Sustainable Architecture in the Context of Regional Activities

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Abstract. The relationship between man and the surrounding cultural environment directs attention in urban and architectural design to the realm of interdisciplinary research. As a result, they should create architectural and urban solutions which provide aesthetic satisfaction. They should also generate social bonds, a sense of identity and maintain the specificity of the local building environment, where tradition and the context of surroundings is the starting point for creating a sustainable living environment. Presented problems focus on the analysis of formal, functional and spatial solutions, in which materials and technology were selected in an optimal way. The continuation of the subject concerns the relationship between the use of the local urban, architectural, material and technological solutions and the quality of the cultural space that meets the principles of sustainable development. Adaptation and transformation of old techniques and traditional materials to create contemporary designs is one of the forms of experimentation encountered in contemporary architecture. Its economic, social and ecological aspects are realised in the form of: satisfying the needs of the local community, renewal and maintenance of modern standards of the surrounding buildings, use of local materials and available space. This means striving to design and transform the space already in use, while reducing the impact on the environment. Analysed buildings and urban spaces are an attempt to answer: whether the strategies applied in the field of architectural, technological and material solutions provide the identification of the place and meet the users' expectations?

1. Introduction

Solving problems of the natural and cultural environment protection is a continuous process of shaping approach to creating a sustainable living environment. The interdisciplinary search brings new ways of understanding the complex urban and architectural reality. Accepted design principles are to take into account the diversity of local conditions. An important aspect is the strength of the cultural heritage and well understood continuation of local tradition [1]. These basic values noticed in the last years by the Pritzker Prize jury confirm the validity of such actions. Innovative approach to local conditions and local resources consistently implemented by the architects - Wang Shu, Peter Zumtor or Eduardo Soutu de Moura - shows how the building in harmony with local needs can protect and enhance natural and cultural space.

2. Tradition and context of surrounding in the architecture of Wang Shu

Wang Shu is the architect respecting local tradition and context of the place. He spent many years working on building sites to learn how to build and form objects created by earlier generations. The acquired knowledge is used to create modern designs. Research led by Wang Shu and his will to experiment have won him the Pritzker Prize. The jury stated: "In buildings designed by Shu, tradition and contextual approach are the starting point for creating a universal and timeless architecture."
The Pritzker Prize awarded to Wang Shu in 2012 highlights the importance of the regional activities for the development of contemporary architecture and urbanism. A common feature of objects designed by Shu is a simple, readable form which is complemented by applied technology, functional and spatial solutions and the detail. It creates a new quality of architecture of blocks integrally connected with the place in which they arise [2].

Local connotations are magnified by natural materials which were used for the construction such as stone, recycled brick or roof tiles. The use of recycled materials revitalizes and renews cultural space indicating the direction of the development of sustainable architecture in the context of local conditions.

Realized by Wang Shu the project of Ningbo History Museum in Ningbo (China), does not overwhelm with its size despite the significant volume ‘figure 1’. Facades of the individual elements of the building made from recycled materials (roof tile and brick), stone, concrete of shoots of bamboo texture and wooden platforms – accustom the space inside and outside the building. The Museum building is an example of the search for innovative solutions with the optimum use of local conditions and authentic resources. So, Wang Shu builds the potential of the place. He creates a public space accessible to all residents, thus cementing their identity and generating social bonds.

Figure 1. Museum of Ningbo in Ningbo, China. Completion: 2003-2008, Photo: LV Hengzhong. On the right: a fragment of museum walls of stone and roof tiles and bricks of recovery. Source: Magazyn Architektoniczny SARP - "Arch" [Architectural magazine of the Association of Architects of the Republic of Poland - "Arch"] March/April 2012 [3]

3. Tradition and context of surrounding in the architecture of Peter Zumthor
Peter Zumthor is another architect whose work supports the creation of a sustainable cultural environment. His projects both in close urban zone and in the natural environment emphasize the importance of place, community and the role of the material used.

