilapidated urban area will offer a unique chance for the revitalization of the area.

Before embarking on the construction of the Olympic Park, the largest garbage dump in the city and a fish processing factory were both liquidated. The other task involved restructuring or, in many cases, demolition of dilapidated residential buildings. Actions were taken to remove unauthorized dumps of dangerous waste that were aplenty in Stratford. The Olympic park was built on a recultivated area on both banks of the small River Lea. This also required cleaning up and recultivation of the canals that connected the river with the Thames.

The main assumption of the project was to keep in line with all pro-environmental rules in order to change the image of a polluted neighbourhood once and forever. The most important element of the Park is a stadium, designed by the Populous firm (formerly HOK Sport), whose stands were to a large extent temporary. When the Olympic Games were over, the stadium’s spectator stands were partially removed – and the number of seats decreased from the initial 80 thousand to 25 thousand. The permanent seats were designed in such a way that took advantage of a natural difference in land levels. The other 55 thousand seats, which were to be removed later, were mounted on a specially designed temporary steel structure. After the Olympics, the roof of the stadium was also dismantled, along with a construction mounted on it which supported the special effects presented during the opening and closing galas. Only the roof over spectator stands remained.



Figure 7, 8. The Olympic Stadium and the suburb of Stratford under renovation

Other objects of the Olympic complex: The Aquatics Centre swimming pool by Zaha Hadid and the basketball court by SKM made of a PVC membrane were also designed in such a way as to allow them to be scaled down after the event. Shooting ranges designed by Magma were taken down after the games and transported to Glasgow. The largest permanent object built for the Olympic Games is the Velodrome, designed by Hopkins Architects, which was named the best and most recognizable building of the XXX Olympic Games in London. “The object can boast a dynamic form, reminiscent of the wavy shape of a wooden cycling track, a simple and logical line structure and a good use of natural light.” [5]

According to the original assumptions Queen Elizabeth Olympic Park, which despite the end of the Olympic Games underwent various finishing works, is to be a friendly place, accessible to city residents and attracting tourists. At the same time, it is “the largest city park built in Europe in the past 150 years, covering the area of 2.5 km². The project was implemented by a consortium with the leading role of London Thames Gateway Development Corporation (LTGDC) – a corporation established by the government for the purpose of revitalizing the corridor and estuary of the River Thames. It is considered to be the largest revitalization project in history, and the construction of the park and the Olympic Village is only a part of a bigger project”, [6]. Apart from the Olympic grounds the underground station and its surroundings were also revitalized. There are also plans to connect Stratford with the City which is located not far away and Canary Wharf. This is to be achieved thanks to new prestigious development projects. Since 2012 the Olympic Village has been transformed into a modern high-standard housing development. Thus, in the coming years it may be expected that large groups of affluent people will move to Stratford and the social structure of the region will be more mixed. Revitalization of dilapidated areas by building large sports-and-entertainment facilities is a very popular phenomenon in the UK. “Since the early 1990s football stadiums were either built or rebuilt as part of revitalization projects in almost all large cities in Britain.”[6] Research has unambiguously shown that, despite the concerns of local communities, the construction of large sports-and-entertainment facilities brought measurable economic benefits. “Property prices in areas close to the stadiums were rising faster than in other parts of these cities. An important condition for the revitalization strategy which involved construction of stadiums was a fight against football hooliganism and destructive behaviour by football supporters, and that problem was successfully solved in the 1980s.”[6]

4. Results and discussions

The above discussed cases show how important the role of large sports-and-entertainment facilities may be for the revitalization of dilapidated urban areas. It can be clearly seen that placing structures of this type in the areas considered not fit to be redeveloped has a very positive impact on the complete change of the image of these areas. Big-scale projects that involve extensive landscaping and building sports-and-entertainment facilities are probably one of the best methods to revitalize large expanses of dilapidated brownfield areas. This happens mainly because of the sheer scale of the projects, which often result in further changes in infrastructure and transport, but also because of the unique multifunctional character of these objects, often not limited to sport only. An important role in this process is also played by increased public interest. Sports-and-entertainment facilities are usually interestingly designed and their architectural form is also of significance, as it makes them stand out and become iconic landmarks for the city and, consequently, a tourist attraction.

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