Eco Education. Eco Recreation

Adam Rybka and Magdalena Szpytma

Abstract. The environmental education of the public is fundamental for the future of humanity. Today's natural resources management and recycling are crucial for the environment and the quality of progeny life. The paper focuses on projects that, despite low budget, broaden mental horizons in terms of ecology and stimulate community initiatives organized around this theme. Provided examples, inter alia 'Between the Waters: The Emscher Community Garden' (an autonomous water treatment system in Essen), 'Island. Synchronization,' (active treatment of water from the Vistula River), 'Theatre evolutif in Bordeaux', show that often a simple activity is able to initiate great changes. By means of various elements of space such as plants, different types of surface, landscaping, small architecture, sports facilities, and other ecological engineering solutions, the designed space is a great place for free time activities, and at the same time it builds public awareness of the methods of protecting the environment.

Keywords: eco-education, eco-recreation, water treatment, public spaces

INTRODUCTION

At present, architecture is undergoing dynamic, global changes. In order to keep up with the rapidly transforming reality, it should seek for a new, complete assortment through interactions with other fields of life. Current issues of ecology and environmental protection are increasingly becoming a major motivator for actions of designers, architects and artists. This article presents three case studies of urban space and combining recreation and environmental education: 'Between the Waters - Community Garden, and autonomous water treatment system in Essen', 'Island. Synchronization' and 'Theatre evolutif in Bordeaux'. Selected examples are focused on issues of water resource management. They are placed in different locations. Each project shows the process of water purification in the urban landscape in a different way, using different means of expression. They show that an architecture that can be both short-term intervention in urban space, and a kind of artistic performance activity.

There is lot of information in literature about public space: the value of public spaces, the nature of public life, human dimensions of public space, needs of its users. The issue of ecology in architecture and sustainable design reviewing techniques available for reducing the energy impact on the environment is also widely documented. Examples quoted in this article are difficult to be qualified for any of these groups. The combination of architecture, ecology and education seems to be fresh and innovative idea. Presented examples prove that care for the environment can be creatively included while designing a particular part of urban space.

Between the waters: the emscher community garden

'Between the Waters: The Emscher Community Garden’ was a garden designed for the local community and a water treatment station. The authors of this project were Marjetica Potrc, an architect and artist, and Ooze Architects, a architects’ team. The project came into existence within the international exhibition Emscherkunst.2010, where twenty artistic installations were presented. It all took place on the Emscher Island, which lies between the Emscher River and the Rhine-Herne Canal. The Emscher River, flowing through the Ruhr region, used to be a mine sewer, but now it is being subjected to various processes of restoration. Along the river, there is a landscape park with a system of cycle paths, where concerts, picnics and an outdoor cinema are held. Unfortunately, due to severe water pollution, the area in close vicinity of the river is fenced and impassable for visitors.

The ‘Between the Waters’ project pointed at the problem of water treatment. The installation was placed in the narrowest part of the island, linking the banks of The Emscher River and Rhine-Herne Canal. Water from local, renewable sources was treated: from the Emscher River, two toilets and rainwater. By means of low-tech technology, a high-tech effect was achieved. The proper location of elements of the sustainable water supply and treatment system, such as two toilets located by the Emscher River (the most polluted river in Germany), a water...
pump, a helophyte filter, a rainwater-harvesting roof, and water storage bags, was enforced by the characteristic topography of the site. The Emscher River is situated higher than the Rhine-Herne Canal, and the area slopes gently towards a footway and cycle path stretched along the canal (Fig. 1).

Figure 1. Concept / "Between the Waters: The Emscher Community Garden" / Marjetica Potrč & Ooze (Eva Pfannes and Sylvain Hartenberg) / Emscherkunst 2012 / Courtesy of the artists / http://www.ooze.eu.com/?pro=194

The treatment process begun upon the Emscher River, opposite to the entrance. The two toilets installed by the river were both a humorous landscape feature and a scenic overlook, providing a view over the Emscher River, so that visitors could see for themselves how badly polluted it was. The water from the toilets together with the water from the river was pumped into a septic tank, what made the whole process visible and served the project’s educational purpose. All possible elements of the water system were installed outdoors, so that all the stages of water filtration process were easy to examine. A system of stairs and landings led the visitors downstairs among the verdured containers which were parts of the helophyte filter. The purified water was then mixed with rainwater harvested by a specially constructed roof of 40 m2 area. The initially filtrated water was stored in clean water tanks – two, big, blue “pillows”, each of them of 5000 l capacity, which were also used as trampolines and settees. Water at this stage was destined to water the Community Garden. The garden, of 170 m2 area, was situated upon the Rhine-Herne Canal and intended for leisure, a “green gate” as it was the entrance to the installation. The culmination of the whole venture was a fountain installed by the Rhine-Herne Canal, which provided visitors with drinking water (Fig. 2).

The installation was designed in a bold, industrial style. The project’s coloured elements were immersed in greenery: yellow toilets and rainwater-harvesting roof, red sedimentation tanks and blue “pillows” accumulating clean water. They drew the attention of passer-bys and emitted positive energy (Fig. 3).