The project of thermal baths in Vals tries to reconcile architecture and nature. The system of interpenetrating interiors built partly in the side of a mountain provides spectacular views and water-filled stone space, encouraging to have bath ‘figure 2’.

Following the beauty and perfection Zumthor has combined environmentally friendly technological solutions with the architecture of the building. He built the massiveness and homogeneity of the rock block from thin strips of gneiss which he covered the concrete walls with. The strips were the waste material of floor slabs and wall produced in the local quarry.
The use of local material and putting it in the context of the mountain side balances the use of the land resources thanks to their restauraution. Zumthor uses local raw materials and available space, limiting the impact of an object on the surrounding natural and cultural environment.

Proposed by Zumthor, a form of land development through its renewal is the best example of a sustainable architecture in the context of regional actions. Approach to design and transform the space proposed by Wang Shu and Peter Zumthor - awarded with the Pritzker Prize - tend to create local designing offer in accordance with the cultural context [4]

Figure 2. The building is integrated into the landscape. The interior and exterior penetrate each other. Thin stone tiles built massiveness and uniformity of tectonic elements of the building, giving them the character of a block of rock. Source: Photo by: www.designrulz.com [5]

4. Actions in the area of Cracow-Częstochowa Upland called Jura.
The above question applies equally to large cities and smaller towns. The author tries to refer to the area of municipality of Olsztyn near Częstochowa, which belongs to the area of Jura. The unique natural, ecological and cultural values of the municipality of Olsztyn and its surroundings reinforce the trend towards sustainable development of the area. This trend concerns:

- the new land development,
- the maintenance and conservation of the existing valuable urban and architectural forms and their renewal,
- the preservation of the existing landscape values and dominants of cultural and natural environment.

Renewal of the existing tradition and the attempt to carry them on is the basis for the development of new forms of architecture [6].

In the absence of local arrangements in the field of "Design guidelines" action of Research-study on traditional forms of development in the area should begin. The adopted course of action assumes to define the cultural resource and its valorisation. The landscape analysis provides a wider background to the adopted measures. It is particularly important in relation to the municipality of Olsztyn. The ruins of the castle towering over the village, everywhere present limestone uplifts and varied terrain influence the character of the entire village ‘figure 3’. Considering it, valorisation of urban space and architecture of the municipality is possible. Landscape context reinforces the image of the cultural space, affecting the design concepts taking into account the character of the local buildings [7]. Numerous surviving
examples of the existing rural buildings (homestead) and small-towns are a valuable research material ‘figure 4’.

Figure 3. Landscape and cultural values of the Olsztyn municipality near Częstochowa (Silesia). Characteristic uplift of limestone visible in the foreground. In the background - ruins of a medieval castle on a hill. On the right: Fragment of a wall of limestone. Visible ammonites are the remnants of the Jurassic period.

Figure 4. Choroń. St. Gorska. Characteristic example of a limestone building. The use of local building materials. Source: photo by Andrzej Kos

5. Conclusions
Presented objects and approach to building development is the introduction of modern aesthetics. It is a continuation of traditional forms of a building layout. The attractiveness of the created space is to encourage residents to continue the accepted architectural and urban solutions. Moreover, it will prompt them to interact in the area of the proposed functional solutions. There is an opportunity to build according to the tradition and contemporary cultural trends. A chance of traditional construction and contemporary cultural tendencies building will naturally emerge.
Such an approach to the design process requires from the architect to choose the sources of inspiration and valorise them. For the area of Jura presented by the author, it may be: landscape values in the form of relief and occurring rock formations; form and layout of local architecture; building materials used in a studied area.

Architecture inspired by local tradition is highly appreciated in the world which is confirmed by numerous awards in international competitions. In the era when globalization and standardization affect the architectural sector, the trend of regional architecture stands out with its expression, form and detail which make up its timeless character.

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