Despite the fact that the presented solution was temporary installation, it might be easily adapted to other, riverside areas. The project focused on the protection of natural environment and it combined recreation with education in a very creative way. By architectural and engineering means the process of water treatment can be learned in a simple and pleasant manner – through the interaction of a user with the elements of installation. This project also touches upon the issue of creating a user-friendly public space for local community.
Island. Synchronization

The problem of water treatment was also brought up by a project ‘Island. Synchronization’. It presented a very useful idea of a mobile water treatment station, placed on the surface of the Vistula River. The project by Jakub Szczęsny, a member of the Designers’ Team “Centrala”, combined two, very important aspects – care for the environment, in that case the treatment of river water, and care for human health (Fig. 4).
This floating island was a platform on a dodecagon plan with a centrally situated fountain, around which fitness facilities were disposed: three treadmills, three exercise bicycles and three rowing machines. With the help of muscle strength – while running, cycling or rowing – polluted river water was pumped and filtrated. Kinetic pumps carried water to tanks which surmounted the fountain and were equipped with special filters: sand, carbon and reverse osmosis filter. Water, purified by means of muscle strength, flowed through the fountain ready to drink (Szczęsny, 2010) (Fig. 5).

The construction of the platform drifted thanks to the system of space frame trusses rested on twenty four steel barrels. The platform was connected with mainland by a ladder, which was closed for the night and wide enough to board the platform on a wheelchair. In winter, off-season, the platform could be moored at one of the local wharves (Fig. 6).
‘Synchronization’ was an idea of a joint effort – both muscle and community work. Drinking water, being the result of teamwork, proved that everybody could do something to increase the quality of natural environment in their city. This project pointed out the fact that modern architecture might and should meet current needs related to ecology and restoration of urban public space. The problem of river pollution is commonplace in Poland. ‘Island. Synchronization.’ project had the chance of succeeding. Consulted with experts on alternative energy, hydrodynamics, water treatment systems, ecology and ornithology, it could become a prototype of local water treatment stations on a national scale. Alas, the implementation of the project did not come into effect.

**Theatre evolutif**

A positive, because an accomplished example of urban space restoration is the design of ‘Theatre evolutif’ on a square in Bordeaux. The authors are: Ooze Architects (Eva Pfannes & Sylvain Hartenberg), Marjetica Potrc, Bureau d’études (Xavier Fourt & Leonore Bonaccini). The project was implemented as part of international artistic festival Evento 2011 with a motto “Art of re-evolution”. The name ‘Theatre evolutif’ relates to a theatre as a place of interaction between an audience and an actor as well as to the process of evolution – here, a process of adaptation to the ever changing surroundings and their users needs. The subject of the project was a square in the centre of Bordeaux, near a railway station. Three months before the beginning of the festival, a team of architects, artists, city dwellers and representatives drew up a charter outlining the common goals of a future project. The crucial idea was filling the void of this centrally situated square, which up to that moment did not exist in the dwellers’ consciousness. All actions taken were aimed at using the potential of the area and restoring it to the city. The square now presents a new form of human and nature coexistence in urban structure. The space was arranged by means of simple and cheap elements. The basic building material is timber regained from neighbouring building sites. Soil from a nearby underground car park building site was used to diversify the relief. An element predominating over the square’s space is a wooden, open-work roof construction (Fig. 7).
Figure 7. Concept / Théâtre évolutif / Marjetica Potrč, Ooze (Eva Pfannes and Sylvain Hartenberg) and Bureau d’études (Léonore Bonaccini and Xavier Fourt) / Evento 2011 / Courtesy of the artists / http://www.ooze.eu.com

Wooden posts box off various zones – clusters which serve as: a library, a scene – a place for expression, kids zone, a bricolage room and a tool closet, a music stand, bee and insects keeping, a field kitchen, a cafe and a gridiron. The important feature of the project is water circulation. Rainwater is harvested from the roof and supplies a public, open air toilet, surrounded by bushy greenery. It is also used to water the garden. Additionally, after flowing through a helophyte filter, purified, it runs to a drinking water station and is ready to drink (Fig. 8).

Figure 8. Water cycle / Théâtre évolutif / Marjetica Potrč, Ooze (Eva Pfannes and Sylvain Hartenberg) and Bureau d’études (Léonore Bonaccini and Xavier Fourt) / Evento 2011 / Courtesy of the artists / http://www.ooze.eu.com
This is a modern agora. A place where people can meet, share their views and interests. The project can be viewed as a prototype of an urban ecosystem – an elastic public space, filled with people and their activities. An extraordinary and innovative thing about this project is the real commitment of dwellers in creating and building. This architecture is not a monument, an unwitting element of space, but a living organism manipulated, transformed and adapted to the needs of its users (Fig. 9).

Figure 9. “L’Assemblée” – “Atelier construction d’habitats pour les insects” / Théâtre évolutif / Marjetica Potrč, Ooze (Eva Pfannes and Sylvain Hartenberg) and Bureau d’études (Léonore Bonaccini and Xavier Fourt) / Evento 2011 / Courtesy of the artists / http://www.ooze.eu.com

CONCLUSIONS
The presented examples come from different countries: France, Germany, Poland. But the idea is common. They show how modern architecture can react to the current issues of ecology and sustainable development. They prove that every one of us has a true effect on the condition of the environment we live in. Every one of these projects concerns the problem of water treatment:
- project 'Between the Waters - Community Garden, and autonomous water treatment system in Essen' presents the process of purifying contaminated water from the river as part of a friendly and interesting public space installations,
- project 'Island. Synchronization' promotes an active way for spending free time, as well as benefits of collective effort, and the idea of easily adaptable riverside recreation facility
- project 'Theatre evolutif in Bordeaux' uses simple forms of expression and recycled materials and shows the way of building community at the same time promotes environmental responsibility.

They are designed to combine recreation with information on water use cycle and its renewable sources. They are temporary and easily adapt to new, different venues. They also have a very important, social dimension. They refer to the idea of social responsibility by creating a place in public space where people can co-operate for common cause. Presented in the article examples challenges to rethink architecture and see it in the context of social intervention tactics.

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